

# THIRTY-THIRD ANNUAL REPORT

OF THE

# Board of Health of the State of New Jersey

1909

ND

Report of the Bureau of Vital Statistics



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TRENTON, N. J., Oct. 31, 1909.

*To His Excellency, John Franklin Fort, Governor of New Jersey.*

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

Very respectfully,

BRUCE S. KEATOR,

*Secretary.*

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## Board of Health of the State of New Jersey.

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### MEMBERS.

JOHN H. CAPSTICK, President.....Montville  
GEORGE P. OLCOTT, C. E., Vice President.....East Orange  
BRUCE S. KEATOR, M. D., Secretary.....Asbury Park  
HARRY M. HERBERT, C. E.....Bound Brook  
JOHN J. MARNELL.....Hoboken  
WILLIAM H. CHEW.....Salem

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### STANDING COMMITTEES.

Vital Statistics—George P. Olcott and William H. Chew.  
Cemeteries, Burial and Transportation of the Dead—Harry M. Herbert  
and John J. Marnell.  
Epidemics and Supervision of Lines of Travel—John J. Marnell and  
William H. Chew.  
Drainage, Sewerage and Water Supplies—Harry M. Herbert and William  
H. Chew.  
Public Institutions—George P. Olcott and Harry M. Herbert.  
Auditing—John H. Capstick and Bruce S. Keator.  
Examiners of Applicants for Appointments—William H. Chew and  
Harry M. Herbert.

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

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

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## Report of the Board.

*To His Excellency, John Franklin Fort, Governor,*

TRENTON, New Jersey.

SIR:—The State Board of Health presents herewith its report for the year ending October thirty-first. The work of each Division is shown in detail by the heads of each department in their reports which accompany this.

The Board feels that in the past year much has been accomplished in New Jersey toward safeguarding the public health. In the matter of new legislation, especially, greater progress has been made than for many years past. Laws have been enacted which have long been needed and which should so increase the efficiency of the health authorities, if money is appropriated to enforce them, that a marked improvement will be noted in sanitary conditions throughout the State.

In the report of the Board last year attention was called to the lack of funds with which to properly carry on the work of the various divisions. This year in view of the new legislation the need of more money has been especially felt and the members of this Board believe it their duty to call the attention of the Executive and the Legislature again to this matter. Additional appropriations must be made if the highest efficiency in the administration of the health laws is to be secured. The opinion of the medical men of the State in regard to the necessity of an increased appropriation for this department is indicated by reference to a recent editorial by Dr. D. C. English, in the Journal of the Medical Society of New Jersey in which he says:

“Here is one of the most defective pages in New Jersey’s record concerning its health laws, which has caused her to fall behind some of her sister states, notably New York, Pennsylvania, Massachusetts and Michigan, when from her position and the general intelligence of her citizens, she should stand at the forefront. We mention, for example, the insufficient appropriation made annually for the State Board of Health and especially for the work of the bacteriological laboratory. One medical inspector for the entire State, on whom in no small degree rests the lives and health of our citizens in times of threatening or prevailing epidemics, when

there should be not less than five inspectors. Think of the miserable pittance allowed for the work of the laboratory—so exceedingly important—which provides for less than one-fifth of the force that the work demands, compelling overwork of the few, sometimes day and night, and confining them to quarters which for highest efficiency should be multiplied eight or ten times in space provided. Should this department of our State government be so crippled while others of far less importance are well provided for?"

Of course the State Board of Health can hardly expect to receive an amount of money sufficiently large to put the department on the footing as suggested in Dr. English's editorial, much as it is to be desired that the Health Department should be so enlarged, but it does feel that it is its duty to set forth the needs of each division that the proper authorities may know where additional appropriations should be made.

In the Division of Vital Statistics the number of certificates of births, marriages and deaths increases each year, and statistical tabulations and computations require an increased clerical force. At the present time the clerical assistants in this division do not receive adequate compensation for the service rendered, and the salaries they receive are less than those paid to employees doing similar work in other state departments.

In the Division of Medical and Sanitary Inspection, which has to deal with local Boards of Health and epidemics, there is but one inspector to cover the entire State. At the last session of the Legislature a request was made of the Appropriation Committee for two additional inspectors but on account of the condition of the State Treasury at that time an appropriation for only one inspector was granted. At least \$2,500 should be appropriated to pay the salary and expenses of an additional inspector in this division.

The Division of Creameries and Dairies has supervision over one hundred and forty creameries and approximately eight thousand dairies. The inspections at the present time are made by three inspectors, and it is a physical impossibility to examine dairies at sufficiently frequent intervals to ensure compliance with sanitary regulations and secure still farther improvement in the quality of the milk produced and sold. The Division has, therefore, been limited in its operation, and although marked improvement in former conditions on dairy premises has been effected during the last year, the addition of one inspector would materially increase the efficiency of the work of this Division. It is estimated that \$2,000 would pay the salary and expenses of such an inspector.

The Division of Sewerage and Water Supplies has a total appropriation for the coming year of \$12,000. This division

originally had supervision over sewer plants and water supplies in the State. During the last session of the Legislature additional laws were passed which increased the work of this Division so that at the present time it has supervision over the contamination of all streams in the State, and also of streams from which oysters are taken. A law was also passed which required the examination of spring waters which are sold. The work of the Division, therefore, has to deal with matters which directly and indirectly affect public health, and ample funds should be provided if this department is expected to carry out the duties imposed upon it by existing laws. The action of the Legislature last year in reducing the appropriation of this Division from \$15,500 to \$12,000, seriously hampered important work and the former sum should be restored as well as money appropriated for the employment of additional inspectors.

In the Division of Food and Drugs and the Laboratory for bacteriological examination and research work additional legislation has added to the labor of the Division so that the working force should be increased by at least six inspectors who could be continuously employed in the examination of places where foods are prepared and in the enforcement of the law requiring sanitary conditions in all such stores and factories. It is estimated that \$6,000 would pay the salaries of the inspectors and that \$1,200 would cover their necessary traveling expenses. Two additional assistants are needed in the laboratory and \$1,200 would provide for their salaries. The court costs in cases of litigation for violations of the Food and Drug Law are now taken from the general appropriation for this Division, and all fines collected, amounting to about \$14,000 for the past year, are paid directly into the State Treasury. The original appropriation for this Division, which was \$20,000, was last year reduced to \$15,000. This should be replaced. The limited appropriation of this department has necessitated during the past the use of evidence secured by persons outside of the State for violation of the oleomargerine law, when the State should provide ample funds for this purpose itself. An addition of \$15,000 to the present appropriation would be a small amount, for carrying on the work of this division, compared to the appropriations made for similar purposes in other States.

With the force at its command and with its limited appropriations the Health Department has done much to commend it in the last year. In the reports of the Division Chiefs the work is reported in detail and the several suggestions offered therein are worthy of special attention.

In the Division of Sanitary and Medical Inspection, the work of inspecting the charitable and penal institutions of the State is resulting in improved conditions. Already fifteen public institutions and nineteen county jails have been inspected and the suggestions made by the Board as a result of these inspections have been, in most cases, complied with to the manifest advantage of the inmates of these institutions or prisons. This year the county almshouses will be inspected and if possible the city lockups will be given much needed attention. This Division has demonstrated forcibly during the past year the value of the law which requires the prompt reporting by physicians of all cases of contagious diseases occurring on dairy premises. The measures taken by the Board when such cases were reported under this act, are believed to have prevented serious outbreaks of diseases that in the past have so often been carried by milk.

The outbreak of diphtheria in the Village for Epileptics at Skillman demonstrated the need for isolation hospital facilities in every State or other institution in which a large number of persons are cared for. This is a matter which should engage the early attention of the managers of these institutions.

In the report of the Board last year the desirability of securing uniform action between all local health boards was pointed out, and the Board has been working through the year to accomplish this. Some progress has been made but not as much as this body would like to report because of an insufficient number of trained men for the work. The public is so dependent upon local health authorities for protection that the local boards should be well advised that they may efficiently serve their various communities.

The Division of Creameries and Dairies although handicapped by an inadequate number of inspectors has done more thorough and satisfactory work during the past year than has ever been done before in the history of New Jersey dairy inspection. An idea of the magnitude and importance of the work of this Division may be gained when it is known that there were an average of 440,422 quarts of milk received daily at the 140 creameries in New Jersey, during the past year. The money value of the milk produced at the creameries and dairies inspected by this Division reached the total of \$8,007,005, for the year. In connection with the production of milk the Board views with satisfaction the increasing spirit of co-operation that is growing between the State and local Boards of Health to secure a better milk supply. Many of the local Boards are now prohibiting in their districts the sale of milk from dairies which do not obtain

the score required by the State Board. If this plan were adopted in every municipality of the State the unsanitary dairy with all its dangers to the public health would speedily disappear.

The efficiency of the Division of Food and Drugs, notwithstanding its meagre force of inspectors is demonstrated again this year in the decreasing number of prosecutions ordered for the violation of the food and drug laws. This is due to a better quality of foods offered for sale and to the rigid enforcement of the food and drug laws by the State and National authorities. It is a hopeful indication of even better results in the future. The value of the work of this Division to the public cannot be overestimated. The demands from local Boards of Health for assistance in inspections under the more recent food and drug acts are constantly increasing but it is impossible for the Board to comply with all of these requests in this already overworked Division. The Legislature should lose no more time in remedying such conditions.

The work in the State Laboratory during the year has been of the highest order. The record of this department in the Skillman diphtheria outbreak when over 11,000 specimens were examined and reported upon during three months has never been equalled in the history of the State.

In the Division of Sewerage and Water Supplies much valuable work has been done during the year. A considerable reduction in the pollution of streams is noted in the report of the Chief of this Division, but it is a work of great magnitude because of the difficulty in locating minor and individual pollutions, and although a good beginning has been made, it will take much more time to accomplish it fully. Public sentiment, at first adverse to improvements along these lines because of the expense involved, is gradually being awakened to the danger of contaminated water supplies and is demanding improved conditions. As a result of the work already accomplished by this Division it is believed that New Jersey is far in advance of most of the other States in the work of cleaning up its streams. During the year the inspectors of this Division have traversed 5,125 miles of water front and have reported 1,501 cases of pollution. There are now in the State 63 public and semi-public purification plants of various designs in operation and 14 additional plants are nearing completion.

In the Division of Vital Statistics the same careful and accurate work that has characterized this department in years past has been done.

The death rate in New Jersey as shown by the returns made

to this Division for the past year was the lowest with one exception for the past thirty years.

Although new laws have increased the efficiency of this Division there is still urgent need of more legislation. A new marriage license law requiring residents as well as non-residents to secure licenses is imperatively demanded. A law remedying the defects discovered in the enactment which failed to become a law last winter will be introduced at the coming session of the Legislature and should be passed.

Concluding, the Board again urges an appropriation for the purpose of publishing a bulletin at intervals of every three or six months. By no other method can the people of the State, local Boards of Health, physicians and sanitarians be kept so well in touch with the State authorities. The expense would not be great and the advantages many. The present method of yearly reports is good so far as it goes but the reports are so often delayed from various causes that they lose much of their freshness. A bulletin, carefully prepared, issued as often as funds would permit would keep the public informed on matters of timely interest and importance and would prove, in the judgment of the Board, an invaluable means of advancing the interests of the public health.

JOHN H. CAPSTICK,  
BRUCE S. KEATOR,  
GEO. P. OLCOTT,  
HARRY M. HERBERT,  
WILLIAM H. CHEW,  
JOHN J. MARNELL.

## Secretary's Report.

*To the Board of Health of the State of New Jersey.*

GENTLEMEN:—An examination of the annual reports of the State Board of Health from the time of the organization of the Board to the present indicates that an entire change has taken place in the legislative policy which determines the relation of the State Board of Health to the supervision over the administration of local sanitary matters. The original act of 1887, which conferred upon local authorities full power to deal with all matters affecting the public health placed the State Board of Health in almost an entirely advisory relation, and therefore for many years the annual reports contained numerous articles on sanitary subjects which were intended to educate the people of the State, and to develop a strong public sentiment which would result in a demand upon local boards of health to fulfill their obligations and give ample protection to the inhabitants of the various sanitary districts. As a result of this educational effort on the part of the State Board of Health, and of the increased knowledge obtained by the public from articles on sanitation in magazines and newspapers and through the interest in the subject created by the numerous charitable and civic organizations which have been formed, the people of the State came to realize that some of the local boards of health were inefficient, and began to demand that direct power should be given to some central bureau which would insure the protection of health which the original law intended to provide. With the public making this demand for a change in the policy of administration numerous laws were presented to and passed by the Legislature giving the State Board of Health the power to directly deal with many of the important sanitary problems, such as pollution of streams, the control of sewage disposal plants, supervision over public water supplies, protection of public water supplies from which oysters are taken, preventing the sale of unwholesome foods, control over contagious diseases in institutions, etc., etc.

It is evident that the duties of the board are now more executive in character, and the report which is presented this year



deals with actual work which has been done by each of the divisions. A brief resume of the divisional work is given in the secretary's report and following this full reports of the divisions are given. We feel that a careful review of the work of the year will lead to the conclusion that an earnest effort has been made in each division to secure increased efficiency. As the secretary of the board is designated under the law as Medical Superintendent of Vital Statistics this subject is first presented.

**Vital Statistics.**—There is no question but that vital statistics are the basis upon which to improve the methods, and measure the results of sanitary administration. In these records is found justification for the application of the laws of hygiene, for it is observed that high death rates uniformly attend certain conditions which are universally known to be unhealthful. Almost all of these unhealthful influences are preventable, and they may be averted or removed by the exercise of the well-understood precautions which prevent needless pollution of air, soil and water. Mortality records have shown that the death rate varies from fifteen to eighty per thousand in different places, and study of local conditions has shown that this wide variation is due to personal and domestic factors, and to certain avoidable influences, and it is upon the foundation afforded by these facts that the science of hygiene is based.

For several years this department has been making efforts to perfect the state law in reference to reporting births and deaths and appeals to the medical profession for co-operation in this important work have been frequent. In order to bring the Vital Statistics of New Jersey to a point where they will be accurate and reliable for all purposes, every birth, marriage and death that takes place must be properly recorded. On October 1, 1909, chapter 109, laws of 1909, became effective and hereafter all births are required to be reported within five days and any intentional violation of this act if brought to the notice of the proper authorities will be carefully investigated and the guilty parties will be liable to prosecution.

The gradual perfection of statistical methods and the increased number of states now using uniform classification, naturally results in a more extensive use of statistics for study and comparison, therefore the adoption of what is known as the standard certificate of death and of the tabulation of causes of death according to the international classification, is necessary in New Jersey. With a more practical certificate of death and an improved method of classification we may look for a rapid improvement in the work of vital statistics of this State and a more gen-

eral understanding of the practical utility and high value of such statistics.

The following tables and charts showing the births, marriages and deaths in New Jersey, with comments thereon, are arranged in order that those who use them for reference may readily refer to the history of any classified disease, in this State, for the past thirty years.

Beginning Jan. 1, 1910, the revised international classification of causes of death will be introduced into this department, and by this arrangement it is hoped that the Vital Statistics of New Jersey will be eminently more satisfactory both for study and comparison.

**Population.**—The estimated population of the counties of New Jersey and also of forty-eight of the larger municipalities, for the year 1908, is stated in the following table. This table also shows the census figures for the past twenty-six years.

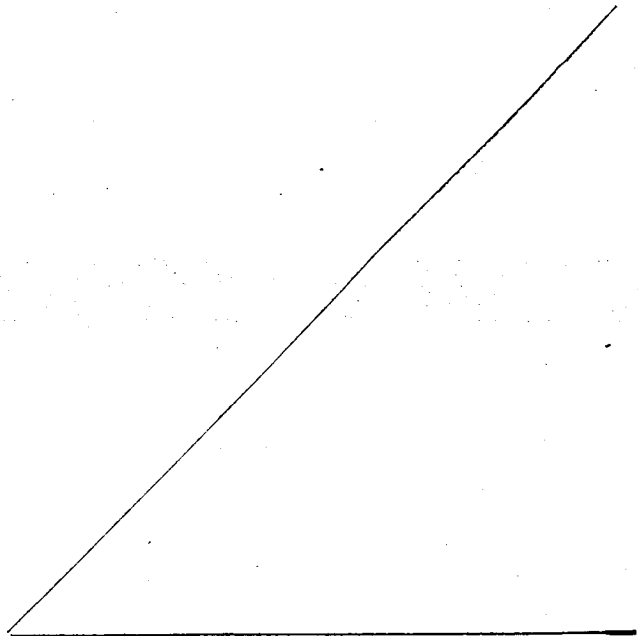


TABLE 1.—POPULATION OF THE COUNTIES OF NEW JERSEY AND OF MUNICIPALITIES HAVING 5,000 INHABITANTS OR OVER FOR THE CENSUS YEARS 1880, 1885, 1890, 1895, 1900, 1905, AND ESTIMATED POPULATION FOR 1908.

	1880.	1885.	1890.	1895.	1900.	1905.	1908.
Atlantic County.....	18,704	22,356	28,836	34,750	46,402	59,862	87,938
Atlantic City.....	5,477	7,942	13,055	18,329	27,838	37,593	43,446
Bergen County.....	36,786	39,880	47,226	65,251	78,441	100,003	112,940
Englewood.....					6,253	7,922	8,923
Garfield.....						5,092	6,045
Hackensack.....			6,004	7,282	9,443	11,098	12,091
Rutherford.....						5,218	5,702
Burlington County.....	55,403	57,558	58,528	59,117	58,241	62,042	64,323
Bordentown.....	5,334	5,857	5,090	5,176	4,110	4,073	4,051
Burlington.....	7,237	7,690	7,264	7,844	7,392	8,038	8,428
Camden County.....	62,942	76,685	87,687	100,104	107,643	121,555	129,902
Camden City.....	41,659	52,584	58,313	63,467	75,935	83,363	87,820
Gloucester City.....	5,847	6,564	6,564	6,225	6,840	8,055	8,784
Cape May County.....	9,765	10,744	11,268	12,835	13,201	17,390	19,903
Cumberland County.....	37,887	41,982	45,438	49,815	51,193	52,110	52,660
Bridgeton.....	8,722	10,065	11,224	13,292	13,913	13,624	13,781
Milville.....	7,680	8,524	10,002	10,466	10,588	11,884	12,662
Essex County.....	189,929	213,764	256,048	312,000	359,053	409,928	440,453
Bloomfield.....			7,708	8,093	9,668	11,668	12,868
East Orange.....			13,282	17,927	21,506	25,175	27,376
Irvington.....					5,255	7,180	8,335
Montclair.....				8,656	11,733	13,962	16,370
Newark.....	136,508	152,988	181,830	215,808	246,070	283,289	305,620
Orange.....	13,207	15,231	18,844	22,792	24,141	26,101	27,277
West Orange.....			4,358	5,854	6,889	7,872	8,462
Gloucester County.....	25,886	27,603	28,949	31,191	31,905	34,477	36,020
Hudson County.....	187,944	240,342	275,128	328,686	396,048	449,579	483,178
Bayonne.....	9,372	13,080	19,033	19,850	32,722	42,262	47,986
Harrison.....	6,398	6,806	8,338	9,672	10,596	12,822	14,159
Hoboken.....	30,999	37,721	43,645	54,083	59,364	65,468	69,130
Jersey City.....	120,722	153,513	163,003	182,713	206,433	232,999	248,459
Kearny.....				10,487	10,596	13,601	15,224
Town of Union.....	5,849	8,398	10,613	13,336	15,187	17,005	18,996
West Hoboken.....			11,665	18,296	23,094	29,082	32,675
West New York.....					5,267	7,196	8,353
Hunterdon County.....	38,570	37,420	35,355	35,334	34,507	33,258	32,509
Lambertville.....						5,016	5,243
Mercer County.....	58,061	66,785	79,978	85,538	95,365	110,516	119,507
Chambersburg.....	5,437	8,542				6,029	7,307
Princeton.....	29,910	34,386	37,458	62,518	73,307	84,180	90,704
Middlesex County.....	52,286	56,180	61,754	70,058	79,792	97,036	107,400
New Brunswick.....	17,166	18,258	19,603	19,910	20,006	23,133	24,409
Perth Amboy.....			9,512	13,030	17,699	25,895	30,813
South Amboy.....			4,380	5,571	6,349	6,258	6,203
Monmouth County.....	55,538	62,324	69,128	75,543	82,057	87,919	91,436
Asbury Park.....						87,919	91,436
Long Branch.....		5,140	7,231	7,333	8,872	12,183	14,704
Red Bank.....			4,145	4,888	5,428	6,263	6,764
Morris County.....	50,861	50,675	54,101	59,536	65,156	67,934	69,601
Dover.....					5,938	6,353	6,602
Morristown.....	6,837	8,760	8,156	10,290	11,267	12,146	12,673
Ocean County.....	14,455	15,586	15,974	18,739	19,747	20,880	21,560
Passaic County.....	68,860	88,374	105,046	133,227	155,202	175,858	188,252
Passaic City.....	6,532		10,028	17,894	27,777	37,837	43,873
Paterson.....	51,031		78,347	97,344	105,171	111,529	115,344
Salem County.....	24,379	25,373	25,151	26,084	25,530	26,278	26,277
Salem City.....	5,056	5,316	5,516	6,337	5,811	6,443	6,822
Somerset County.....	27,162	27,425	28,311	30,447	32,948	36,270	38,263
North Plainfield.....					5,009	5,616	5,980
Sussex County.....	23,539	22,401	22,259	22,586	24,134	23,325	22,840
Union County.....	55,571	61,839	72,467	85,404	99,353	117,211	127,926
Elizabeth.....	28,229	32,119	37,764	43,834	52,130	60,509	65,536
Plainfield.....	8,125	8,913	11,267	13,629	15,369	18,468	20,327
Rahway.....	6,455	6,861	7,105	7,945	7,935	8,649	9,077
Summit.....				4,430	5,302	6,845	7,771
Westfield.....						5,265	5,827
Warren County.....	36,569	37,737	36,553	37,283	37,781	40,403	41,976
Phillipsburg.....	7,181	8,058	8,644	9,051	10,352	13,352	15,352

TABLE 2.—SHOWING NUMBER OF WHITE AND COLORED INHABITANTS IN NEW JERSEY, WITH DEATH-RATES PER 1,000 POPULATION, FOR EIGHT YEARS, 1901-1908.

YEARS.	Estimated population (total).	Estimated population (colored).	Total death-rate.	Death-rate, white.	Death-rate, colored.
1901.....	1,883,669	72,011	16.48	16.65	21.79
1902.....	1,925,781	74,178	15.91	17.33	21.00
1903.....	2,016,797	76,345	15.87	15.44	21.32
1904.....	2,058,920	78,512	17.14	16.91	22.95
1905.....	2,144,143	79,485	15.79	15.57	21.59
1906.....	2,196,238	80,458	16.24	16.02	22.09
1907.....	2,248,331	81,431	16.63	16.42	22.47
1908.....	2,300,427	82,404	15.47	15.23	22.04

**Births.**—The number of certificates of birth received during the year ending December 31, 1908, was 47,405 and the birth-rate 20.61 per 1,000 inhabitants, which is the highest rate during the past fourteen years. While the registration of births in this state has improved, it is not yet complete enough for practical purposes and the cordial support of the medical profession is necessary to correct this difficulty.

Chapter 109, laws of 1909, is a step forward in the matter of registration of births and the said act should be supplemented with a revision requiring each child to present a public record or certificate of birth upon entrance at school or upon beginning employment of any kind. In this manner the importance of proper registration will be realized and an accurate record of each birth will be filed.

TABLE 3.—SHOWING POPULATION, NUMBER OF BIRTHS REPORTED, NUMBER OF MARRIAGES AND NUMBER OF DEATHS IN NEW JERSEY, WITH BIRTH-RATES, MARRIAGE-RATES AND DEATH-RATES FOR THE THIRTY YEARS ENDING DECEMBER 31, 1908.

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...	1,020,594	23,116	22.65	7,096	13.91	20,440	20.02	
1880...	1,130,892	23,680	20.94	7,963	14.08	18,967	16.77	
1881...	1,180,275	23,484	20.24	8,109	13.98	20,812	17.94	
1882...	1,180,638	23,108	19.42	8,837	14.86	25,959	21.82	
1883...	1,209,048	24,430	20.21	9,166	15.16	23,310	19.28	
1884...	1,245,224	25,263	20.20	8,968	14.37	21,716	17.40	
1885...	1,278,033	24,077	18.84	8,989	14.07	23,307	18.63	
1886...	1,310,431	25,497	19.46	12,551	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	15,805	20.70	28,840	19.50	
1892...	1,511,653	30,627	20.26	16,082	21.28	32,885	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	30,787	17.90	
1897...	1,764,144	31,595	17.91	18,171	20.60	29,822	16.90	
1898...	1,810,008	32,515	17.96	18,213	14.59	27,537	15.11	
1899...	1,855,872	29,419	15.84	13,336	14.37	30,999	16.70	
1900...	1,883,669	32,270	17.13	14,611	15.51	31,474	16.62	
1901...	1,925,781	34,812	18.08	16,539	17.18	31,739	16.48	
1902...	1,967,893	35,116	17.84	18,150	18.45	31,319	15.91	
1903...	2,016,797	37,242	18.47	19,512	19.35	31,820	15.87	
1904...	2,058,909	38,751	18.82	18,919	18.38	35,298	17.14	
1905...	2,144,143	39,689	18.51	20,672	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	

\*Estimated except for census years.

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

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

**Marriages.**—The number of marriage certificates filed with the Bureau of Vital Statistics for the calendar year 1908, was 26,155, an increase of 2,506 over the previous year. There is no doubt but that many of the marriages solemnized in this State are those of non-residents and until New Jersey has a law requiring a license for all persons married no definite idea as to the exact marriage rate can be ascertained.

TABLE 4.—SHOWING NUMBER OF MARRIAGES RECORDED IN NEW JERSEY FOR THE THIRTY YEARS ENDING DECEMBER 31, 1908.

YEAR.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
Marrriages in New Jersey..	7,096	7,963	8,109	8,837	9,166	8,968	8,989	12,351	15,416	16,025
Persons married per 1,000 population.....	13.91	14.08	13.98	14.86	15.16	15.37	14.07	18.85	22.96	23.31

YEAR.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Marrriages in New Jersey..	15,726	15,564	15,305	16,082	17,178	16,245	15,873	18,370	18,171	13,213
Persons married per 1,000 population.....	22.34	21.60	20.70	21.28	22.33	20.59	18.98	21.38	20.60	14.50

YEAR.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Marrriages in New Jersey..	13,336	14,611	16,539	18,150	19,512	18,919	20,572	21,580	23,649	26,155
Persons married per 1,000 population.....	15.40	15.51	17.23	18.45	19.35	18.38	19.19	19.65	21.04	22.74

**Deaths.**—The number of death certificates filed during the year ending Dec. 31, 1908, was 35,597, a decided decrease from the previous year. The annual death-rate is 15.47 per 1,000 inhabitants and is the lowest, with one exception, than for any period during the past thirty years.

CHART SHOWING DEATH-RATES IN NEW JERSEY, PER 1,000 INHABITANTS FOR THIRTY YEARS, 1879-1908.

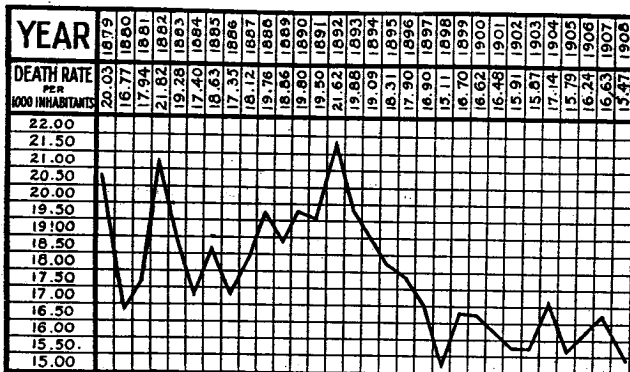


TABLE 5.—DEATHS IN NEW JERSEY, BY AGE PERIODS, FOR THE YEAR ENDING DECEMBER 31, 1908.

AGE PERIODS.	Total number of deaths.																			
	Under 1 mo.	Under 1 year.					1 to 5					5 to 90.					Over 90.	Not stated.		
Under 1 mo.	2655	5168	3048	833	519	817	1290	1382	1522	1692	1578	1683	1731	1752	4150	3305	1811	256	735	397

TABLE 6.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM CERTAIN CLASSIFIED DISEASES FOR THIRTY YEARS, 1879-1908.

DISEASES.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
Acute lung diseases.	2,160	1,988	2,208	2,752	2,756	2,174	2,566	2,300	2,557	2,922
Consumption, M.	2,788	2,714	2,989	1,696	1,327	1,557	1,673	1,651	1,910	1,723
Consumption, F.				1,779	1,594	1,658	1,647	1,554	1,743	1,635
Diarrhoeal diseases of children.	1,849	2,166	2,305	2,792	2,656	2,462	2,845	2,664	2,694	3,508
Adult brain and spinal diseases.	1,314	1,347	1,502	1,521	1,562	1,664	1,895	1,932	1,966	2,095
Brain and nervous diseases of children.	1,647	1,638	1,642	1,999	1,683	1,598	1,791	1,774	1,886	1,971
Diseases of the heart and circulation.	972	982	1,213	1,181	1,235	1,324	1,503	1,506	1,530	1,691
Diphtheria and croup.	1,100	873	1,128	1,472	1,146	1,027	1,496	1,303	1,527	2,036
Digestive and intestinal diseases.	1,041	1,005	1,080	740	923	1,075	1,140	1,213	1,242	1,476
Renal and cystic diseases.	558	516	650	765	759	892	839	926	873	1,030
Violent deaths.				793	907		857	997	1,051	1,320
Cancer.	378	425	451	402	461	484	498	546	574	612
Typhoid fever.	329	295	574	684	564	640	642	545	522	620
Scarlet fever.	627	573	499	1,306	833	547	646	222	255	574
Puerperal.	194	244	303	244	198	221	263	257	263	271
Whooping cough.	277	130	110	253	189	116	181	274	181	161
Malarial fever.	268	293	431	379	290	230	209	243	217	264
Measles.	77	87	70	206	131	189	135	88	296	74
Erysipelas.	137	109	124	94	90	80	74	79	96	128
Acute rheumatism.	76	64	89	52	33	62	36	68	132	142
Small-pox.		15	254	367	54	7	2	4	5	5
Total deaths per year.	15,797	15,542	17,539	25,910	23,310	21,716	23,807	22,784	24,331	27,173

DISEASES.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Acute lung diseases.	2,862	3,804	4,101	3,187	3,974	4,183	4,597	4,146	4,039	3,414
Consumption, M.	1,772	1,903	1,849	1,831	1,790	1,831	1,860	1,786	1,765	1,772
Consumption, F.	1,677	1,767	1,607	1,724	1,637	1,602	1,682	1,572	1,472	1,453
Diarrhoeal diseases of children.	3,377	3,527	3,191	4,043	3,981	3,893	3,746	3,807	3,450	2,958
Adult brain and spinal diseases.	1,991	2,308	2,333	2,457	2,611	2,413	2,626	2,610	2,582	2,700
Brain and nervous diseases of children.	1,923	2,032	2,029	2,242	2,072	2,038	1,925	2,018	1,809	1,642
Diseases of the heart and circulation.	1,786	1,945	1,960	2,183	2,179	2,112	2,268	2,412	2,473	2,286
Diphtheria and croup.	1,574	1,575	1,737	1,776	1,677	1,294	1,494	1,537	1,382	950
Digestive and intestinal diseases.	1,450	1,521	1,573	1,625	1,733	1,565	1,589	1,622	1,572	1,484
Renal and cystic diseases.	1,056	1,149	1,200	1,444	1,441	1,447	1,523	1,584	1,752	1,694
Violent deaths.	1,077	1,235	1,365	1,437	1,338	1,300	1,459	1,436	1,635	1,451
Cancer.	579	640	642	688	723	731	770	811	857	852
Typhoid fever.	724	782	695	628	506	485	508	577	478	450
Scarlet fever.	533	209	288	1,008	445	272	264	183	203	201
Puerperal.	254	250	296	282	282	293	294	293	278	264
Whooping cough.	278	371	299	163	237	328	272	275	321	155
Malarial fever.	203	195	180	198	148	162	144	119	132	82
Measles.	118	174	250	197	73	257	95	390	156	195
Erysipelas.	114	81	85	94	74	97	74	69	68	55
Acute rheumatism.	117	106	76	100	102	61	23	59	69	58
Small-pox.	3			38	43	11	2	2		
Total deaths per year.	26,543	28,530	28,840	32,653	30,596	30,004	30,634	30,767	29,822	27,337

TABLE 6.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM CERTAIN CLASSIFIED DISEASES FOR THIRTY YEARS, 1879-1908.

DISEASES.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Acute lung diseases.	4,322	4,795	4,188	4,236	4,265	5,309	4,445	5,230	5,515	4,787
Consumption, M.	1,956	1,787	3,237	3,015	3,380	3,670	3,587	3,654	3,749	3,616
Consumption, F.	1,628	1,724	2,539	2,421	2,628	3,486	2,764	3,117	3,307	2,773
Diarrhoeal diseases of children.	3,568	3,010	1,895	1,878	1,603	2,423	2,290	2,397	2,492	2,575
Adult brain and spinal diseases.	2,842	2,946	2,836	2,787	2,880	3,053	3,942	3,219	3,402	3,246
Brain and nervous diseases of children.	1,950	1,767	2,012	1,806	1,795	1,986	2,095	1,717	1,688	1,489
Diseases of the heart and circulation.	2,731	2,852	2,772	3,066	3,166	3,301	3,316	3,460	3,911	3,841
Diphtheria and croup.	777	927	683	683	748	918	699	673	632	535
Digestive and intestinal diseases.	1,556	1,700	2,221	2,042	2,060	2,279	2,183	2,245	2,459	2,305
Renal & cystic diseases.	1,925	2,072	2,043	2,021	2,160	2,361	2,487	2,542	2,440	2,440
Violent deaths.	1,724	1,724	2,133	2,012	2,206	2,162	2,313	2,447	2,266	2,636
Cancer.	946	921	1,042	1,031	1,132	1,125	1,282	1,389	1,466	1,535
Typhoid fever.	486	356	352	428	388	384	360	408	464	367
Scarlet fever.	187	220	179	217	299	416	164	193	286	396
Puerperal.	267	288	207	225	279	221	238	322	283	329
Malarial fever.	292	306	137	281	245	124	186	388	245	237
Whooping cough.	96	84	50	36	40	47	21	36	29	30
Measles.	96	231	77	204	41	180	98	203	144	189
Erysipelas.	88	111	71	69	86	113	80	94	106	96
Acute rheumatism.	73	73	116	94	71	68	101	109	87	97
Small-pox.	5	5	142	432	16	24	1	1	1	1
Total deaths per year.	30,999	31,474	31,739	31,319	31,820	35,298	33,864	35,670	37,408	35,597

TABLE 7.—DEATHS IN NEW JERSEY, PER 10,000 POPULATION, FROM CERTAIN CLASSIFIED CAUSES, FOR THIRTY YEARS.

CAUSES OF DEATH.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
Acute lung diseases.	21.16	17.57	17.30	23.13	22.79	17.41	20.07	17.55	19.04	21.74
Consumption.	27.31	23.99	25.76	29.21	25.81	25.75	26.97	24.25	27.20	24.41
Diarrhoeal diseases of children.	18.11	19.15	19.43	15.06	12.96	19.72	22.25	20.32	20.06	25.50
Adult brain and spinal diseases.	12.87	11.91	12.94	12.78	12.91	13.38	14.82	14.74	13.64	15.23
Brain and nervous diseases of children.	16.13	14.48	14.15	16.80	13.92	12.80	14.21	13.53	14.04	14.33
Diseases of heart and circulation.	9.52	8.68	10.45	9.92	10.21	10.60	11.75	11.49	11.39	12.29
Diphtheria and croup.	10.86	7.71	9.72	12.37	9.47	8.21	11.70	9.94	11.37	14.80
Digestive and intestinal diseases.	10.20	8.88	9.30	6.22	7.63	8.62	8.91	9.25	9.24	10.73
Renal and cystic diseases.	5.46	4.56	5.24	6.43	6.27	7.14	7.34	7.06	6.50	7.41
Violent deaths.	3.70	3.75	3.88	6.80	7.50	6.59	7.60	7.82	9.89	9.59
Cancer.	3.17	3.29	4.94	7.43	6.66	5.12	6.02	4.15	4.21	4.45
Typhoid fever.	6.14	5.06	4.30	10.09	7.03	4.38	5.05	1.69	1.89	4.17
Scarlet fever.	1.90	2.15	2.81	2.05	1.63	1.77	2.09	1.96	1.95	1.97
Puerperal.	2.71	1.14	1.02	2.12	1.36	.92	4.11	2.09	1.34	1.17
Whooping cough.	2.92	2.59	3.74	3.10	2.39	1.84	1.62	1.85	1.61	1.91
Malarial fever.	7.70	7.6	6.0	7.8	1.08	1.51	1.05	6.7	2.20	.53
Measles.	1.34	.96	1.06	.79	.74	1.64	.57	.60	.71	.93
Erysipelas.	.74	.56	.76	.43	.27	.49	.28	.51	.98	1.0
Acute rheumatism.	.13	2.18	3.08	.44	.56	.01	.03	.03	.03	.03
Small-pox.										

TABLE 7.—DEATHS IN NEW JERSEY, PER 10,000 POPULATION, FROM CERTAIN CLASSIFIED CAUSES, FOR THIRTY YEARS.

CAUSES OF DEATH.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Acute lung diseases.	20.83	26.39	27.73	34.31	25.82	26.50	27.49	24.12	22.89	13.86
Consumption.	24.50	24.46	23.37	23.64	22.28	21.77	21.17	19.53	18.34	17.81
Diarrhoeal diseases of children.	23.99	24.47	21.57	26.74	25.87	24.66	22.39	22.15	19.55	16.34
Adult brain and spinal diseases.	14.14	16.01	15.77	16.23	16.96	15.28	15.69	15.18	14.63	14.91
Brain and nervous diseases of children.	13.66	14.10	13.72	14.83	13.46	12.11	11.50	11.74	10.25	9.06
Diseases of heart and circulation.	12.68	18.49	13.25	14.41	14.16	12.74	13.53	14.03	14.52	12.62
Diphtheria and croup.	11.18	10.92	11.74	11.74	10.89	8.19	8.75	10.22	7.83	5.24
Digestive and intestinal diseases.	10.30	10.55	10.63	10.74	11.39	9.92	9.49	9.43	8.91	8.19
Renal and cystic diseases.	7.50	7.97	8.11	9.55	9.36	9.10	9.10	9.21	9.92	9.85
Violent deaths.	7.65	8.57	9.23	9.48	9.99	9.30	8.78	8.29	9.55	8.01
Cancer.	4.11	4.41	4.34	4.55	4.69	4.60	4.71	4.83	4.70	4.43
Typhoid fever.	3.78	1.43	1.94	6.66	4.15	3.28	3.07	3.39	3.35	2.70
Puerperal.	1.80	1.73	2.00	1.86	1.83	1.85	1.72	1.57	1.06	1.15
Whooping cough.	1.97	2.57	2.07	1.97	1.54	2.07	1.62	1.60	1.81	.85
Malarial fever.	1.44	1.35	1.21	1.30	1.06	1.02	.83	1.69	1.74	.45
Measles.	.83	1.20	1.69	1.30	.47	1.62	.56	2.26	.88	1.47
Erysipelas.	.80	.56	.57	.62	.48	.61	.41	.40	.38	.32
Acute rheumatism.	.83	.73	.51	.66	.66	.57	.49	.34	.39	.31
Small-pox.	.02				.25	.27	.06	.13	.01	

CAUSES OF DEATH.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Acute lung diseases.	23.29	25.21	23.37	23.18	22.73	27.78	20.75	23.81	24.50	20.81
Consumption.	19.31	18.48	16.91	15.32	16.76	17.83	16.73	16.64	16.67	15.72
Diarrhoeal diseases of children.	19.23	15.83	9.84	9.54	7.95	11.77	10.68	10.91	11.08	11.19
Adult brain and spinal diseases.	15.31	15.49	16.20	16.40	16.60	16.51	13.72	14.62	15.13	14.11
Brain and nervous diseases of children.	10.53	9.29	11.26	9.72	9.95	10.68	9.77	7.82	7.51	6.47
Diseases of heart and circulation.	14.72	14.99	14.37	15.58	15.70	16.03	15.47	15.75	17.39	16.70
Diphtheria and croup.	4.19	4.87	3.55	3.74	3.71	4.46	3.26	3.06	2.81	2.33
Pneumonia.	1.44	1.51	1.14	1.14	1.33	1.63	1.29	1.19	1.47	1.205
Digestive and intestinal diseases.	8.38	9.47	11.42	10.38	10.21	11.03	10.18	10.22	10.90	10.02
Renal and cystic diseases.	10.37	10.90	10.45	10.27	10.71	11.47	11.58	11.58	12.47	11.48
Violent deaths.	9.29	9.00	11.20	9.02	9.97	11.56	10.08	10.53	10.88	10.29
Cancer.	5.10	4.81	5.42	5.24	5.61	5.46	5.98	6.32	6.52	6.67
Typhoid fever.	2.62	1.87	1.83	2.17	1.92	1.87	1.68	1.86	2.06	1.60
Puerperal.	1.01	1.16	.93	1.10	1.48	2.02	1.76	.88	1.27	1.72
Whooping cough.	1.44	1.51	1.70	1.14	1.38	1.07	1.11	1.47	1.29	1.43
Malarial fever.	1.51	1.61	.82	1.43	1.21	.60	1.33	1.77	1.09	1.03
Measles.	.52	.40	.26	1.18	.20	.23	1.10	.16	.13	.13
Erysipelas.	.52	1.21	.40	1.04	.20	.87	.46	.92	.64	.82
Acute rheumatism.	.47	.58	.27	.35	.43	.53	.42	.43	.47	.42
Small-pox.	.39	.38	.60	.43	.35	.33	.47	.50	.39	.42
			.74	2.20	.07	.01				

\*Deaths under this classification were not separately recorded until 1901.

TABLE 8.—SHOWING DEATH-RATE, PER 1,000 POPULATION, IN THE CITIES OF NEW JERSEY HAVING OVER 5,000 POPULATION, FOR THIRTY YEARS, 1879-1908.

Table with 11 columns for years 1879-1908 and rows for cities including Atlantic City, Bordentown, Burlington, Camden, Gloucester, Bridgeton, Millville, Newark, Orange, Bayonne, Harrison, Hoboken, Jersey City, Trenton, New Brunswick, Perth Amboy, Long Branch, Morristown, Passaic, Paterson, Salem, Elizabeth, Plainfield, Rahway, and Phillipsburg.

TABLE 8.—SHOWING DEATH-RATE, PER 1,000 POPULATION, IN THE CITIES OF NEW JERSEY HAVING OVER 5,000 POPULATION, FOR THIRTY YEARS, 1879-1908.

Table with 11 columns for years 1899-1908 and rows for cities including Atlantic City, Englewood, Garfield, Hackensack, Bordentown, Burlington, Camden, Gloucester, Bridgeton, Millville, Bloomfield, East Orange, Irvington, Montclair, Newark, Orange, West Orange, Bayonne, Harrison, Hoboken, Jersey City, Kearny, Town of Union, West Hoboken, West New York, Lambertville, Princeton, Trenton, New Brunswick, Perth Amboy, South Amboy, Asbury Park, Long Branch, Red Bank, Dover, Morristown, Passaic, Paterson, Salem, North Plainfield, Elizabeth, Plainfield, Rahway, Summit, Westfield, and Phillipsburg.

\*The death-rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger, and on account of this floating population, and the large number of individuals included in it, the death-rate is not a criterion of health conditions.

Table with 11 columns for years 1889-1908 and rows for cities including Atlantic City, Hackensack, Bordentown, Burlington, Camden, Gloucester, Bridgeton, Millville, Newark, Newark, Orange, Bayonne, Harrison, Hoboken, Jersey City, Town of Union, Trenton, New Brunswick, Perth Amboy, South Amboy, Long Branch, Dover, Morristown, Passaic, Paterson, Salem, Elizabeth, Plainfield, Rahway, and Phillipsburg.

\*The death rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger, and on account of this floating population, and the large number of individuals included in it, the death rate is not a criterion of health conditions.

CHART SHOWING RELATIVE MORTALITY IN CERTAIN CITIES OF NEW JERSEY FOR THE YEAR ENDING DECEMBER 31, 1908.

East Orange.....	Population, 27,376. Deaths, 278. Rate, per 1,000, 10.15.
West Hoboken.....	Population, 32,675. Deaths, 401. Rate, per 1,000, 12.27.
Bloomfield.....	Population, 12,868. Deaths, 158. Rate per 1,000, 12.28.
Perth Amboy.....	Population, 30,813. Deaths, 395. Rate per 1,000, 12.82.
Montclair.....	Population, 17,815. Deaths, 235. Rate per 1,000, 13.19.
Bridgeton.....	Population, 13,451. Deaths, 180. Rate per 1,000, 13.38.
Hackensack.....	Population, 12,091. Deaths, 170. Rate per 1,000, 14.06]
Millville.....	Population, 12,662. Deaths, 187. Rate per 1,000, 14.77.
Bayonne.....	Population, 47,988. Deaths, 722. Rate per 1,000, 15.05.
*Atlantic City.....	Population, 43,446. Deaths, 656. Rate per 1,000, 15.10.
Kearny.....	Population, 15,224. Deaths, 237. Rate per 1,000, 15.57.]
Harrison.....	Population, 14,159. Deaths, 223. Rate per 1,000, 15.75.
*Long Branch.....	Population, 14,170. Deaths, 227. Rate per 1,000, 16.02.
Paterson.....	Population, 115,344. Deaths, 1,867. Rate per 1,000, 16.19
Town of Union.....	Population, 18,096. Deaths, 294. Rate per 1,000, 16.25.
Plainfield.....	Population, 20,327. Deaths, 334. Rate per 1,000, 16.43.
Elizabeth.....	Population, 65,536. Deaths, 1,084. Rate per 1,000, 16.54.
Camden.....	Population, 87,820. Deaths, 1,471. Rate per 1,000, 16.75.
Newark.....	Population, 305,620. Deaths, 5,198. Rate per 1,000, 17.01.
Passaic City.....	Population, 43,873. Deaths, 762. Rate per 1,000, 17.37.
Jersey City.....	Population, 248,459. Deaths, 4,428. Rate per 1,000, 17.82.
Trenton.....	Population, 90,704. Deaths, 1,625. Rate per 1,000, 17.92.
New Brunswick.....	Population, 25,009. Deaths, 454. Rate per 1,000, 18.15.
Hoboken.....	Population, 69,130. Deaths, 1,266. Rate per 1,000, 18.31.
Orange.....	Population, 27,277. Deaths, 525. Rate per 1,000, 19.25.
Morristown.....	Population, 12,673. Deaths, 287. Rate per 1,000, 21.07.

\*The death-rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger, and on account of this floating population and the large number of invalids included in it, the death-rate is not a criterion of health conditions.

TABLE 9.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FOR THE YEAR ENDING DECEMBER 31, 1908, FROM TEN SELECTED PREVENTABLE DISEASES, WITH PERCENTAGE OF TOTAL MORTALITY.

NAMES OF DISEASES.	Deaths	Percentage of total mortality.
Consumption.....	3,616	10.16
Pneumonia.....	2,773	7.79
Diarrhoeal diseases of children.....	2,575	7.23
Diphtheria.....	535	1.50
Typhoid fever.....	367	1.03
Whooping cough.....	237	.67
Measles.....	189	.53
Scarlet fever.....	396	1.11
Malarial fever.....	30	.08
Small-pox.....	.....	.....

TABLE 10.—SHOWING DEATHS FROM CERTAIN SELECTED CAUSES OF DEATH, PER 10,000 INHABITANTS, FOR THE YEARS ENDING DECEMBER 31, 1907, AND DECEMBER 31, 1908; ALSO SHOWING AVERAGE NUMBER OF DEATHS FROM SAID DISEASES DURING PAST THIRTY YEARS.

DISEASES.	Average number of deaths for thirty years.	Deaths per 10,000 inhabitants during year ending December 31st, 1907.	Deaths per 10,000 inhabitants during year ending December 31st, 1908.
Consumption.....	3,386	16.67	15.72
Diarrhoeal diseases of children.....	2,886	11.08	11.19
Pneumonia*.....	.....	14.71	12.05
Diseases of heart and circulation.....	2,240	17.40	16.70
Digestive and intestinal diseases.....	1,506	10.94	10.02
Diphtheria and croup.....	1,190	2.81	2.33
Renal and cystic diseases.....	1,480	12.47	11.48
Violent deaths.....	1,351	10.88	10.29
Cancer.....	798	6.52	6.67
Typhoid fever.....	513	2.06	1.60
Scarlet fever.....	408	1.27	1.72
Puerperal.....	266	1.29	1.43
Whooping cough.....	235	1.09	1.03
Malarial fever.....	163	.13	.13
Measles.....	157	.64	.82
Erysipelas.....	92	.47	.42
Acute rheumatism.....	81	.39	.42
Small-pox.....	45	.....	.....

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

TABLE 11.—SHOWING MORTALITY IN NEW JERSEY, FROM CERTAIN SELECTED CAUSES OF DEATH, FOR THE YEAR ENDING DECEMBER 31, 1908, COMPARED WITH DEATHS FOR THE PREVIOUS YEAR.

SELECTED DISEASES.	Deaths for year ending December 31st, 1907.	Deaths for year ending December 31st, 1908.	Com- parative Mortality.
Consumption.....	3,749	3,616	—133
Diseases of heart and circulation.....	3,911	3,841	— 70
Renal and cystic diseases.....	2,803	2,640	—163
Digestive and intestinal diseases.....	2,459	2,305	—154
Diarrhoeal diseases of children.....	2,492	2,575	+ 83
Cancer.....	1,466	1,535	+ 69
Diphtheria.....	632	535	— 97
Typhoid fever.....	464	367	— 97
Scarlet fever.....	286	396	+110
Puerperal.....	289	329	+ 40
Whooping cough.....	245	237	— 8
Erysipelas.....	106	96	— 10
Acute rheumatism.....	87	97	+ 10
Measles.....	144	189	+ 45
Malarial fever.....	29	30	+ 1
Small-pox.....	1	0	— 1

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

DISEASES	NUMBER OF DEATHS	FREQUENCY												
		10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	100,000			
CONSUMPTION	101992	—	—	—	—	—	—	—	—	—	—	—	—	—
DIARRHOEAL DISEASES—CHILDREN	86569	—	—	—	—	—	—	—	—	—	—	—	—	—
DISEASES OF HEART & CIRCULATION	67201	—	—	—	—	—	—	—	—	—	—	—	—	—
DIGESTIVE & INTESTINAL DISEASES	45192	—	—	—	—	—	—	—	—	—	—	—	—	—
RENAL & CYSTIC DISEASES	44391	—	—	—	—	—	—	—	—	—	—	—	—	—
VIOLENT DEATHS	40541	—	—	—	—	—	—	—	—	—	—	—	—	—
DIPHTHERIA & CROUP	35707	—	—	—	—	—	—	—	—	—	—	—	—	—
CANCER	23952	—	—	—	—	—	—	—	—	—	—	—	—	—
TYPHOID FEVER	15397	—	—	—	—	—	—	—	—	—	—	—	—	—
SCARLET FEVER	12241	—	—	—	—	—	—	—	—	—	—	—	—	—
PUERPERAL FEVER	7966	—	—	—	—	—	—	—	—	—	—	—	—	—
WHOOPING COUGH	7047	—	—	—	—	—	—	—	—	—	—	—	—	—
MALARIAL FEVER	4896	—	—	—	—	—	—	—	—	—	—	—	—	—
MEASLES	4704	—	—	—	—	—	—	—	—	—	—	—	—	—
ERYSIPELAS	2747	—	—	—	—	—	—	—	—	—	—	—	—	—
ACUTE RHEUMATISM	2419	—	—	—	—	—	—	—	—	—	—	—	—	—
SMALL POX	1359	—	—	—	—	—	—	—	—	—	—	—	—	—

**Consumption.**—The total number of deaths from pulmonary tuberculosis for the year 1908, was 3,616. The death-rate is 15.72 per 10,000 population, which is lower than for any period during the last five years. The educational campaigns for the prevention and relief of tuberculosis now being waged in many municipalities of this state are apparently effective in reducing the mortality from this disease. In a number of cities anti-spitting ordinances have been passed, and the importance of proper light and ventilation for sleeping and living apartments has been brought constantly before the people by frequent articles in the daily press. In order to make the crusade against tuberculosis more effective, notification of all cases of the disease is necessary, after which the local board of health should take immediate action. Local associations can also do much to assist the health authorities by urging the erection of municipal hospitals, medical inspection of school children, guarding the milk supply, employment of visiting nurses, maintenance of public play-grounds and baths and special attention to factory sanitation.

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

YEARS.	AGE PERIODS.											Totals.
	Under 1 year.	1 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Not stated.	
1901.....	39	73	241	937	827	510	319	199	87	25	.....	3,257
1902.....	39	62	227	842	759	504	281	199	76	19	7	3,015
1903.....	49	81	285	941	877	534	310	191	95	16	1	3,380
1904.....	67	80	315	983	1,005	575	337	217	78	11	2	3,670
1905.....	40	89	309	972	915	606	335	197	100	23	1	3,587
1906.....	62	93	309	953	942	646	339	199	84	26	1	3,654
1907.....	56	61	256	878	967	682	407	229	90	25	.....	3,751
1908.....	36	74	272	933	1,013	602	344	197	80	15	.....	3,616
Totals.....	388	613	2,214	7,589	7,305	4,659	2,672	1,628	690	160	12	27,930



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

YEARS	Population*	Total deaths in New Jersey.	Deaths from consumption	Proportion of deaths from consumption to total deaths	Deaths from consumption per 10,000 population
1879.	1,020,584	20,444	2,788	13.64	27.32
1880.	1,130,892	18,967	2,714	14.30	24.00
1881.	1,160,275	20,810	2,989	14.36	25.76
1882.	1,189,658	25,910	3,475	13.41	29.21
1883.	1,209,048	23,310	3,121	13.39	25.81
1884.	1,248,224	21,716	3,215	14.80	25.76
1885.	1,278,033	23,807	3,320	13.94	25.19
1886.	1,310,431	22,734	3,205	14.10	24.46
1887.	1,342,829	24,331	3,653	15.01	27.20
1888.	1,375,227	27,173	3,358	12.44	24.42
1889.	1,407,625	26,543	3,449	12.99	24.50
1890.	1,441,017	28,530	3,669	12.96	25.46
1891.	1,478,784	28,840	3,456	11.98	23.37
1892.	1,511,653	32,685	3,575	10.94	23.65
1893.	1,538,799	30,596	3,429	11.21	22.28
1894.	1,578,373	30,004	3,433	11.44	21.75
1895.	1,672,942	30,634	3,542	11.56	21.17
1896.	1,718,543	30,767	3,358	10.92	19.54
1897.	1,764,144	29,822	3,237	10.85	18.35
1898.	1,810,008	27,337	3,225	11.79	17.82
1899.	1,855,872	30,999	3,584	11.56	19.31
1900.	1,883,669	31,474	3,514	11.17	18.64
1901.	1,925,781	31,739	3,257	10.26	16.91
1902.	1,967,893	33,655	3,015	8.96	15.32
1903.	2,016,797	31,820	3,880	10.62	16.76
1904.	2,058,909	35,298	3,670	10.40	17.83
1905.	2,144,143	33,864	3,587	10.59	16.73
1906.	2,196,238	35,670	3,654	10.24	16.64
1907.	2,248,331	37,408	3,749	10.02	16.67
1908.	2,300,427	35,597	3,616	10.16	15.72

\*Estimated except for census years.

TABLE 14.—SHOWING MORTALITY RATES FROM ALL CAUSES AND FROM CONSUMPTION ONLY, IN MUNICIPALITIES HAVING 5,000 INHABITANTS OR OVER, FOR THE YEAR ENDING DECEMBER 31, 1908, per 10,000 POPULATION.

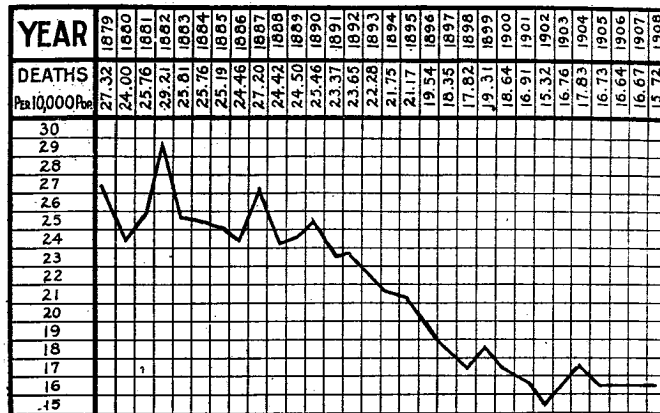
	Deaths from all causes per 10,000 population.	Deaths from consumption per 10,000 population.
Atlantic County.....	136.8	14.29
Atlantic City.....	151.0	9.67
Bergen County.....	118.5	12.34
Englewood.....	141.2	10.09
Garfield.....	195.2	11.58
Hackensack.....	140.6	8.27
Rutherford.....	87.7	1.77
Burlington County.....	169.5	13.12
Bordentown.....	173.3	22.22
Burlington.....	186.3	9.49
Camden County.....	161.3	19.82
Camden City.....	167.5	18.11
Gloucester City.....	195.8	17.08
Cape May County.....	111.0	6.03
Cumberland County.....	142.8	11.30
Bridgeton.....	133.8	11.15
Millville.....	147.7	14.22
Essex County.....	127.2	13.76
Bloomfield.....	122.8	11.66
East Orange.....	101.5	7.31
Irvington.....	118.8	10.80
Montclair.....	119.8	10.19
Newark.....	170.1	21.53
Orange.....	192.5	26.40
West Orange.....	125.3	22.45
Gloucester County.....	123.8	11.38
Hudson County.....	185.1	26.69
Bayonne.....	150.5	13.75
Harrison.....	157.5	18.36
Hoboken.....	183.1	22.28
Jersey City.....	179.7	29.77
Kearny.....	165.7	5.91
Town of Union.....	162.5	15.47
West Hoboken.....	122.7	15.30
West New York.....	168.8	16.76
Hunterdon County.....	141.9	12.10
Lambertville.....	97.3	7.63
Mercer County.....	116.2	7.87
Princeton.....	142.3	2.74
Trenton.....	179.2	18.08
Middlesex County.....	121.9	9.26
New Brunswick.....	181.5	22.79
Perth Amboy.....	128.2	8.44
South Amboy.....	145.1	8.06
Monmouth County.....	137.8	11.00
Asbury Park.....	163.5	12.49
Long Branch.....	160.2	14.11
Red Bank.....	125.7	25.13
Morris County.....	31.8	1.00
Dover.....	133.3	15.15
Morristown.....	210.7	14.99
Ocean County.....	133.6	13.91
Passaic County.....	107.1	11.37
Passaic City.....	173.7	13.90
Paterson.....	161.9	14.13
Salem County.....	109.0	11.55
Salem City.....	173.0	26.39
Somerset County.....	118.9	7.12
North Plainfield.....	60.3	1.67
Sussex County.....	148.0	11.82
Union County.....	111.4	8.77
Elizabeth.....	165.4	13.58
Plainfield.....	164.3	18.69
Rahway.....	146.5	12.12
Summit.....	136.4	19.30
Westfield.....	135.6	12.01
Warren County.....	149.8	13.51
Phillipsburg.....	98.5	4.57

NOTE.—The death-rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger, and on account of this floating population and the large number of invalids included in it, the death-rate is not a criterion of health conditions.

TABLE 15.—SHOWING AVERAGE ANNUAL DEATH-RATES FROM ALL CAUSES AND AVERAGE ANNUAL DEATH-RATES FROM CONSUMPTION IN NEW JERSEY FOR THIRTY YEARS, BY COUNTIES, COMPARED WITH DEATH-RATES FROM ALL CAUSES AND DEATH-RATES FROM CONSUMPTION, FOR THE YEAR ENDING DECEMBER 31, 1908, PER 10,000 POPULATION.

COUNTIES.	AVERAGES PER YEAR.			
	Average annual death-rate from all causes per 10,000 population for thirty years.	Average annual death-rate from consumption per 10,000 population for thirty years.	Death-rate per 10,000 population from all causes for year ending Dec. 31, 1908	Death-rate from consumption per 10,000 population for year ending Dec. 31, 1908.
Atlantic County.....	170.8	17.27	145.9	11.33
Bergen County.....	90.6	14.41	126.7	11.69
Burlington County.....	154.8	18.09	172.1	13.21
Camden County.....	188.8	21.61	167.8	18.40
Cape May County.....	139.8	14.30	111.0	6.03
Cumberland County.....	73.7	19.76	141.7	11.96
Essex County.....	193.9	26.33	159.3	19.43
Gloucester County.....	145.4	17.31	123.8	11.38
Hudson County.....	216.3	25.85	170.9	19.54
Hunterdon County.....	135.6	14.51	134.7	11.38
Mercer County.....	174.3	22.30	165.5	15.30
Middlesex County.....	162.6	17.02	138.9	12.10
Monmouth County.....	151.7	16.83	136.4	12.69
Morris County.....	100.7	20.18	160.8	13.22
Ocean County.....	143.5	19.93	133.6	13.91
Passaic County.....	186.8	21.85	156.2	13.65
Salem County.....	146.3	18.83	125.3	15.34
Somerset County.....	143.3	15.99	114.5	6.27
Sussex County.....	124.9	15.13	148.0	11.82
Union County.....	133.9	15.49	152.6	13.84
Warren County.....	146.7	15.07	131.0	10.24
The State.....	176.1	21.23	154.7	15.72

CHART SHOWING DEATHS FROM CONSUMPTION IN NEW JERSEY, PER 10,000 POPULATION, FOR THE THIRTY YEARS, ENDING DECEMBER 31, 1908.



**Pneumonia.**—The total number of deaths from pneumonia for the year ending Dec. 31, 1908, is 2773, a decrease of 534 from the previous year.

TABLE 16.—SHOWING DEATHS IN NEW JERSEY FROM PNEUMONIA, WITH AGE AT DEATH, FOR THE YEAR ENDING DECEMBER 31, 1908.

DEATHS FROM PNEUMONIA.	AGE PERIODS.																Total.		
	Under 1 mo.	Under 1 year.	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 70	70 to 80		80 to 90	Over 90.
	89	452	454	65	30	39	71	69	99	120	117	110	139	188	346	292	117	26	2,773

TABLE 17.—SHOWING DEATHS FROM PNEUMONIA IN CITIES OF OVER 5,000 INHABITANTS, IN NEW JERSEY, BY MONTHS, FOR THE SIX YEARS ENDING DECEMBER 31, 1908, AND DEATH-RATES PER 10,000 INHABITANTS, FOR EACH YEAR OF SAID YEARS.

YEARS.	Estimated population of cities of over 5,000 inhabitants.	MONTHS.												Totals.	Death-rate per 10,000 inhabitants.
		Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.		
1903.....	1,363,464	271	288	261	128	155	67	98	58	75	91	202	278	1,972	14.46
1904.....	1,370,719	401	350	394	315	241	134	42	51	72	108	187	289	2,584	18.85
1905.....	1,429,100	309	271	251	190	178	96	75	73	69	121	199	209	2,041	14.28
1906.....	1,505,142	340	286	341	175	189	86	80	69	89	127	178	285	2,245	14.92
1907.....	1,546,574	361	290	333	235	214	144	100	64	93	142	162	364	2,502	16.18
1908.....	1,584,217	329	279	252	178	174	80	66	73	89	154	149	289	2,092	13.21
Totals.....		2011	1764	1832	1221	1151	607	461	388	487	743	1077	1694	13,436	.....

TABLE 18.—SHOWING DEATHS AND DEATH-RATES FROM PNEUMONIA IN NEW JERSEY FOR EIGHT YEARS, 1901-1908.

YEARS.	Deaths from pneumonia	Deaths from pneumonia per 10,000 inhabitants.
1901.....	2,539	13.18
1902.....	2,421	12.30
1903.....	2,628	13.02
1904.....	3,486	16.93
1905.....	2,764	12.89
1906.....	3,117	14.19
1907.....	3,307	14.70
1908.....	2,773	12.05

**Deaths Among Children.**—The total number of deaths among children under five years of age in New Jersey was 10,869 for the year ending Dec. 31, 1908, and the death-rate per 10,000, 47.25, which is lower than for the previous year. It is the desire of this department to eventually have such complete supervision over the distribution of milk from the various creameries in this State as will be the means of producing a supply of clean milk, so that the infant mortality which is now in part due to impure milk may be reduced to a minimum.

TABLE 19.—SHOWING NUMBER OF DEATHS IN NEW JERSEY; DEATHS AMONG CHILDREN UNDER FIVE YEARS OF AGE; DEATHS UNDER FIVE YEARS FROM DIARRHOEAL DISEASES, AND DEATHS UNDER FIVE YEARS PER 10,000 INHABITANTS, FOR THE EIGHT YEARS ENDING DECEMBER 31, 1908.

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

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

YEARS.	Deaths under 1 year per 10,000 population.	Deaths from 1 to 5 years per 10,000 population.	YEARS.	Deaths under 1 year per 10,000 population.	Deaths from 1 to 5 years per 10,000 population.
1879.....	45.58	33.97	1894.....	49.75	22.97
1880.....	40.38	25.12	1895.....	45.67	21.79
1881.....	39.90	25.75	1896.....	43.99	24.43
1882.....	49.88	38.48	1897.....	40.16	20.00
1883.....	44.48	28.22	1898.....	35.91	15.83
1884.....	41.04	22.82	1899.....	38.22	17.04
1885.....	44.69	26.67	1900.....	37.05	18.44
1886.....	41.31	23.83	1901.....	36.11	13.48
1887.....	43.56	25.29	1902.....	36.18	13.63
1888.....	47.51	28.90	1903.....	37.08	15.38
1889.....	48.61	24.95	1904.....	36.18	16.82
1890.....	49.38	25.38	1905.....	32.42	13.59
1891.....	46.90	25.36	1906.....	35.39	15.81
1892.....	52.74	29.08	1907.....	34.39	13.94
1893.....	49.22	24.26	1908.....	34.01	13.24

TABLE 21.—SHOWING DEATHS IN NEW JERSEY FROM DIARRHOEAL DISEASES OF CHILDREN, WITH AGES AT DEATH, COMPARED WITH DEATHS FROM ALL CAUSES AMONG CHILDREN UNDER FIVE YEARS OF AGE, FOR YEAR ENDING DECEMBER 31, 1908.

AGE PERIODS.	Deaths from diarrhoeal diseases.	Deaths from all causes among children under five years of age.
Under one month.....	176	2,655
Over one month and under one year.....	1,917	5,168
One to five.....	468	3,046
Total.....	2,561	10,869

TABLE 22.—SHOWING TOTAL DEATHS, DEATHS UNDER FIVE YEARS, PERCENTAGE OF DEATHS UNDER FIVE YEARS TO TOTAL DEATHS AND DEATHS UNDER FIVE YEARS PER 10,000 INHABITANTS, FOR CERTAIN CITIES OF NEW JERSEY HAVING OVER 5,000 POPULATION, FOR THE FIVE YEARS ENDING DECEMBER 31, 1908.

NAME OF PLACE	1906				1907				1908			
	Total deaths.	Deaths under five years.	Percentage of deaths under five years to total deaths.	Deaths under five years per 10,000 population.	Total deaths.	Deaths under five years.	Percentage of deaths under five years to total deaths.	Deaths under five years per 10,000 population.	Total deaths.	Deaths under five years.	Percentage of deaths under five years to total deaths.	Deaths under five years per 10,000 population.
Atlantic City.....	710	170	23.94	42.99	699	169	23.18	39.04	656	149	22.71	34.30
Bayonne.....	759	360	47.43	81.50	783	343	43.22	76.87	728	335	46.40	69.81
Bloomfield.....	170	51	30.00	42.26	143	47	32.41	37.70	152	54	34.18	41.96
Bridgeton.....	195	44	22.56	32.30	239	43	17.99	31.83	180	43	23.89	31.97
Burlington.....	146	43	29.45	32.65	155	38	24.52	45.81	157	48	30.57	56.97
Camden.....	1,565	566	36.17	66.71	1,506	453	30.21	41.12	1,471	493	33.51	56.14
Dover.....	72	29	40.27	45.06	104	27	25.96	41.42	88	25	28.41	37.87
East Orange.....	269	65	24.16	25.09	297	60	20.20	22.52	278	64	23.02	29.38
Elizabeth.....	1,097	398	36.28	64.00	1,194	421	35.26	65.92	1,084	396	36.53	60.42
Englewood.....	141	39	27.66	47.24	143	34	23.78	39.58	126	32	26.19	36.98
Gloucester City.....	153	56	36.60	67.49	167	65	38.92	76.10	172	67	38.95	76.28
Hackensack.....	193	61	31.61	53.37	218	68	31.19	57.82	170	50	29.41	41.35
Harrison.....	233	95	40.77	71.60	264	99	37.50	70.83	223	94	42.15	66.39
Hoboken.....	1,481	440	30.75	65.98	1,556	481	30.91	70.83	1,266	405	31.99	58.59
Irvington.....	101	22	21.78	29.63	114	25	21.92	31.45	99	22	22.22	26.39
Jersey City.....	4,607	1,538	33.38	64.63	4,723	1,456	30.83	59.87	4,428	1,331	30.06	53.57
Kearny.....	248	69	27.82	48.79	213	52	24.41	33.42	237	64	27.00	42.04
Long Branch.....	233	48	20.60	37.37	288	70	24.31	45.18	227	51	22.47	35.99
Millville.....	166	61	36.75	50.23	174	52	29.89	41.93	187	55	29.41	43.44
Montclair.....	261	91	34.87	54.00	291	93	31.95	53.65	235	59	25.11	33.12
Morristown.....	260	84	32.18	68.17	281	83	29.33	66.41	267	83	31.09	65.49
Newark.....	5,547	1,840	33.17	63.29	5,736	1,666	29.04	55.87	5,198	1,640	31.55	53.66
New Brunswick.....	422	164	38.86	69.03	468	163	34.82	66.85	454	164	36.12	65.58
North Plainfield.....	539	137	25.36	22.66	87	21	24.14	35.84	54	11	20.37	18.39
Orange.....	323	186	57.90	62.66	313	192	61.33	67.70	262	166	63.36	60.86
Passaic City.....	653	317	48.53	79.55	808	409	50.62	87.70	762	385	50.52	87.75
Paterson.....	1,992	681	34.18	60.37	1,839	523	28.44	45.85	1,567	559	35.74	48.46
Perth Amboy.....	355	190	53.52	69.01	399	198	49.62	67.87	393	218	55.19	70.75
Phillipsburg.....	161	55	34.16	48.34	220	85	38.64	57.93	151	42	27.81	27.39
Plainfield.....	304	88	27.96	44.32	358	86	24.02	43.64	334	72	21.56	35.42
Rahway.....	110	15	13.64	17.06	125	22	16.80	24.62	133	17	12.78	18.73
Red Bank.....	92	30	32.61	46.66	91	30	32.97	45.48	85	14	16.21	20.70
Salem City.....	111	25	22.52	38.06	109	24	22.02	35.88	118	36	30.51	52.77
South Amboy.....	137	49	35.77	76.30	105	37	35.24	49.47	90	36	40.00	58.04
Summit.....	101	19	18.31	26.30	83	24	28.17	38.17	106	19	17.92	24.45
Town of Union.....	287	87	30.31	50.09	291	84	28.87	43.66	294	79	26.87	43.66
Trenton.....	1,493	467	31.28	54.08	1,599	418	26.14	47.22	1,625	523	32.18	57.66
West Hoboken.....	383	134	34.81	44.25	371	129	34.77	40.98	401	138	34.41	42.23
West New York.....	104	40	38.46	52.76	136	63	46.32	79.07	141	47	33.33	56.27
West Orange.....	86	22	25.58	27.26	95	29	30.53	35.09	106	36	33.96	42.54

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

DEATHS.	NEWARK.					JERSEY CITY.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Total deaths.....	5,301	4,943	5,547	5,736	5,198	4,699	4,394	4,607	4,723	4,428
Deaths under five years.....	1,679	1,320	1,540	1,686	1,640	1,462	1,426	1,538	1,456	1,331
Deaths under five years from diarrhoea.....	324	325	330	370	344	315	315	354	371	375
Percentage of deaths under five years to total deaths.....	31.57	26.70	33.17	29.04	31.55	32.14	32.45	33.38	30.83	30.06
Deaths under five years per 10,000 population.....	262.12	46.60	63.29	55.87	53.66	64.85	61.28	64.63	59.87	53.57

DEATHS.	PATERSON.					CAMDEN.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Total deaths.....	1,938	1,841	1,992	1,839	1,867	1,547	1,347	1,565	1,506	1,471
Deaths under five years.....	647	550	681	523	559	539	412	566	455	483
Deaths under five years from diarrhoea.....	152	144	130	126	126	102	83	89	84	57
Percentage of deaths under five years to total deaths.....	30.73	29.88	34.18	28.44	29.94	28.70	30.59	36.17	30.21	32.83
Deaths under five years per 10,000 population.....	53.06	49.31	60.37	45.85	48.46	62.74	49.42	66.71	52.70	53.00

DEATHS.	HOBOKEN.					TRENTON.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Total deaths.....	1,420	1,382	1,431	1,556	1,266	1,482	1,484	1,493	1,599	1,625
Deaths under five years.....	456	384	440	451	405	421	453	467	418	523
Deaths under five years from diarrhoea.....	76	70	81	88	105	69	99	108	103	95
Percentage of deaths under five years to total deaths.....	31.14	27.79	30.75	30.91	32.00	28.41	30.53	31.29	26.14	32.18
Deaths under five years per 10,000 population.....	71.71	58.65	65.98	70.83	58.59	51.28	53.22	54.08	47.22	57.66

TABLE 24.—SHOWING DEATHS IN NEW JERSEY UNDER FIVE YEARS OF AGE PER 10,000 POPULATION FOR THIRTY YEARS, TOGETHER WITH AVERAGES FOR THE NINETEEN YEARS, 1879-1897, AND ALSO FOR THE ELEVEN YEARS 1898-1908.

YEARS.	Deaths under five years per 10,000 population.	YEARS.	Deaths under five years per 10,000 population.
1879	75.55	1898	51.74
1880	65.50	1899	55.26
1881	65.65	1900	55.49
1882	88.35	1901	49.59
1883	72.70	1902	49.81
1884	63.86	1903	52.46
1885	71.36	1904	53.00
1886	65.14	1905	46.01
1887	68.85	1906	51.21
1888	76.41	1907	48.33
1889	73.56	1908	47.25
1890	74.74		
1891	72.26		
1892	81.82		
1893	73.48		
1894	72.72		
1895	67.46		
1896	68.42		
1897	60.16		
Average death-rate for nineteen years ending 1897.	71.69	Average death-rate for eleven years ending 1908.	50.92

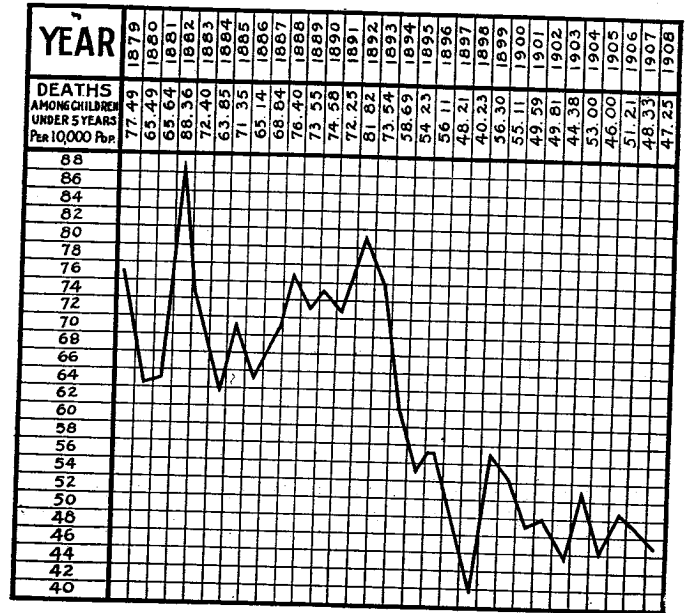
TABLE 25.—SHOWING PERCENTAGE OF DEATHS UNDER FIVE YEARS TO TOTAL DEATHS, AND DEATHS UNDER FIVE YEARS PER 10,000 INHABITANTS FOR CERTAIN CITIES OF NEW JERSEY HAVING OVER 5,000 POPULATION, FOR THE YEAR ENDING DECEMBER 31, 1908.

NAMES OF CITIES.	Percentage of deaths under 5 years to total deaths.	Deaths under 5 years per 10,000 inhabitants.
Atlantic City	22.71	34.30
Englewood	26.19	36.98
Garfield	62.71	122.41
Hackensack	29.41	41.35
Bordentown	23.94	41.96
Burlington	30.57	56.97
Camden	33.51	56.41
Gloucester	38.95	76.28
Bridgeton	23.89	31.97
Millville	29.41	43.44
Bloomfield	34.18	41.96
East Orange	23.02	23.38
Irvington	22.22	26.39
Montclair	25.11	33.12
Newark	31.55	53.66
Orange	31.62	60.86
West Orange	33.96	42.54
Bayonne	46.40	69.81
Harrison	42.15	66.39
Hoboken	31.99	58.59
Jersey City	30.06	53.57
Kearny	27.00	42.04
Town of Union	26.87	43.66
West Hoboken	34.41	42.23
West New York	33.33	56.27
Lambertville	29.41	28.61
Princeton	33.65	47.90
Trenton	32.18	57.66
New Brunswick	36.12	65.58
Perth Amboy	35.19	70.75
South Amboy	40.00	58.04
Asbury Park	24.20	39.57
Long Branch	22.47	35.99
Red Bank	16.47	20.70
Dover	28.41	37.87
Morristown	31.09	65.49
Passaic	50.52	87.75
Paterson	29.94	48.46
Salem	30.57	52.77
North Plainfield	20.37	18.39
Elizabeth	36.53	60.42
Plainfield	21.56	35.42
Rahway	12.78	18.73
Summit	17.92	24.45
Westfield	29.11	39.47
Phillipsburg	27.81	27.39

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

NAMES OF MANUFACTURING TOWNS.	Estimated population.	Number of deaths occurring in children under five years of age.	Number of deaths of children under five years of age for each 1,000 of population	Estimated population of counties outside of larger cities	Number of deaths occurring in children under five years of age in counties outside of larger cities.	Number of deaths of children under five years of age for each 1,000 of population in counties outside of larger cities.
Bayonne (Hud. Co.)	47,988	335	6.98	34,096	172	5.04
Beverly (Bur. Co.)	2,443	7	2.86	51,846	237	4.57
Boonton (Morris Co.)	3,955	21	5.31	50,326	143	2.84
Bordentown (Bur. Co.)	4,051	17	4.20	51,846	237	4.57
Bound Brook (Som. Co.)	3,849	22	5.72	32,283	90	2.79
Bridgton (Cumb. Co.)	13,451	43	3.20	26,547	74	2.79
Burlington (Bur. Co.)	8,425	48	5.70	51,846	237	4.57
Camden (Cam. Co.)	87,820	493	5.61	33,298	116	3.48
Carlstadt (Ber. Co.)	3,416	12	3.51	80,179	301	3.75
Elizabeth (U. Co.)	65,536	396	6.04	19,388	62	3.20
Garfield (Ber. Co.)	6,045	74	12.24	80,179	301	3.75
Gloucester C'y (Cam. Co.)	8,794	67	7.63	33,298	116	3.48
Hoboken (Hud. Co.)	69,130	405	5.86	34,096	172	5.04
Jersey City (Hud. Co.)	248,459	1,331	5.36	34,096	172	5.04
Lambertville (Hunt. Co.)	8,293	15	2.86	27,286	56	2.05
Lodi (Ber. Co.)	3,319	15	4.52	80,179	301	3.75
Millburn (Essex Co.)	3,389	17	5.02	32,700	93	2.84
Milltown (Mdx. Co.)	1,599	6	3.75	45,375	205	4.52
Milville (Cumb. Co.)	12,662	55	4.34	26,547	74	2.79
Newark (Essex Co.)	305,620	1,640	5.37	32,700	93	2.84
New Brunswick (Mdx. Co.)	25,000	164	6.56	45,375	205	4.52
Orange (Essex Co.)	27,277	166	6.09	32,700	93	2.84
Parsippany (Pas. Co.)	43,873	385	8.78	29,035	108	3.72
Paterson (Pas. Co.)	115,344	559	4.85	29,035	108	3.72
Perth Amboy (Mdx. Co.)	30,813	218	7.08	45,375	205	4.52
Phillipsburg (W. Co.)	15,332	42	2.74	26,644	86	3.23
Plainfield (U. Co.)	20,327	72	3.54	19,388	62	3.20
Rahway (U. Co.)	9,077	17	1.87	19,388	62	3.20
Raritan (Som. Co.)	4,330	11	2.51	32,283	90	2.79
Riverton Bor. (Bur. Co.)	1,692	5	2.96	51,846	237	4.57
Salem City (Salem Co.)	6,822	36	5.28	19,905	59	2.96
South River (Mdx. Co.)	4,061	29	7.14	45,375	205	4.52
Town of U'a (Hud. Co.)	18,096	79	4.37	34,096	172	5.04
Trenton (Mer. Co.)	90,704	523	5.77	21,596	54	2.50
Vineland (Cumb. Co.)	4,727	17	3.60	26,547	74	2.79
Wharton (Mor. Co.)	2,415	12	4.97	50,326	143	2.84

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

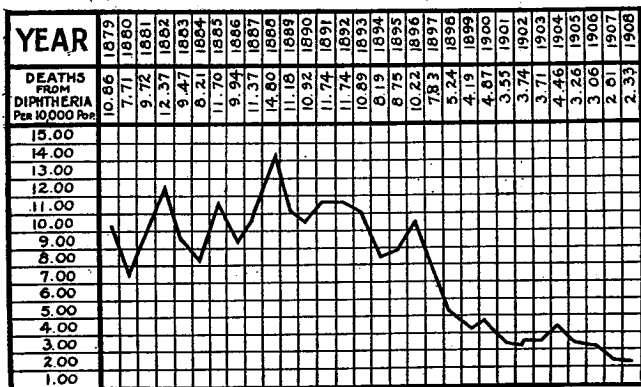


**Diphtheria.**—The total number of deaths from diphtheria reported to the Bureau of Vital Statistics was 535 for the calendar year of 1908, and the death-rate per 10,000 population was 2.33. The advantages offered by the State Laboratory of Hygiene for the prompt examination of specimens of suspected cases of diphtheria is no doubt a great assistance in the early diagnosis of the disease, and this together with the immediate use of antitoxin has been the means of reducing the mortality from this disease to the lowest point of which this department has record.

TABLE 27.—SHOWING DEATHS IN NEW JERSEY FROM DIPHTHERIA WITH AGES OF DECEDENTS, FOR YEAR ENDING DECEMBER 31, 1908.

AGE PERIODS.	Deaths from diphtheria.	AGE PERIODS.	Deaths from diphtheria.	AGE PERIODS.	Deaths from diphtheria.
Under 1 month.	1	25 to 30.	3	60 to 70.	1
Under 1 year.	45	30 to 35.	3	70 to 80.	
1 to 5.	314	35 to 40.	3	80 to 90.	
5 to 10.	133	40 to 45.		Over 90.	
10 to 15.	24	45 to 50.		Not stated	
15 to 20.	7	50 to 55.		Total.	535
20 to 25.	4	55 to 60.			

CHART SHOWING DEATHS FROM DIPHTHERIA PER 10,000 POPULATION, IN NEW JERSEY, FOR THE THIRTY YEARS ENDING DECEMBER 31, 1908.



**Typhoid Fever.**—The number of deaths from typhoid fever for the calendar year 1908, was 367, and the death-rate per 10,000 inhabitants, 1.60. This is the lowest rate from this disease in New Jersey for the past thirty years or since the establishment of the State Board of Health. No doubt the attention now being given by this department for the removal of causes contributing to typhoid infection will be the means of decreasing the mortality from this disease in future years. There is no doubt but that a pure water supply is of primary importance as a defense against typhoid fever.

In referring to this question Whipple in his work upon "Typhoid Fever" (page 117) comments as follows:

"The question naturally arises, 'Why is the typhoid death-rate so much lower in Western Europe than in the United States?' There are many reasons for it. Surface waters used without filtration are less frequent abroad. In Germany, for instance, the filtration of surface waters is required by law, and rigid restrictions are in force as to the efficiency necessary to be obtained by the filters. Probably, too, less water is used there as a beverage. In Europe milk is more often boiled before using, and oysters are not as much eaten as with us. Better water and safer milk having materially reduced the disease, the secondary causes, such as contagion and carriage by flies, decrease as a matter of course. It is possible that differences in the classification of disease and incompleteness of records may influence the figures given above, but they do not materially affect the comparison."

TABLE 28.—SHOWING COMPARATIVE DEATH-RATES FROM TYPHOID FEVER, PER 10,000 INHABITANTS, IN THE REGISTRATION AREA OF THE UNITED STATES AND IN NEW JERSEY, FOR THE EIGHT YEARS ENDING DECEMBER 31, 1908.

	DEATHS FROM TYPHOID FEVER, PER 10,000 INHABITANTS.								
	Annual average 1901-1908.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Registration area of United States.....	3.11	3.24	3.44	3.43	3.19	2.81	3.21	3.03	2.53
New Jersey.....	1.87	1.83	2.17	1.92	1.87	1.68	1.86	2.06	1.60

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

YEAR.	Popula- tion.*	Number of deaths from typhoid fever.	Deaths from typhoid fever, per 10,000 in- habitants.	YEAR.	Popula- tion.*	Number of deaths from typhoid fever.	Deaths from typhoid fever, per 10,000 in- habitants.]
1879.....	1,020,584	324	3.17	1894.....	1,578,373	485	3.07
1880.....	1,130,892	373	3.29	1895.....	1,672,942	568	3.39
1881.....	1,160,275	574	4.94	1896.....	1,718,543	577	3.35
1882.....	1,189,658	884	7.43	1897.....	1,764,141	478	2.70
1883.....	1,209,048	564	4.66	1898.....	1,810,008	450	2.48
1884.....	1,248,224	640	5.12	1899.....	1,855,872	486	2.62
1885.....	1,278,033	642	5.02	1900.....	1,888,669	356	1.87
1886.....	1,310,431	545	4.15	1901.....	1,925,781	352	1.83
1887.....	1,342,829	522	3.88	1902.....	1,967,893	428	2.17
1888.....	1,375,227	620	4.50	1903.....	2,016,797	388	1.92
1889.....	1,407,625	724	5.14	1904.....	2,058,909	384	1.87
1890.....	1,441,017	732	5.09	1905.....	2,144,143	360	1.68
1891.....	1,473,784	695	4.69	1906.....	2,196,238	408	1.86
1892.....	1,511,653	628	3.15	1907.....	2,248,331	464	2.06
1893.....	1,538,799	506	3.28	1908.....	2,300,427	367	1.60

\*Population estimated except for census years.

TABLE 30.—SHOWING DEATHS FROM TYPHOID FEVER IN NEW JERSEY, PER 10,000 POPULATION, BY COUNTIES, FOR THE EIGHT YEARS ENDING DECEMBER, 1908, WITH AVERAGES FOR EIGHT YEARS.

COUNTIES.	YEARS.								Average for eight years.
	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	
Atlantic County.....	2.67	2.74	2.81	1.97	2.01	1.60	2.30	1.62	2.22
Bergen County.....	.99	1.08	1.16	1.24	1.10	1.15	1.29	.71	1.09
Burlington County.....	2.58	2.23	3.61	2.89	2.58	3.18	4.41	4.04	3.19
Camden County.....	2.11	2.44	1.07	2.46	1.81	2.98	2.99	2.00	2.23
Cape May County.....	2.26	.60	.75	.....	1.73	1.65	2.62	.90	1.26
Cumberland County.....	1.94	2.32	.96	2.29	2.88	1.15	2.29	1.71	1.94
Essex County.....	1.93	2.12	2.04	4.41	1.39	1.79	2.00	1.16	1.73
Gloucester County.....	2.81	2.17	2.16	1.54	1.16	3.14	1.41	1.39	1.97
Hudson County.....	1.74	1.86	1.66	1.99	2.66	1.71	1.58	1.11	1.79
Hunterdon County.....	1.45	2.03	1.74	1.45	.90	1.80	2.44	.62	1.55
Mercer County.....	1.75	6.04	5.14	3.87	2.35	3.26	6.69	4.43	4.19
Middlesex County.....	1.47	1.95	1.05	2.63	1.55	.70	1.92	1.68	1.62
Monmouth County.....	1.92	2.36	1.63	1.95	2.62	2.47	1.99	2.41	2.17
Morris County.....	1.06	1.21	1.75	1.00	2.21	1.75	1.01	.72	1.54
Ocean County.....	1.00	2.98	.49	2.43	3.35	.95	1.41	.....	1.58
Passaic County.....	2.19	6.50	2.02	.....	.....	.....	.....	.....	.....
Salem County.....	.....	1.96	1.96	3.53	2.28	3.03	1.51	2.62	2.11
Somerset County.....	.60	.59	1.16	.86	2.48	1.35	.27	2.35	1.21
Sussex County.....	.41	2.51	.80	1.97	.43	1.71	1.29	3.94	1.63
Union County.....	2.64	2.57	2.32	1.99	1.37	1.66	1.37	2.19	2.01
Warren County.....	1.85	4.74	1.05	2.35	1.73	1.95	1.43	.71	1.98
The State.....	1.83	2.17	1.92	1.87	1.68	1.86	2.06	1.76	1.92

TABLE 31.—SHOWING DEATHS FROM TYPHOID FEVER IN NEW JERSEY, FOR YEAR ENDING DECEMBER 31, 1908, AND SHOWING ALSO THE NUMBER OF DEATHS FROM THIS DISEASE IN URBAN AND RURAL DISTRICTS, TOGETHER WITH POPULATION AND DEATHS PER 10,000 INHABITANTS.

	Aggregate population.	Deaths from typhoid fever.	Deaths from typhoid fever per 10,000 population.
State.....	2,300,427	367	1.60
Cities.....	1,584,217	269	1.70
Rural Districts.....	716,210	98	1.37

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

YEARS	AGE PERIODS.											Totals.
	Under 1 year.	1 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Not stated.	
1901.....	2	35	57	107	74	86	17	13	9	1	1	352
1902.....	1	25	72	124	92	53	33	18	8	1	1	428
1903.....	3	26	77	108	88	49	19	17	.....	.....	1	388
1904.....	2	24	77	108	83	31	35	16	5	3	.....	384
1905.....	3	32	73	96	65	49	28	16	6	1	.....	360
1906.....	1	34	85	110	67	59	28	11	10	3	.....	408
1907.....	0	22	95	149	93	61	27	11	4	2	.....	464
1908.....	3	36	71	96	73	39	25	16	6	2	.....	367
Totals.....	15	235	607	888	635	377	212	118	48	13	3	3,151



TABLE 33.—SANITARY DISTRICTS IN NEW JERSEY IN WHICH DEATHS FROM TYPHOID FEVER OCCURRED DURING THE YEAR ENDING DECEMBER 31, 1908, WITH POPULATION, NUMBER OF DEATHS, SOURCE OF WATER SUPPLY AND NATURE OF DRAINAGE.

NAME OF SANITARY DISTRICT.	Population, census 1905.	Number of deaths from typhoid fever.	Water-supply.	Drainage.
Acquackanonk township.	7,187	1	Domestic.	No sewers.
Alloway township.	1,562	1	Public.	Sewers.
Asbury Park.	4,526	2	"	"
Atlantic City.	37,593	8	"	"
Bayonne.	42,262	4	"	"
Belmar borough.	1,089	1	"	No sewers
Belvidere.	1,869	1	"	"
Beverly township.	2,181	1	"	"
Bouton City.	3,635	1	"	"
Bordentown City.	4,073	1	"	"
Bound Brook borough.	3,389	1	"	"
Bridgeton City.	13,624	1	"	"
Bridgewater township.	1,160	1	Domestic.	No sewers.
Buena Vista township.	2,624	2	"	"
Burlington City.	8,038	10	Public.	Sewers.
Burlington township.	1,012	3	Domestic.	No sewers.
Camden City.	83,383	15	Public.	Sewers.
Canter.	2,651	1	Domestic.	No sewers.
Chester.	4,849	1	"	"
Clinton township (Hunterdon).	2,026	1	"	"
Cranbury township.	1,465	1	Pub. & Dom.	"
Cranford township.	3,600	1	"	"
Deerfield township.	3,212	1	"	"
Downe Township.	1,664	2	Domestic.	"
Dunellen borough.	1,517	1	Public.	"
East Orange City.	25,175	5	"	Sewers.
Elizabeth City.	80,509	15	"	"
Englewood City.	7,922	1	"	"
Evesham.	1,356	2	Domestic.	No sewers.
Fanwood township.	1,341	1	"	"
Florence.	1,967	2	Domestic.	No sewers.
Franklin township (Gloucester).	2,197	1	"	"
Freehold borough.	3,064	3	Public.	Sewers.
Glen Ridge borough.	2,362	1	"	"
Gloucester City.	8,055	4	"	"
Haddon township.	1,009	1	"	No sewers.
Hamilton township (Mercer Co.).	5,150	1	Domestic.	"
Hammonton.	4,334	1	Public.	"
Hardyston township.	3,434	4	Domestic.	"
Harrison City.	12,523	2	Public.	Sewers.
Hatboroek Heights borough.	1,420	1	"	No sewers.
Highlands Borough.	1,275	1	"	"
Hillsborough township.	2,247	1	Domestic.	"
Hoboken City.	65,468	13	Public.	Sewers.
Hopewell Borough.	984	1	"	No sewers.
Hopewell township (Mercer Co.).	3,209	1	Domestic.	"
Irvington City.	7,180	1	Public.	Sewers.
Jersey City.	232,699	25	"	"
Kearny City.	13,901	1	"	"
Lands township.	5,211	2	Domestic.	No sewers.
Little Falls township.	3,079	1	Public.	"
Lodi Borough.	2,793	1	"	"
Long Branch City.	12,183	8	"	Sewers.
Mantua township.	1,471	1	"	No sewers.
Middle township.	2,584	1	Domestic.	"
Middletown township.	5,600	1	"	"
Midland township.	1,465	2	"	"
Midland Park borough.	1,617	1	Public.	"
Milltown borough.	1,210	1	Domestic.	"
Millville City.	11,884	1	Public.	Sewers.
Monroe township (Gloucester Co.).	2,519	1	Domestic.	No sewers.
Montclair City.	16,370	1	Public.	Sewers.
Morristown City.	12,146	3	"	No sewers.
Mount Laurel.	1,471	2	Domestic.	"
Neptune township.	9,357	3	"	"
Newark City.	283,289	39	Public.	Sewers.

TABLE 33.—SANITARY DISTRICTS IN NEW JERSEY IN WHICH DEATHS FROM TYPHOID FEVER OCCURRED DURING THE YEAR ENDING DECEMBER 31, 1908, WITH POPULATION, NUMBER OF DEATHS, SOURCE OF WATER SUPPLY AND NATURE OF DRAINAGE.—(Continued).

NAME OF SANITARY DISTRICT.	Population, census 1905.	Number of deaths from typhoid fever	Water-supply.	Drainage
New Brunswick.	23,133	8	"	"
Newton township.	4,422	4	Domestic.	No sewers.
Northampton township.	5,509	3	"	"
North Bergen township.	11,134	1	"	"
North Plainfield City.	5,616	2	Public.	Sewers.
Norwood borough.	432	1	Domestic.	No sewers.
Orange City.	26,101	4	Public.	Sewers.
Passaic City.	37,537	5	"	"
Paterson City.	111,529	13	"	"
Penns Grove borough.	2,062	1	"	No sewers.
Pensauken township.	3,957	2	Domestic.	No sewers.
Perth Amboy City.	25,895	7	Public.	Sewers.
Phillipsburg City.	13,352	1	"	"
Plainfield City.	18,468	9	"	"
Quinton township.	1,135	1	Domestic.	No sewers.
Raritan borough (Somerset).	3,954	1	Public.	"
Raritan township (Hunterdon).	3,861	1	Domestic.	"
Raritan township (Monmouth).	1,473	1	"	"
Red Bank City.	6,263	1	Public.	Sewers.
Riverton borough.	1,557	1	"	No sewers.
Saddle River township.	2,048	1	Domestic.	"
Salem City.	6,443	3	Public.	Sewers.
Secaucus borough.	3,191	1	Domestic.	No sewers.
Somerville borough.	4,782	3	Public.	Sewers.
Spring Lake borough.	1,039	1	Public.	"
Summit City.	6,845	1	"	"
Sussex borough.	1,318	1	"	No sewers.
Town of Union City.	17,005	3	"	Sewers.
Trenton City.	84,130	50	"	"
Union township (Union Co.).	2,614	1	Domestic.	No sewers.
Vineland borough.	4,593	2	Public.	Sewers.
Washington township (Morris).	2,021	1	Domestic.	"
Washington township (Warren).	1,089	1	"	No sewers.
Weehawken.	8,027	2	Public.	Sewers.
West Deptford township.	2,227	1	Domestic.	No sewers.
West Hoboken City.	29,082	1	Public.	Sewers.
West New York City.	7,196	1	"	"
Winslow township.	2,856	3	Domestic.	No sewers.
Woodbury City.	4,560	1	Public.	Sewers.
Woodstown borough.	1,500	1	"	"

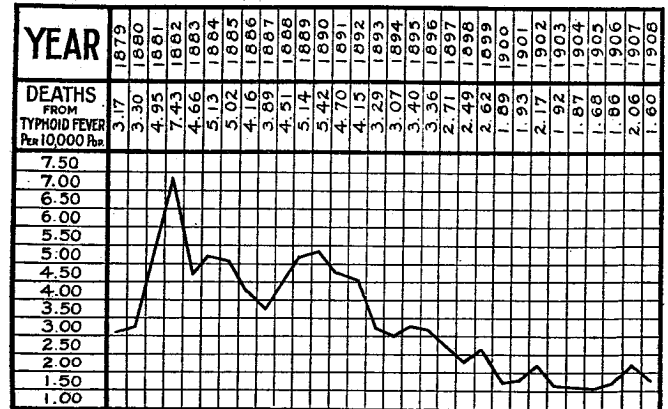
TABLE 34.—DEATHS FROM SCARLET FEVER, DIPHTHERIA AND TYPHOID FEVER IN NEW JERSEY FOR THE THIRTY YEARS ENDING DECEMBER 31, 1908, COMPARED WITH TOTAL DEATHS.

YEARS.	Popula- tion.	Total deaths.	Death- rate per 1,000 popula- tion.	SCARLET FEVER.		DIPHTHERIA.		TYPHOID FEVER.	
				Number of deaths.	Death- rate per 1,000 popula- tion.	Number of deaths.	Death- rate per 1,000 popula- tion.	Number of deaths.	Death- rate per 1,000 popula- tion.
1879.....		20,440	18.07	627	.61	1,100	1.09	324	.32
1880.....	1,130,892	18,967	16.77	573	.51	873	.77	373	.33
1881.....		20,810	18.39	499	.43	1,128	.97	574	.49
1882.....		25,910	22.90	1,306	1.01	1,472	1.24	884	.74
1883.....		13,310	20.60	853	.71	1,146	.95	564	.47
1884.....		21,716	19.20	547	.44	1,027	.82	640	.51
1885.....	1,278,033	23,807	18.63	646	.51	1,496	1.17	642	.50
1886.....		22,734	17.80	222	.17	1,303	.99	545	.42
1887.....		24,331	19.04	255	.19	1,527	1.14	322	.29
1888.....		27,173	17.01	574	.42	2,036	1.48	620	.54
1889.....		26,543	18.99	533	.38	1,574	1.12	724	.45
1890.....	1,441,017	28,530	19.80	209	.15	1,575	1.09	782	.54
1891.....		28,840	19.50	268	.19	1,737	1.17	695	.47
1892.....		32,685	21.62	1,008	.67	1,776	1.17	628	.42
1893.....		30,596	19.88	445	.29	1,677	1.09	506	.33
1894.....		30,004	19.09	272	.17	1,294	.82	485	.31
1895.....	1,672,942	30,634	18.31	264	.16	1,464	.88	568	.34
1896.....		30,767	17.90	153	.11	1,758	1.02	577	.34
1897.....		29,822	16.90	203	.12	1,382	.78	478	.27
1898.....		27,337	15.11	201	.11	950	.52	450	.25
1899.....		30,999	16.70	187	.10	777	.42	486	.26
1900.....	1,883,669	31,474	16.62	220	.12	927	.49	356	.19
1901.....		31,739	16.48	179	.09	683	.36	352	.19
1902.....		31,319	15.91	217	.11	683	.35	428	.22
1903.....		31,820	15.78	299	.15	748	.37	388	.19
1904.....		35,298	17.14	416	.20	918	.45	384	.19
1905.....	2,144,143	33,824	15.79	164	.07	699	.33	360	.17
1906.....		2,196,238	16.24	193	.06	673	.31	408	.19
1907.....		2,248,331	16.63	286	.13	632	.29	464	.21
1908.....	2,300,427	25,597	15.47	396	.17	535	.23	367	.16

TABLE 35.—SHOWING DEATHS FROM TYPHOID FEVER AND DEATHS PER 10,000 INHABITANTS FROM TYPHOID FEVER IN THE COUNTIES OF NEW JERSEY FOR YEAR ENDING DECEMBER 31, 1908, ALSO CHART SHOWING DEATHS FROM TYPHOID FEVER PER 10,000 INHABITANTS IN THE COUNTIES OF NEW JERSEY FOR SAME PERIOD.

NAMES OF COUNTIES.	Number of deaths from typhoid fever.	Deaths from typhoid fever per 10,000 inhabitants.	Chart showing deaths from typhoid fever per 10,000 inhabitants.
Atlantic County.....	11	1.62	
Bergen County.....	8	.71	
Burlington County...	26	4.04	
Camden County.....	26	2.00	
Cape May County...	1	.50	
Cumberland County...	9	1.71	
Essex County.....	51	1.16	
Gloucester County...	5	1.39	
Hudson County.....	54	1.11	
Hunterdon County...	2	.62	
Mercer County.....	53	4.43	
Middlesex County...	18	1.68	
Monmouth County...	22	2.41	
Morris County.....	5	.72	
Ocean County.....			
Passaic County.....	20	1.06	
Salem County.....	7	2.62	
Somerset County.....	9	2.35	
Sussex County.....	9	3.94	
Union County.....	28	2.19	
Warren County.....	3	.71	

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

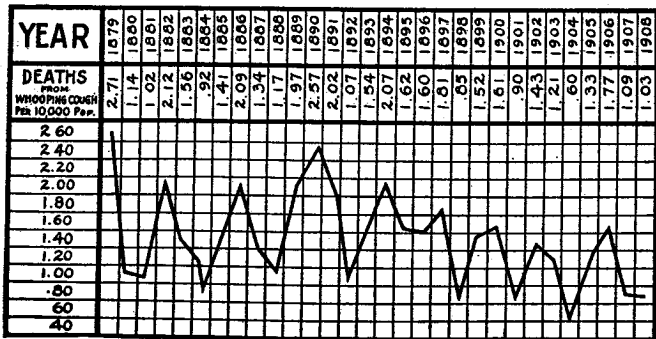


**Whooping Cough.**—The total number of deaths from whooping cough for the year ending Dec. 31, 1908, was 237, a decrease of 8 from the previous year. The death-rate per 10,000 inhabitants was 1.03, which is lower than for any period during the last four years. Since notification of this disease is not required by local boards of health and the long period of infectiousness makes quarantine practically impossible, there is no hope for a decided decrease in the mortality from whooping cough.

TABLE 36.—SHOWING DEATHS IN NEW JERSEY FROM WHOOPING COUGH, WITH AGES OF DECEDENTS, FOR YEAR ENDING DECEMBER 31, 1908.

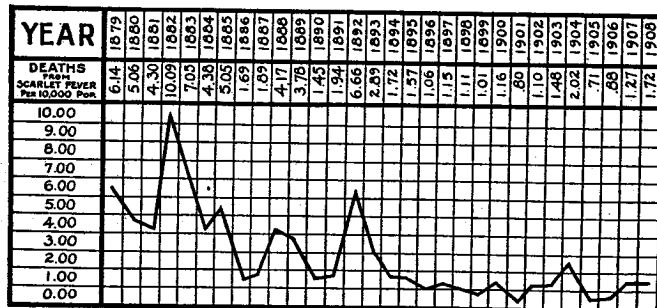
AGE PERIODS.	Deaths from whooping cough.	AGE PERIODS.	Deaths from whooping cough.	AGE PERIODS.	Deaths from whooping cough.
Under 1 month.	4	20 to 25.	.....	50 to 55.	.....
Under 1 year.	134	25 to 30.	.....	55 to 60.	.....
1 to 5.	94	30 to 35.	.....	60 to 70.	.....
5 to 10.	5	35 to 40.	.....	70 to 80.	.....
10 to 15.	.....	40 to 45.	.....	80 to 90.	.....
15 to 20.	.....	45 to 50.	.....	Over 90.	.....
				Total.	237

CHART SHOWING DEATHS FROM WHOOPING COUGH IN NEW JERSEY, PER 10,000 POPULATION, FOR THE THIRTY YEARS ENDING DECEMBER 31, 1908.



**Scarlet Fever.**—The number of deaths from scarlet fever reported to this department for the year ending Dec. 31, 1908, was 396. It will be noticed by the accompanying chart that the mortality from scarlet fever has greatly diminished during the past 15 years. This is not only so in this state but reference to the mortality tables of Scotland, England and Wales shows that the same diminution has taken place during the period of time mentioned, however, it is not permissible to assume that these figures represent diminished prevalence of the disease. There is the other possible explanation that scarlet fever has become very much less fatal than before—that the proportion of deaths to cases has so diminished as to cause the lowering of the contribution which scarlet fever makes to the total death-rate of the State.

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

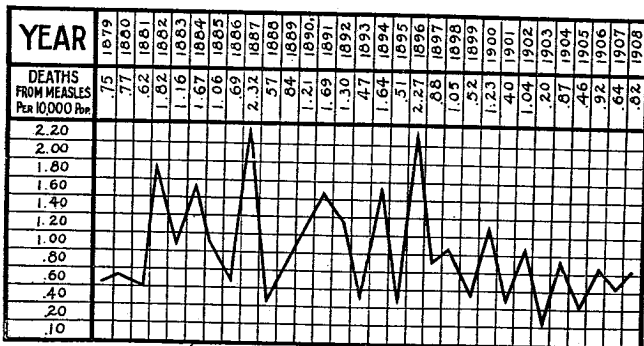


**Measles.**—The number of deaths from measles in New Jersey for the calendar year 1908, was 189, and the rate per 10,000 population, .82. For the past five years there has been a tendency toward an increase in the death-rate from this disease. While it is a fact that this disease kills in England and Wales more than twice as many people as scarlet fever and fully a half more than diphtheria, the same conditions do not prevail in this State or Country. However during the past thirty years there have been 4,852 deaths from measles in New Jersey. It would therefore appear that this is a most serious and dangerous disease. An important step in the direction of preventing the spread of measles would be to have a periodical medical examination of all school children.

TABLE 37.—SHOWING DEATHS IN NEW JERSEY FROM MEASLES, WITH AGE AT DEATH, FOR YEAR ENDING DECEMBER 31, 1908.

AGE PERIODS.	Deaths from measles.	AGE PERIODS.	Deaths from measles.	AGE PERIODS	Deaths from measles.
Under 1 month	6	25 to 30.		60 to 70.	
Under 1 year.	43	30 to 35.	1	70 to 80.	1
1 to 5.	111	35 to 40.		80 to 90.	
5 to 10.	21	40 to 45.		Over 90.	
10 to 15.	5	45 to 50.			
15 to 20.		50 to 55.			
20 to 25.	1	55 to 60.		Total.	189

CHART SHOWING DEATHS IN NEW JERSEY FROM MEASLES, PER 10,000 POPULATION FOR THIRTY YEARS ENDING DECEMBER 31, 1908.

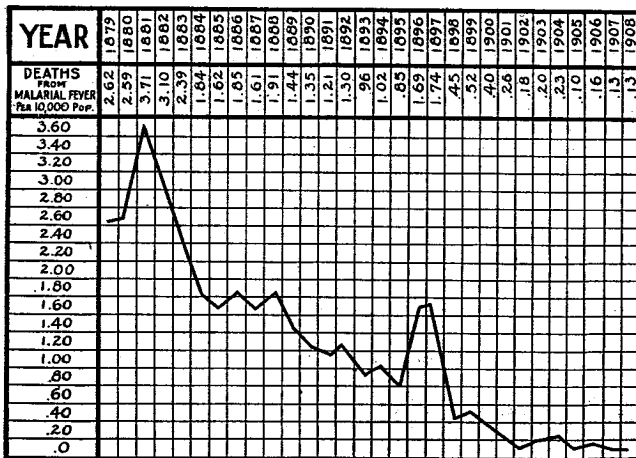


**Malarial Fever.**—The number of deaths in New Jersey from malarial fever for the year 1908, was 30, and the death-rate per 10,000 inhabitants, .13. Reference to the accompanying chart showing the death-rate in New Jersey from this disease for the past 30 years will show that there is a gradual decrease from malarial affections.

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

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

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



**Small Pox.**—For the year ending Dec. 31, 1908, no deaths from small pox were recorded in this office. New Jersey has been particularly free from serious outbreaks of this disease for the past six years.

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

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

**Cancer.**—The number of deaths in New Jersey from cancer for the calendar year 1908, was 1,535, and the death-rate per 10,000 inhabitants, 6.67. This is the highest death-rate from this disease recorded in this State.

TABLE 40.—SHOWING DEATHS FROM CANCER IN NEW JERSEY FOR THIRTY YEARS.

YEARS.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Deaths from cancer.....	378	425	451	402	461	484	498	546	574	612	579	640	642	688	723
Deaths from cancer per 10,000 population.....	3.70	3.75	3.88	3.37	3.81	3.87	3.89	4.15	4.21	4.45	4.11	4.41	4.34	4.55	4.69

YEARS.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Deaths from cancer.....	731	770	811	857	852	946	921	1,042	1,031	1,132	1,125	1,282	1,389	1,466	1,535
Deaths from cancer per 10,000 population.....	4.63	4.60	4.71	4.33	4.70	5.10	4.84	5.43	5.24	5.61	5.46	5.98	6.32	6.52	6.67

TABLE 41.—DEATHS FROM CANCER IN NEW JERSEY, BY AGE PERIODS, FOR EIGHT YEARS.

YEARS.	AGE PERIODS.											Totals.
	Under 1 year.	1 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Not stated.	
1901.....	1	6	9	19	85	196	280	240	159	47	1	1,043
1902.....	1	7	5	24	92	190	322	216	138	31	7	1,031
1903.....		10	2	22	79	179	293	308	177	57	5	1,132
1904.....	7	5	9	21	81	168	286	302	199	47		1,125
1905.....	6	15	11	22	87	239	294	353	190	64	1	1,282
1906.....	2	12	6	25	104	241	350	380	225	74		1,389
1907.....	1	8	14	23	91	244	377	369	262	77		1,466
1908.....	1	13	9	27	118	260	377	414	236	80		1,535
	19	76	65	183	737	1717	2579	2552	1584	477	14	10,003

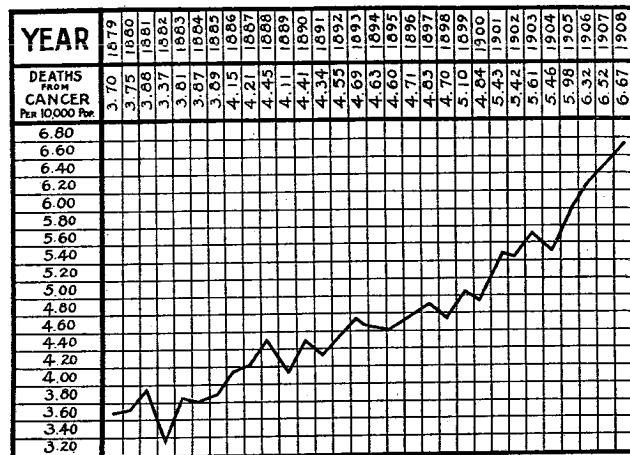
TABLE 42.—DEATHS FROM CANCER IN NEW JERSEY, SHOWING ORGANS AFFECTED AND AGE AT DEATH, FOR THE YEAR ENDING DECEMBER 31, 1908.

CANCER.	Under 1 month.	Under 1 year.	1	5	10	15	20	25	30	35	40	45	50	55	60	70	80	Over 90	Age not stated.	Totals
			to 5	to 10	to 15	to 20	to 25	to 30	to 35	to 40	to 45	to 50	to 55	to 60	to 70	to 80	to 90			
Of the mouth.....	1									1	2	7	11	9	14	11	3			59
Of the stomach and liver.....		4	1	2	1	3	8	10	24	34	61	69	91	213	112	25	3			661
Of the intestines and rectum.....		2				1	3	4	9	13	11	15	30	51	27	6				172
Of the female genital organs.....		1			1			3	14	23	27	30	31	32	56	24	10			252
Of the breast.....					1			1	2	7	14	16	13	15	32	15	9			128
Of the skin.....		4	1		1	2			1	2	3	3	4	6	14	9				45
Others.....		4	1	1	3	1	4	9	14	17	23	27	24	42	33	10	5			218
Totals.....	1	11	2	3	6	6	21	29	79	109	151	169	208	414	236	72	8			1,535

TABLE 43.—DEATHS FROM CANCER IN NEW JERSEY FOR THE YEAR ENDING DECEMBER 31, 1908, PER 10,000 POPULATION, BY COUNTIES AND BY CITIES OF OVER 5,000 INHABITANTS.

NAME OF PLACE.	Deaths from cancer.	Deaths per 10,000 population.
Atlantic County.....	7	2.86
Atlantic City.....	32	7.37
Bergen County.....	40	4.66
Englewood.....	4	4.48
Garfield.....	1	1.96
Hackensack.....	9	7.44
Burlington County.....	47	9.07
Bordentown.....	2	4.94
Burlington City.....	1	1.19
Camden County.....	24	7.21
Camden City.....	57	6.49
Gloucester City.....	5	5.69
Cape May County.....	12	6.03
Cumberland County.....	17	6.40
Bridgeton.....	14	10.41
Millville.....	12	9.48
Essex County.....	25	7.65
Bloomfield.....	13	10.10
East Orange.....	20	7.31
Irvington.....	4	4.80
Montclair.....	16	8.98
Newark.....	229	7.49
Orange.....	8	8.43
West Orange.....	5	5.91
Gloucester County.....	21	5.83
Hudson County.....	16	4.69
Bayonne.....	23	5.21
Harrison.....	5	3.53
Hoboken.....	44	6.26
Jersey City.....	141	5.87
Kearny.....	3	5.25
Town of Union.....	22	12.16
West Hoboken.....	15	4.59
West New York.....	5	5.99
Hunterdon County.....	20	7.34
Lambertville.....	3	5.72
Mercer County.....	13	6.02
Princeton.....	3	4.11
Trenton.....	59	6.50
Middlesex County.....	29	6.39
New Brunswick.....	17	6.80
Forth Amboy.....	12	3.89
South Amboy.....	3	4.84
Monmouth County.....	50	8.21
Asbury Park.....	6	4.46
Long Branch.....	13	9.17
Red Bank.....	3	4.44
Morris County.....	37	7.35
Dover.....	21	16.57
Morristown.....	19	8.81
Ocean County.....	17	5.86
Passaic County.....	26	5.95
Passaic City.....	87	7.54
Paterson.....	11	5.53
Salem County.....	5	7.33
Salem City.....	23	7.12
Somerset County.....	7	11.71
North Plainfield.....	14	6.13
Sussex County.....	6	3.09
Union County.....	41	6.26
Elizabeth.....	29	14.27
Plainfield.....	12	13.22
Rahway.....	7	9.01
Summit.....	5	8.58
Westfield.....	12	4.50
Warren County.....	4	2.61
Phillipsburg.....		
Total in cities of over 5,000 inhabitants.....	1,075	
Total for State.....	1,535	
Rate per 10,000 population (State).....		6.67

CHART SHOWING DEATHS IN NEW JERSEY FROM CANCER, PER 10,000 POPULATION, FOR THIRTY YEARS, 1879-1908.



**Suicide.**—448 deaths from suicide were reported during the year ending Dec. 31, 1908, an increase of 61 over the previous year. The accompanying table will show there has been gradual increase in suicides during the past eight years. Most of the deaths occurred between the ages of 35 and 50, and poison and firearms were the means used in a large proportion of all the deaths.

TABLE 44.—SHOWING DEATHS IN NEW JERSEY FROM SUICIDE FOR EIGHT YEARS, 1901-1908.

YEARS.	Deaths from suicide.	YEARS.	Deaths from suicide.
1901.....	265	1905.....	354
1902.....	271	1906.....	338
1903.....	314	1907.....	357
1904.....	330	1908.....	448

TABLE 45.—DEATHS IN NEW JERSEY FROM SUICIDE, SHOWING MODE OF DEATH AND AGE AT DEATH, FOR THE YEAR ENDING DECEMBER 31, 1908.

MODE OF DEATH.	AGE AT DEATH.														Totals.		
	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 70	70 to 80		70 to 90	Over 90
By poison.....				8	16	13	16	22	20	14	12	10	7	7	1		146
By asphyxia.....				1	3	9	5	6	10	7	8	6	8	3			66
By strangulation.....		1	1	4	2	5	7	3	11	8	7	11	3				63
By firearms.....	1		4	10	12	7	17	3	16	17	9	9	18	5			125
By cutting instruments.....			1	1		3	4	2	1	2	1						14
By drowning.....			1			3	4	2	1	2	1						14
By crushing.....			1	2		1	2	3	4	3	3	3	3				3
By precipitation from height.....						1			1			1					3
Others.....							1		1		1	1					4
Totals.....	1	1	15	37	37	37	58	55	54	45	37	49	21	1			448

TABLE 46.—SHOWING NUMBER OF DEATHS BY SUICIDE RECORDED IN NEW JERSEY, BY CITIES, AND BY COUNTIES, EXCLUSIVE OF CITIES, FOR THE YEAR ENDING DECEMBER 31, 1908.

NAME OF PLACE.	COUNTRY OF BIRTH.											Total.					
	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.						
Atlantic County.....																	3
Atlantic City.....	6	1		2			1										10
Bergen County.....																	23
Englewood.....	1																1
Garfield.....	1																1
Hackensack.....	2			1													3
Burlington County.....																	7
Bordentown.....	1																1
Burlington.....	1																1
Camden County.....	5																5
Camden.....	5																5
Gloucester City.....	1	1		1													2
Cape May County.....																	2
Cumberland County.....																	1
Bridgeton.....	1																1
Millville.....	1																1
Essex County.....																	1
Bloomfield.....																	7
East Orange.....	4	1		1													6
Irvington.....	1																2
Montclair.....	1																1
Newark.....	32	1		19	3	2											57
Orange.....	1																1
West Orange.....	2			1													3
Gloucester County.....																	9
Hudson County.....																	9
Bayonne.....	1					2											12
Harrison.....	10	1		12													23
Hoboken.....	24	1		15	3	1											44
Jersey City.....	24	1		15	3	1											44
Kearny.....																	1
Town of Union.....	2			5		2											9
West Hoboken.....	4			3		1											8
West New York.....	2			1		2											5
Hunterdon County.....																	3
Lambertville.....																	4
Mercer County.....																	5
Princeton.....	12																12
Middlesex County.....																	3
New Brunswick.....	1																1
Perth Amboy.....																	2
South Amboy.....																	2
Monmouth County.....																	1
Asbury Park.....	1																1
Long Branch.....	2																2
Red Bank.....	3																3
Morris County.....																	3
Dover.....																	1
Morristown.....	2	1															3
Ocean County.....																	4
Passaic County.....																	4
Passaic City.....	1																1
Paterson.....	10	1		3		2											15
Salem County.....																	1
Salem City.....	2																2
Somerset County.....																	2
North Plainfield.....	1																1
Sussex County.....																	5
Union County.....																	4
Elizabeth.....	4																4
Plainfield.....	3																3
Rahway.....	3																3
Summit.....																	1
Westfield.....																	1
Warren County.....																	9
Phillipsburg.....																	9
Totals.....	147	9	1	72	11	12	2	16	1	32	11	44					448





TABLE 47.—INFECTIOUS DISEASES REPORTED FOR EACH QUARTER DURING THE YEAR ENDING JUNE 30, 1909.—(Continued).

NAME OF SANITARY DISTRICT.	DIPHTHERIA.				SCARLET FEVER.				TYPHOID FEVER.				SMALL-POX.			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pennington borough.....	1		12	8			16	14							25	5
Pertchmoy city.....							3	1		4						
Pitman borough.....							2	1								
Pittsgrove township.....	1	3	6	3		1	15	33	13	20		5			3	3
Plainfield city.....			2				2	1								
Pompton township.....																
Princeton borough.....		3		2		1	5	7	1		1	1				
Rahway city.....		4	1	1			2	1				4	10			
Randolph township.....		3					3									
Red Bank town.....				5												
Riverton borough.....						3	1							1		
Rockaway borough.....			1				2									
Rockaway township.....																
Roselle Park borough.....	1		1			3	4	3								
Rumson borough.....	1					9			4							
Rutherford borough.....			2					2	10							
Salem city.....			1	5		1	5		3	20	9	1	1			
Sayreville township.....			8	5												1
Shrewsbury township.....						2										
Somerville borough.....	7	4	3	2		1	3	1		8		3	1	1		
Somers Point borough.....																
South Bound Brook borough.....	1	1				5			1							
South Brunswick township.....	1		2										1			
South Orange village.....			5				8	14		2	5	3				
South River borough.....				2						2			3			
Springfield township (B).....	2								1							
Springfield township (U).....						5			1				2			
Spring Lake borough.....		1								1						
Summit city.....		3	1				10	3	2		1	3				
Sussex borough.....								1								
Tenafly borough.....			3					3	1							
Tewksbury township.....		10	12	8		5	10	7	10		1					
Town of Union.....	11	33	17	22		7	12	24	34	33	33	52	76			2
Union township (H).....			4				1									
Union township (U).....	1		1				2		2							
Upper Pittsgrove township.....			1				2		1	2			2			
Verona borough.....	5	7	7	3			5			10	1					
Vineland borough.....				1												
Wantage township.....		4														
Warren township.....																
Washington township (B).....			1			1										
Washington township (Bur.).....												1				
Wenonah borough.....	1		2													
Westampton township.....			1													
West Amwell township.....				2			1		7							
West Deptford township.....																
Westfield town.....	6	11		1		2	4	10	15	1	4	10	2			
West Long Branch borough.....			1													
West New York town.....	2	4	6	13		2	2	7	1		1					
West Orange town.....	2	3	12	3			1	7	8	15			3			
Westwood borough.....						3						1				
Wildwood borough.....			1	1			1				19					
Winslow township.....		1						1								
Woodbine borough.....			4			4			3			1				1
Woodbridge township.....																
Woodbury city.....	2	1	4	7			1	17	2				2			
Wood Ridge borough.....		1														
Woodstown borough.....				1												
Total cases reported by quarters.....	465	1158	1235	845	484	1013	1665	1659	487	347	187	247			41	47
Total cases reported for year.....				3703				4821				1268				88

**Division of Medical and Sanitary Inspection.**—The work of this division has been carried on during the past year in accordance with plans suggested in the report of 1908.

The necessity for a law compelling physicians to make reports to the State Board of Health of all cases of communicable diseases occurring on dairy premises is indicated by the number of such cases that have been investigated, and it is apparent that the precautions which have been adopted, and the suggestions made to owners of dairy premises, have resulted in limiting the spread of disease. Physicians throughout the State have cooperated with the State Board of Health in the enforcement of the law, and have given valuable assistance in reporting cases in which the owners of dairy premises upon which cases of communicable diseases have occurred have failed to follow instructions given by the representative of the board.

An examination of the reports on the sanitary condition of charitable and penal institutions in the State shows many sanitary defects existing in these institutions which may be remedied by merely calling the attention of the managers of the institutions to existing conditions. Whenever sanitary defects were noted the managers of the institutions have been notified, and, with one exception, immediate action has been taken to remedy the defects. These inspections will continue during the year, and after all the institutions in the State have been inspected re-inspections will be made for the purpose of learning whether the suggestions of the State Board of Health have been followed.

During the epidemic of small-pox the representatives of the division were called to consult with local boards of health in many of the localities in which the disease occurred, and we believe the advice given to local boards, and the assistance rendered, aided materially in preventing an extensive epidemic of the disease.

In the outbreak of diphtheria in the Epileptic Village, at Skillman, the division assumed the responsibility of directing the preventive measures which were adopted, and by the use of the State Laboratory of Hygiene for the detection of cases were able to limit the total number of clinical cases to twelve. The report of this outbreak is given in full in the report of the chief of the division, and we believe it will be of special interest to physicians and sanitarians.

An effort has been made during the year to improve local sanitation, and over three hundred letters have been sent to secretaries and registrars of vital statistics of local boards of health calling attention to failure to make weekly reports to the State Board of Health of cases of contagious diseases. There is a

decided increase in the number of localities which now make such reports, and in the making of annual reports to the State Board of Health the number of boards failing to make such reports has diminished to less than 100 out of a total of 460 boards in the State.

With the services of an additional inspector, provision for which was made by the appropriation committee of the legislature of the past year, it will be possible to visit every delinquent local board of health in the State, and at the end of the coming year nearly every one of these boards should make weekly reports of contagious diseases and also forward the annual reports required by the laws of the State.

A summary of the work of the division in dealing with contagious diseases for the year is as follows: Number of cases of diseases on dairy premises investigated, 37; number of dairies on which cases of communicable diseases occurred, 19; number of epidemics investigated, 84, in which 467 individual cases occurred. These cases include 146 of typhoid fever; 41 of scarlet fever; 159 of diphtheria and 107 of small-pox.

**State Laboratory of Hygiene.**—The work of the State Laboratory of Hygiene has increased considerably in volume and variety during the past year. The laboratory work falls in three main classes: bacteriological examinations from suspected cases of communicable diseases, the analysis of samples of food and drugs and the analysis of samples of water and sewage. A detailed account of the bacteriological work will be found in the report of the Director of the Laboratory, of the examination of food and drugs in the report of the Chief of the Division of Food and Drugs, and of the water and sewage analyses in the report of the Chief of the Division of Sewerage and Water Supplies.

The resources of the bacteriological department were taxed to their utmost during the past year because of an epidemic of diphtheria at the State Village for Epileptics at Skillman, which resulted in the sending of large numbers of specimens to the laboratory. Over eleven thousand specimens were examined during a period of about three months from this institution alone. Had it not been possible to obtain the assistance of employees of the Division of Food and Drugs and Sewerage and Water Supplies the laboratory staff would have been unable to conduct these examinations.

Outbreaks such as this are likely to occur at any time, and the laboratory should be prepared to undertake its part in controlling them at a moment's notice. The Skillman outbreak made certain

defects in the laboratory equipment uncomfortably noticeable and these defects should be remedied before another large outbreak occurs. The laboratory is still unprovided with a room where animals can be kept for experimental purposes. The Director has called attention to the need for such a room for a number of years but nothing has so far been done. This deficiency greatly impaired the efficiency of the work on the Skillman outbreak because the necessary tests for virulence could not be made. The lack of virulence tests resulted in the continuance of quarantine restrictions for a considerable longer time than would have been necessary had accurate information concerning the virulence of the cultures received been available, and the cost to the State of this unnecessary and troublesome quarantine was undoubtedly more than would maintain a suitable animal room for a year.

The laboratory is not provided with any room where special investigations can be carried on without interruption. Such a room is becoming more and more necessary, and the Director is seriously hampered in certain lines of investigation because a suitable place in which to conduct them is not available.

During the past year numerous requests have been made for the examination of various materials for the purpose of ascertaining whether or not they contain the typhoid bacillus. The results of such examinations are frequently of great importance in the control of typhoid fever and the laboratory should be prepared to make them. Unfortunately these examinations are laborious and time consuming and on that account the Director has been unable to comply with many of these requests, the time of the laboratory staff being taken up with routine work. If these examinations are to be undertaken in any systematic fashion the services of an additional assistant bacteriologist will be required.

In the report of the Board for 1908 a recommendation was made that sufficient additional appropriation be secured to enable all positive diphtheria reports to be sent to physicians by telegraph. The cost of such service would be comparatively small and the benefits derived from it great.

**Division of Food and Drugs.**—During the year the number of samples of food and drugs examined has been greater than ever before. This increase has been made possible only by extraordinary efforts on the part of the employees of the Division and any further increase is not possible with the present force.

The following table gives a summary of the work done during the year:

	Specimens Examined.			Suits Authorized.
	Total.	Above Standard.	Below Standard.	
Milk and Cream.....	3962	3551	401	143
Foods .....	2944	2670	284	139
Drugs .....	662	595	67	0
Total .....	7568	6816	752	282

During the year \$13,975.94 was collected in penalties for the violation of various provisions of the food and drugs act and the laws relating to the sale and distribution of oleomargarine.

An examination of the earlier reports of the Division of Food and Drugs will show that food adulteration is rapidly decreasing in this state and this can only be attributed to the vigorous enforcement of state and federal food and drug laws. This improvement in the quality of foods and drugs has resulted in fewer prosecutions than in previous years. It is to be expected, as conditions continue to improve, that the number of prosecutions found necessary will steadily decline.

The appropriation available for carrying out the provisions of the food and drugs and oleomargarine acts for the coming year is but \$15,000 instead of \$20,000, as heretofore. This reduction of one-fourth will inevitably retard the progress of the work and make it impossible for the Chief of the Division to undertake certain investigations which are greatly needed. In view of the fact that this division returns to the treasury in penalties and costs a large proportion of its appropriation, and in view of the need for increased vigilance, made imperative because of more skillful methods of adulteration, it seems unfortunate that the Legislature deemed it necessary to reduce this appropriation.

The number of inspectors engaged in the investigation of food and drugs is entirely too small to adequately cover the state. At the present time only three men are available for this work. With this force it is impossible at times to comply with requests for inspections made by local boards of health. Such requests are becoming more frequent and it is very desirable that the State Board should be in a position to co-operate with local boards in the enforcement of the food and drugs act, but such co-operation can never be secured until the force of inspectors is adequate to promptly comply with reasonable requests by local boards.

During the last session of the Legislature a supplement to the food and drugs act was passed which regulates sanitary conditions in all establishments where foods are stored or handled.

The enforcement of this act is entrusted to the State Board of Health and to local boards, acting under rules and regulations to be made by the State Board.

Because of the small number of inspectors now available the Division of Food and Drugs has been able to do but little toward enforcing this very important act. A large number of inspections have been made and the information gained shows that very numerous violations of the law exist. The number of inspectors required to detect these violations would be so great that the bulk of the inspection work must necessarily be done by local boards of health. There are certain food industries, however, which cannot be properly supervised by local boards and provision should be made to enable the State Board to adequately inspect and control such industries.

**Division of Creameries and Dairies.**—At the end of the year there were 140 creameries operating in the State; 116 of these were licensed, and 24 remain unlicensed for reasons which will be given in detail in the annual report of the Chief of the Division of the Board. The milk handled in these creameries represents an output of 5,475 farms, and the number of quarts of milk handled daily is 440,422. In 35 of these creameries milk is pasteurized by means of machines of various makes and styles. This milk is subjected to a so-called pasteurization without any restrictions whatever regarding the method of efficiency, the object of the creameryman being primarily to prevent the milk from turning sour. The total number of inspections made of creamery premises during the year was 202. This includes several inspections of some of the plants.

During the year the inspectors of the Department have visited 972 dairy farms and reinspected 251 of them, making a total of 1223 personal inspections. In the main, these inspections were made in response to requests from local boards of health and came from twenty municipalities. All the dairy farms and the creameries supplying these places with milk have been thoroughly inspected, and the record of each inspection is on file in this office. The local boards have also been furnished with a copy of the inspection report, and all dairies falling below 60 per cent. of perfection were sent a copy, with a letter urging them to make improvements on their premises.

The milk supply of eleven State institutions have been investigated and recommendations made.

There are six certified milk plants in the State, and these have been visited and scored on the official score card of the Board. These range from 84 per cent. to 100 per cent. There is a ten-

dency among certain high class milk dealers in the State to take advantage of the act passed last winter relative to the control of certified dairies. Several such plants are under construction at the present time, and others are equipping their establishments with facilities enabling them to meet the requirements of the medical milk commissions formed for the purpose of supervising this class of milk, under Chapter 237 of the Laws of 1909 entitled "An act providing for the incorporation of medical milk commissions and the certification of milk produced under their supervision." Section 10 of the act states that the work and methods of any medical milk commission organized under its provisions, and all dairies in which milk is produced under contract with any such commission, shall be subject at all times to the investigation and scrutiny of the State Board of Health. The wording of the act implies that the State Board of Health shall advise with medical commissions as to the proper rules and regulations to be adopted. The score card in use by this Board is not well adapted to the scoring of certified milk plants, since it does not deal sufficiently with the methods of handling milk and the equipment necessary to guard it against all contamination. It is therefore suggested that the Board recommend to the medical milk commissions of this State that dairies producing milk for certification by them shall be scored by the Chief of the Division of Creameries and Dairies of the State Board of Health, and also that the Board adopt for this purpose the score-card used by the United States Department of Agriculture.

**Division of Sewerage and Water Supplies.**—The Division of Sewerage and Water Supplies has far too small a working force but has accomplished much during the year. By a recent act of the Legislature, Chapter 253 of the Laws of 1909, the waters of all public water supplies and bottled spring waters must be examined and analyzed not less than four times a year. Examinations and analysis of private wells are made when so requested by the local health authorities and the Division of Medical and Sanitary Inspection. Waters of creamery and dairy wells are analyzed when so requested, by the Division of Creameries and Dairies. All public sewage disposal systems are visited as often as possible and samples of the raw sewerage and the effluents are collected and analyzed. A total of 1840 samples of water and sewerage were collected during the year and each sample analyzed chemically and bacterologically, making the total number of analyses 3680. Field inspections have been made on the following streams and rivers: Delaware, Raritan, Rahway, Elizabeth, Shark, Shrewsbury, Passaic, Wanaque, Whippany, Pohatcong,

Musconetcong, Hackensack, Manasquan, Metedeconk, Millstone, Navesink, Paulins, Pequest, Ramapo, Rockaway and Maurice; on the following brooks and creeks; Alloways creek, Assanpink creek, Beaver brook, Cohansey creek, Coopers creek, Crosswicks creek, Green brook, Canoe brook, Haines creek, Hop brook, Yellow brook, Pensauken creek, Rancocas creek and Salem creek; on the following Lakes: Hopatcong, Deal, Sunset, Wesley, Duck Pond and Wreck Pond.

The dependence of the people of this state on surface water supplies for potable purposes is so great that it can be readily understood that a careful supervision of such streams is necessary. With the number of men available for this purpose at the present time it is obviously impossible to do as much work along this line as is really necessary. At least ten men could be kept busy at all times guarding the streams of this state against the minor pollutions which have been so evident as the number of offenders discovered during the year shows. It is pleasing to note the number of abatements made during the year thus showing that the value of such work is being understood, and that sentiment is surely growing in favor of the enforcement of laws relative to the pollution of streams in the state, these inspections covering 5125 miles of riparian frontage, by the regular stream inspections and, in addition to this, 225 miles of special inspections have been made by the laboratory men.

The number of minor pollutions reported were 1501 which were given various dates in which to cease to pollute the waters. Upon reinspection, it was found that 338 cases had been abated. It was necessary to refer 371 cases to the Attorney General for prosecution. An extension of time was granted in several cases where a reasonable cause for doing so was shown. Evidence was collected and preliminary restraining orders obtained in 14 cases (6) of which were made permanent. One was lost owing to a defective law which has since been remedied, and cause for action in the other cases was removed before the writs were returned. Suits were ordered brought against two additional municipalities for refusal to comply with the orders of the Board.

Five municipalities have been ordered to install disposal systems, Atlantic City, Camden, Gloucester, Riverton and Salem.

Plans for the following were examined and approved: Sixty-two plans for public sewage and disposal plants, thirty plans for private sewage disposal plants and six plans for public water supplies.

Plans for eleven public sewers and disposal plants were examined and disapproved.

Four plans for public sewers and disposal plants have been submitted and held for further investigation. Three plans for public sewers and disposal plants were returned for revision. Sixty-three public water supplies, two spring waters and 196 sewerage disposal plants have been inspected.

Special inspections numbering 94 have been made. A detailed report and description with views of the sewerage disposal plants of this State together with the cost of same as far as could be ascertained, will be found in the report of the Division of Sewerage and Water Supplies and will prove interesting to municipalities that contemplate installing purification works.

For some unexplained reason, the appropriation for this Division for the ensuing year was reduced from \$15,500 to \$12,000. This reduction will greatly hamper the work as the latter sum is not sufficient to pay the salaries and expenses of the employees without taking into account the necessary Laboratory Supplies, stationery, blanks and postage.

Were it not for the fact that the Chief of this Division gives his services gratis, the entire appropriation would be exhausted within nine months.

**Contagious Diseases of Animals.**—The control of diseases of animals in the State is at the present time under two distinct bureaus. The State Board of Agriculture, under a special law, has control of interstate matters relating to transmissible diseases of animals, and also appoints a tuberculosis commission to deal with bovine tuberculosis. The State Board of Health is charged with the enforcement of laws to prevent the spread of glanders, and under the general act, which was originally intended to apply chiefly to contagious pleural pneumonia of cattle, was given such extensive powers that the supervision of all contagious diseases of animals, is included under its provisions. The only relation that the State Board of Health bears to bovine tuberculosis is that of requesting the tuberculosis commission to investigate and take action in any case which is brought to the attention of the State Board of Health. That this arrangement is unsatisfactory was evident during the past year when a local board of health in Gloucester County quarantined a number of cows affected with tuberculosis, and reported the cases to the State Board of Health. The question of responsibility for the destruction of the animals, and bringing action against the parties for selling the diseased animals, led to numerous complications and resulted in the destruction of the animals under the super-

vision of the tuberculosis commission, and the presentation of the evidence against the parties for selling the diseased animals in violation of the law, to the prosecutor of the county, by the State Board of Health. It is evident that the recurrence of cases in which there is such apparently divided authority should be remedied by the creation of a single department, having supervision and control over all contagious diseases of animals. The question as to which bureau at present organized in the State should be charged with these responsible duties is to be left to legislative judgment, but as many of the diseases of animals are communicated to the human species the department of health should logically be selected, or some separate bureau formed. If the present system is to be continued ample funds should be placed at the disposal of the State Board of Health so that by inspection of stables in the various parts of the State diseased animals may be discovered and prompt measures adopted to prevent infection of other animals. At the present time action is only taken when cases are reported, and until systematic inspections are made the dissemination of disease will continue, and the results accomplished will be expensive and unsatisfactory.

**Anthrax.**—This disease, which has appeared from time to time in several of the counties located in the southern portion of the State, was reported for the first time in Camden County. On August 5, 1909, Dr. T. B. Rogers reported that microscopical examination of specimens taken from animals located on a farm outside of Camden showed that the animals had anthrax. Five animals died on one farm, but the disease did not extend to other farms. Preventive vaccination of all cattle on the farm where the disease appeared, and of all animals on adjacent farms, was at once ordered. This action was taken as nearly all the cattle grazed on meadow lands through which a stream ran, and the infection was therefore liable to be carried from one farm to another. Three carcasses of animals dying of the disease were, before the cause of death was known, taken to a rendering establishment. The remaining two were buried deeply, covered with quick lime and the place of burial was fenced in. The total number of vaccinations of animals that were liable to contract the disease was 66, and there being no further appearance of the disease the quarantine which had been placed on the farm where the deaths of animals occurred was raised on September 5, 1909. The origin of the disease was doubtless due to infection of the water in the stream flowing by the pasture lands, as the report of the veterinarian in attendance stated that the stream and meadows were polluted by the refuse from several wool washeries

and starch and soap factories. The owners of cattle in the vicinity of the infected farm were instructed to vaccinate all cattle with anthrax vaccine before placing them on the same pastures next spring. If this advice is followed there should be no recurrence of the disease in this locality.

**Blackleg.**—Dr. Whitfield Gray, of Newton, reported the death of three animals from this disease, which is also known as symptomatic anthrax. The cases were in the same locality in Sussex County where the disease has appeared yearly for several years. Preventive measures were immediately adopted, and over forty animals we injected with Anti-Blackleg virus. No new cases were reported. The pasture lands in this section of the State are on mountain sides, and the carcasses of animals dying of blackleg are often not discovered until decomposition is far advanced, and the pastures have become infected. The farmers and stock raisers have been advised as to measures to be adopted to prevent recurrence of the disease.

**Foot and Mouth Disease.**—In the early part of November, 1908, cases of this disease were discovered by the Federal authorities in New York State and Pennsylvania. Within three weeks after these cases were reported other cases were located in Maryland, Delaware and Michigan. Under the supervision of the Federal authorities strict quarantine of infected animals was maintained, and extensive inspections of cattle in the infected localities were instituted. In correspondence with the chief of the National Bureau of Animal Industry an arrangement was effected by which notification of any cases occurring in New Jersey was to be made directly to the National Bureau, and that the State Board of Health was to assist the National authorities in preventing the bringing of cattle or infected articles into New Jersey from States that were under quarantine restrictions. As a preventive and precautionary measure the following notice was sent to each veterinarian in the State:

BOARD OF HEALTH OF THE STATE OF NEW JERSEY.

Trenton, November 24, 1908.

Dr. ....  
.....N. J.

Dear Sir:—The fact has been determined by the Secretary of Agriculture, at Washington, D. C., and notice has been given, that a contagious, communicable disease, known as foot and mouth disease, exists among live stock in the States of New York and Pennsylvania. The United States Department of Agriculture has placed the above named States under quarantine, which in itself is a decided protection to New Jersey. While no positive cases have yet been detected in this State it is thought best by the State Board of Health to take every precaution possible to ward off this

disease and prevent its entering our State. We are therefore asking all veterinarians of the State to be on the alert, and if they find any cases where animals are showing symptoms indicating foot and mouth disease to immediately inform the State Board of Health by telephone or telegraph in order that prompt quarantine measures may be taken. Will you please observe this request?

Very respectfully,

(Signed) BRUCE S. KEATOR,  
Secretary.

On November 20, 1908, Dr. T. B. Rogers, of Woodbury, reported a suspicious case of illness in an animal on premises near Swedesboro, Gloucester County. Orders were immediately given for the destruction and proper burial of the animal and disinfection of the premises. The diagnosis in this case was not clear, but the gravity of the situation led to the action which was taken. Close supervision was kept over other animals on the premises, and no cases of illness of any character developed.

On December 1, 1908, Dr. Whitfield Gray, of Newton, notified this board by telephone that a car containing 16 cows, 12 sheep and 2 calves, had been shipped over the Delaware and Hudson, the Erie and the New-York Susquehanna and Western railroads, and unloaded at Unionville, two miles from the New York line. The cattle were driven into New Jersey to the farm of one McNish, two miles from Sussex. Two of these cows were sold and two calves died. As soon as this information was received it was communicated to the Bureau of Animal Industry, at Washington, D. C., and a government official was at once detailed to proceed to Newton and investigate. The animals were placed under quarantine pending the government investigation for the purpose of ascertaining whether the government regulations had been disobeyed, and to learn whether the animals came from infected localities or had been exposed to foot and mouth disease. The Federal authorities took the cattle under their direct supervision, and informed the State Board of Health that legal action would be taken against the owners of the animals if the proof of the violation of the National regulations was sufficient.

That no cases of the disease appeared in this State, while other States were affected, is due in part to the effort made by the veterinarians of this State to discover cases, and to the co-operation of the State and National authorities.

**Glanders.**—There have been no extensive outbreaks of this disease in the State, and the average number of cases have been reported. When a case of glanders is reported to the board the method of procedure is to have the case investigated by a duly qualified veterinarian, and if necessary to quarantine the infected animals and the premises on which they are located. It is re-

quired that the animals shall be destroyed, and the premises upon which they are located be thoroughly disinfected before the quarantine is removed.

The total number of cases reported during the year was 78, and the distribution of cases was as follows: Bergen County, 3; Cumberland County, 1; Essex County, 41; Gloucester County, 1; Hudson County, 9; Middlesex County, 3; Passaic County, 18; Somerset County, 1, and Union County, 1.

An arrangement entered into with the health board of the City of Newark by which the health officer, Mr. D. D. Chandler, has been appointed to represent the State Board of Health in dealing with cases of glanders in the City of Newark, will doubtless secure in future more complete reports of cases, and by the early knowledge of cases thus obtained will result in limiting the spread of the disease.

**Examination for Health Officers, &c.**—The effect of the operation of the law of 1903, requiring the employment of licensed health officers and sanitary inspectors, has not been entirely satisfactory. In many of the boroughs and townships of the State no persons have applied for examination, nor qualified to fill the positions, and localities are left without the services of qualified men. In looking for the reasons accounting for the present conditions we are led to the conclusion that the public has not or does not realize the benefits which are to be derived from an intelligent supervision of health matters, and therefore will not sanction the payment of salaries to health officers and inspectors sufficient in amount to attract a better class of men to the work. In nearly all lines of work the tendency has been to an increase of remuneration for services, but when one is to be selected to deal directly with problems affecting the lives and health of men, women and children of the State small sums are set aside for their employment. In some of the townships of the State the sanitary inspectors receive a salary of twenty-five dollars yearly. Should we expect to receive any satisfactory service for such a sum, or that any intelligent person will prepare to take an examination for such a position? All efforts, up to the present time, to have a school of instruction, where prospective sanitarians may be prepared, have failed, and persons who desire to qualify for positions as health officers and sanitary inspectors are compelled to rely upon the reading of text books, and without the assistance of some one to teach the fundamental principles underlying local sanitary supervision.

We believe that it will be necessary within a few years to formulate laws which will place the supervision of smaller townships

and boroughs under county health officers whose relation to local boards of health will be advisory, and who shall report to the central State authorities the failure of local boards of health in the performance of the duties required by the health laws of the State.

The Civil Service Commission, in view of the priority of the law requiring the examination of health officers and sanitary inspectors by a board appointed by the State Board of Health, decided that the eligibility of persons for civil service positions on local boards of health in localities that have adopted the civil service regulations, shall be determined by the obtaining of licenses in accordance with the act above referred to. The following resolution was therefore adopted: "Voted, that the examining board of the State Board of Health be hereby constituted the examining board of the Civil Service Commission for the examinations for the position of health officers, sanitary and plumbing inspectors, and that the civil service examinations for eligible lists for such positions be held coincident with the examinations of the board of health."

Applicants for license follow the method originally adopted, and forward their applications to the State Board of Health and may be examined either in December or June. The applications should be forwarded to the office of the State Board of Health at least one week prior to the date of examination. When an applicant fails to satisfy the requirements of an examination a re-examination is permitted.

The total number of persons who have been examined up to October 31, 1909, is 387; of licenses issued, 195; of applicants rejected, 192. The applicants for licenses in localities acting under civil service regulations number 49. There are a few sanitary districts in the State in which sanitary officers have been appointed in violation of the law requiring licenses, and it is the intention of the board to present these cases to the Attorney General, and if possible secure compliance with both the letter and spirit of the law. A full list of the names and addresses of those persons who have obtained licenses from the State Board of Health will be found on subsequent pages of this report, and is printed for the information of local boards of health to enable them to select from this list persons who have complied with the requirements of the law.

**Medical Milk Commissions.**—The first effort made by medical men in New Jersey to secure improvement in milk used for feeding infants, hospital patients and patients attended by physicians in private practice, was in 1889. The State Medical So-

ciety at that time placed itself on record as believing in the necessity for a State law which would enable physicians to obtain clinically pure milk.

To Dr. Henry L. Coit, of Newark, more than to any one individual, was due the interest which was taken in the subject, and since 1889 he has devoted his time and energy to securing the adoption of a comprehensive law which would permit physicians to form medical milk commissions, and to enter into contract with dairymen to produce milk under most careful supervision. As the death rate of infants who are born alive is at least thirty per cent. the problem of reducing this rate by artificial feeding is one that is of special interest from an economic standpoint. Infant lives are and can be saved by proper feeding, the statement having recently been made that "more lives are saved and pauperism prevented through the distribution of pure milk at infant milk depots, first in Europe and then in this country, than by all other agencies combined," and some reports on dispensary fed babies show a reduction in the infant death rate of ten per cent. The attempt to supervise the milk supplied by the issuing by municipal authorities of licenses to producers and distributors of milk gives little protection to the consumer. State and municipal control which includes inspection of premises and dairy animals, the regulation of sanitary conditions and the partial supervision over milk during transportation, has accomplished much in improving milk supplies.

The medical supervision and control of milk goes a step further, and aims to obtain a special or clinical milk for infant feeding and the use of hospitals.

At the last session of the legislature an act was introduced and passed which provided for the incorporation of medical milk commissions, and the certification of milk produced under their supervision. Commissions which are formed under the provisions of the act have the power to enter into an agreement with dairymen to produce milk under the supervision of the commission, and to fix a standard for "certified" milk which shall not be below the standard fixed for milk by the American Association of Medical Milk Commissions and by the State Board of Health. The State Board of Health has power under the act to investigate the work and methods of any milk commission organized under the act. The standards for meeting the clinical requirements for milk are as follows: 1. An absence of large numbers of micro-organisms, and the entire freedom of the milk from pathogenic varieties. 2. Unvarying resistance to early fermentative changes in the milk so that it may be kept under ordinary conditions with-

out extraordinary care. 3. A constant nutritive value of known chemical composition with a uniform relation between the percentage of its combined constituents, and its organic principles unimpaired by mechanical, thermic or chemical treatment. In addition to these requirements provision is made for the examination of dairy animals by competent veterinarians for the purpose of excluding sick animals, and especially for the detection of cases of tuberculosis. All employees on certified dairies are under medical supervision as to their health and personal hygiene. By the adoption of the methods above detailed it is now possible to obtain from several certified dairies in this State a milk product which has as high a standard of purity as it is possible to obtain with our present knowledge.

The enforcement of existing laws which give the State Board of Health power to correct unsanitary conditions on dairy premises, and to stop the sale of milk which has been exposed to the emanations or exhalations of persons sick with a communicable disease, combined with the improved product which will result from the medical supervision of certified dairies, should in time secure to milk consumers in the State protection from the many dangers which attend the use of impure milk.

**Cemeteries.**—An application was made to the State Board of Health, December 31, 1907, by an attorney representing ten citizen freeholders of the Borough of Fairview, Bergen County, for reversal of the decision of the Common Council and Board of Health of said borough in granting permission to the Fairview Heights Cemetery Company for the establishment of a cemetery in said borough. As the consent of the local authorities in this case was given by resolution and not by ordinance, the attorney for citizens objecting to the location of the cemetery, instituted proceedings before the Supreme Court, and the action of the authorities of the Borough of Fairview was set aside by said Court as being invalid. In accordance with an agreement between the attorney for the Cemetery Company and the attorney representing the petitioners, said agreement being made in the office of this board, the case was not taken up by the State Board of Health until a decision had been rendered by the Supreme Court. After the rendering of the decision of said Court the Cemetery Company again made application to the authorities of Fairview for the establishment of a cemetery, and permission for the location of the same was then granted by ordinance. On August 29, 1908, a second application was received by the State Board of Health, from the attorney representing citizens objecting to the proposed cemetery. for reversal of the decision of the



Common Council and Board of Health of Fairview in granting permission for the establishment of a cemetery by the Fairview Heights Cemetery Company. A hearing in this case was given by the State Board of Health on October 27, 1908, and at a meeting of the board held November 10, 1908, a special committee was appointed by the president to inspect the site of the proposed cemetery. The report of the special committee was presented to the board at a meeting held November 24, 1908, and a resolution was adopted sustaining the decisions of the common council and board of health of the Borough of Fairview, and denying the application of the ten citizen freeholders of said borough for the reversal of said decisions.

On March 8, 1909, an application was made to the State Board of Health by the Gates of Hope Cemetery Company for reversal of the decision of the board of health and township committee of the Township of Teaneck, County of Bergen, in refusing to grant permission to said company to locate a cemetery in said township. This application was presented to the board at a meeting held March 9, 1909, and on motion a hearing before the board in reference to said application was set for March 23, 1909. The hearing, held on said date, was largely attended by interested parties, and after the hearing a committee of the board was appointed to visit the site of the proposed cemetery. The report of the committee was presented to the board at the meeting held April 27, 1909, and the following resolution was adopted:

"Whereas, in the matter of the application of the Gates of Hope Cemetery Company for permission to locate a cemetery in the Township of Teaneck, in the County of Bergen, State of New Jersey, it appearing to the Board of Health of the State of New Jersey that an application in writing was made by the Gates of Hope Cemetery Company to the township committee of the Township of Teaneck, and to the local board of health of said township, on March 4, 1909, for the consent and approval of those bodies to the location of a cemetery containing one hundred and twenty-five acres within the boundaries of the said Township of Teaneck, and that the application was refused on the said fourth day of March, 1909, by the township committee of the township, and also by the local board of health thereof, and the Gates of Hope Cemetery Company having within thirty days after such refusal, to wit, on the eighth day of March, 1909, applied to the State Board of Health to reverse the decision of the aforesaid local authorities of the Township of Teaneck, and to grant the application of the Gates of Hope Cemetery Company, and the State Board of Health having fixed the twenty-third day

of March, 1909, at one thirty o'clock in the afternoon, as the time, and the New Jersey Capitol Building as the place for the hearing of said application, and having caused due notice to be given to the petitioner the Gates of Hope Cemetery Company, and also to the township committee of the Township of Teaneck, and to the local board of health of said township, that at this time and place a hearing would be had upon said application, and the interested parties having appeared and argued the matter, and this board having duly considered the application and the arguments and all the facts in connection with the said application, and being of the opinion that the decision of the township authorities of the Township of Teaneck ought to be sustained and the application refused; therefore be it

Resolved, that upon this twenty-seventh day of April, in the year 1909, that the aforesaid decisions of the township committee of the Township of Teaneck, and of the local board of health of the Township of Teaneck, be and the same are hereby sustained, and that the application of the Gates of Hope Cemetery Company be and the same hereby is denied."

**Annual Conference.**—For the purpose of securing more intimate relations between the State and local boards of health, an act was passed by the legislature of 1906, which permitted the State Board of Health to call an annual conference of representatives from the sanitary districts of the State. The law provided for the appointment of delegates to the conference, and the payment of expenses of delegates from the appropriations set aside for the uses of local boards of health. The conferences held thus far, in accordance with the powers given by the legislative act, have been of service in promoting cooperation between the central and local health authorities, and have tended to secure increased uniformity in dealing with problems relating to public health.

As so many conferences and meetings of various associations are held during October and November of each year, it was thought that it would be an economy both of time and money to combine the annual conference with a meeting of some of the organizations which are devoted to the consideration of sanitary subjects. A request was received from the newly appointed committee on tuberculosis to join with that commission in a joint conference on tuberculosis, to be held at Trenton in October of the present year, but as this meeting was to consider tuberculosis only, and there was to be no discussion of other subjects relating to sanitation, after due consideration, the board decided to call the conference of local board representatives conjointly with the State Sanitary Association, at Lakewood, and invitations were

sent to local boards to be present at the annual meeting in December. The New Jersey State Sanitary Association has always borne an intimate relation to and an interest in the operations of the State Board of Health, and by holding these meetings conjointly better results will doubtless be secured than by holding separate meetings.

**Use of Common Drinking Cups.**—The attention of the State Board of Health was directed to the use of drinking cups on railway trains, and at public fountains, and resolutions were adopted and forwarded to all the railway transportation companies in the State, recommending the use of individual cups. No distinct form of drinking cup was advised, and the words "paraffin paper and of other suitable material" indicate that the purpose of the board is primarily to secure the use of individual cups, and to leave to the transportation companies the adoption of any of the many forms of cups which are at present obtainable. Several railroad companies have installed machines, located near the water coolers in the cars, and the passenger may for a penny obtain an aseptic drinking cup. Not only is the individual protected by this method, but the object lesson is invaluable as the attention of passengers is directed to the dangers which lurk in the common drinking cup. The action taken by the board in this matter is in the line of advanced knowledge of methods by which disease is transmitted, and has met with universal approval.

The resolutions as adopted were as follows:

Whereas, it is admitted by sanitarians generally that the public drinking cup, as it is commonly used on railroad trains and in railroad stations, is a menace to the public health in transmitting infectious and contagious diseases, and

Whereas, individual sanitary drinking cups, made of paraffin paper, and of other suitable materials, are now being manufactured at a trifling expense, and are easily procured, therefore be it

Resolved, That the Board of Health of the State of New Jersey hereby condemns the common use of the public drinking cup on railroad trains, and in railroad stations, as unsanitary and dangerous to the public health, and said board hereby recommends that all railroad companies, whose cars run into or across the State of New Jersey, discontinue the use of said cups, and that they furnish individual sanitary drinking cups to their patrons instead.

Resolved, That a copy of this resolution be sent to each railroad company whose cars pass into or through the State of New Jersey.

**Mosquito Work.**—The importance of this work is gaining appreciation throughout the State. The New Jersey State Sanitary Association at its meeting at Lakewood in the winter of 1908-'09 passed a resolution commending it, and the New Jersey State Medical Society at its summer meeting in 1909 did likewise; both urging its continuance along the lines already reported. More than ever local boards of health are taking up the subject and the large cities, Newark, Jersey City, Elizabeth and Trenton have done systematic work in dealing with local conditions under the direction of the health boards and on the advise of

Prof. Smith. Many of the smaller municipalities have followed suit: the Oranges, Montclair, Plainfield, Ridgewood, Long Branch, South Amboy, Perth Amboy and others among them. Improvement Societies have taken this up as one of the important subjects, and not the least valuable part of the work done under the State organization is spreading information and directing these local efforts.

The drainage work was extended during the fall of 1908 to the northern bank of Toms River; but owing to the failure of the legislature to make provisions for its continuance, very little was added to the drained area in 1909.

In other States work along the lines laid down in New Jersey has been much more extended. New York City is rapidly draining all its salt marsh areas including those on Long Island and in the Bronx, with marked results. In Massachusetts New Jersey contractors have carried the system along the shores of Buzzards Bay and with such marked effect that a great deal of similar work is contemplated for 1910.

The position of the mosquito as a factor in the sanitary problem is now so well fixed, and the possibility of control so well established that the demand for a continuance of the work in New Jersey from those best qualified to judge is well-nigh universal. Incidentally the elimination of stagnant water areas in which mosquitoes breed is an advantage from every point of view and a benefit to the community at large. The importance of the work to the shore resorts cannot be overestimated.

**New Legislation.**—One of the many ways in which the State Board of Health may be of service to local boards of health, and to the citizens of the State, is by presenting to the legislature from year to year laws which tend to improve local sanitary administration and give increased protection to the health of the citizens of the State.

The avenues of information as to defects in existing health laws, and legislation which is required, that are open to the board place it in a position to determine definitely what laws are necessary, and to prevent the passage of laws which have as their object the promotion of selfish interests.

After careful consideration and consultation with the chiefs of the various divisions of the board, a number of bills were presented to the last legislature, and with three exceptions these bills became laws. A short review of the recent enactments indicates what may be accomplished if the laws are properly enforced.

The combining of the State Board of Health and the State Sewerage Commission necessitated the passage by the legislature

of 1908 of several legislative acts. A careful examination of these acts showed that the title of the supplement to the act to prevent the pollution of the waters of the State, and creating the State Sewerage Commission, was defective. Chapter 142 of the laws of 1909 corrects this defect, and amends the second section of the act relating to the vesting of the duties of the State Sewerage Commission in the State Board of Health.

The evident necessity for the prompt reporting to the State Board of Health of cases of communicable diseases occurring on dairy premises led to the preparation of an act requiring physicians to report cases of this nature within 24 hours, and chapter 47 of the laws of 1909 imposes a penalty upon physicians for failing to make such reports.

A special act, chapter 271 of the laws of 1909, permits cemetery associations to enlarge their grounds by the addition of adjacent property owned by the association, but requires the filing of a map with the State Board of Health and prohibits interference with any public highway.

Chapter 109 of the laws of 1909 is a revision of the registration act, relating to the reporting of births and deaths, and changes the time in which physicians and midwives are required to send reports to the local registrars from thirty days to five days, adding a penalty for noncompliance with the law.

The beneficial results, both physical and educational, which have attended the medical inspection of schools led to the passage of chapter 92 of the laws of 1909, which requires every board of education to employ a medical inspector; defines his duties and gives the board of education the power to exclude from school any pupil certified by the medical inspector as detrimental to the health or cleanliness of the pupils in the school. If the case for exclusion is remedial, and the parents or persons having control of the child, fail to take action, upon conviction they may be punished as disorderly persons.

The act concerning tuberculosis, chapter 250 of the laws of 1909, will, upon examination, be found defective in many details. The intention of the law is to secure the reporting of all cases of tuberculosis to local health authorities, and to compel the adoption of intelligent methods to prevent the spread of the disease. The most serious defect of the law is in placing the health officer above the local board of health, and in giving him power to render a final judgment upon the action taken by the attending physician. As over two-thirds of the municipalities in the State have no health officers the effect of the law is limited and unsatisfactory. At the coming session of the legislature an

amended bill will be presented which will transfer the duties assigned to health officers, under the present act, to local boards of health, and eliminate some of the objectionable duties placed upon physicians.

Under the provisions of chapter 204 of the laws of 1909 persons selling ice are required to obtain a permit from the local board of health, and such boards have the power to prevent the sale of ice which is impure or taken from any polluted source.

The medical men of the State have been interested in securing clean and wholesome milk for infant feeding and for the use of convalescents. Chapter 237 of the laws of 1909 permits commissions to be formed of five physicians, and gives such physicians power to enter into contract with dealers and to certify to milk which reaches the standard laid down by the commission. Already under the operation of this law a number of dairies for the production of certified milk exist in the State, and the passage of the law marks a decided step in advance in the effort to increase the supply of pure milk.

Chapter 231 of the laws of 1909 gives the State Board of Health the power to secure satisfactory sanitary condition of places where food is kept or prepared, and requires cleanliness and healthfulness of employees engaged in the preparation or handling of foods.

Prior to 1909 the former State Dairy Commissioner was charged with duties under the act to prevent deception in the sale of oleomargarine. With the reorganization of the State Board of Health it was found that action under the law would be facilitated if cases against violators of the act were brought by the State Board of Health, and chapter 97 of the laws of 1909 makes this change.

For the protection of the shell fish of the State chapter 264 of the laws of 1909 prevents the placing of polluting material in streams used for the production of oysters, and thus affords protection to consumers.

Under the provisions of chapters 151 and 253 of the laws of 1909 additional powers are given to the State Board of Health in preventing the pollution of potable waters, and in controlling the sale of water for potable purposes. All water purification plants hereafter installed come directly under the supervision of the State Board of Health.

Chapter 141 of the laws of 1909 regulates the use of water closets and urinals on railway trains and other public conveyances, giving the State Board of Health, upon request of water commissioners, the power to fix the boundary lines of water

## REPORT OF STATE BOARD OF HEALTH.

sheds, and to prohibit the discharge of excremental materials upon the water sheds thus defined.

Chapter 97 of the laws of 1909 gives the State Board of Health supervision over sewage disposal plants.

Two bills to improve sanitary conditions on dairy premises were introduced, and failed to become laws. That favorable action on these measures was not taken by the legislature was due to an entire misunderstanding of the provisions of the proposed acts, and an unwarranted supposition that the interests of the dairymen would be injuriously affected.

A bill requiring all parties desiring to marry in New Jersey to procure a marriage license was prepared and introduced. The bill met with no real opposition and was passed by both branches of the legislature. While the bill was before the Governor for approval a committee from the Society of Friends pointed out a slight defect in the law which, unless remedied, would invalidate the marriages as performed at present by that Society. As the legislature had adjourned the Governor was compelled to veto the measure, although expressing a desire to see such a law enacted. A bill remedying the defect above referred to has been prepared, and will be presented for consideration at the next session of the legislature.

Very respectfully,

BRUCE S. KEATOR,

Secretary.

## Report of Division of Medical and Sanitary Inspection.

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

*To the Board of Health of the State of New Jersey.*

GENTLEMEN:—I have the honor to submit herewith the annual report of this division for the year ending October 31, 1909. The report of last year covered a period of only six months from May to October, 1908, and the amount of work which was accomplished does not compare with that of the full year from Oct. 31, 1908, to Oct. 31, 1909.

The routine work of the division has been carried on, and the plans which were formulated at the beginning of the year have been followed. During the year 37 cases of communicable diseases, occurring on 19 dairy premises, have been investigated, and either the sale of milk from the dairies on which the cases were located was prohibited, or the owners of the dairies were instructed as to measures to be adopted to protect the consumers of milk produced on the infected premises.

Epidemics of communicable diseases in 84 sanitary districts have been investigated in which 467 cases were reported. This list includes 158 cases of typhoid fever; 41 cases of scarlet fever; 159 cases of diphtheria; 107 cases of small-pox and 2 cases of tuberculosis.

The assistance which has been given to local boards of health in dealing with these cases has been appreciated, and doubtless resulted in the limitation of the spread of the disease and the consequent loss of life.

An inquiry blank for securing data as to the sanitary condition of charitable and penal institutions was prepared. The fifteen public institutions under State supervision have been inspected, and nineteen county jails. Where sanitary defects were found the board of managers of the institution have been notified and requested to take immediate action to secure improvement in the existing conditions. The improvement in the sanitary condition of the institutions which have been inspected indicates the

necessity of extending these inspections to all of the charitable and penal institutions of the State. The reports of these inspections are given as we believe that they will be of interest, and will tend to stimulate boards of managers of institutions to more careful supervision over matters affecting the health of those committed to their care. It is our purpose during the coming year to inspect all the almshouses of the State, and if possible to extend the inspections to city lockups. The sanitary inspections made by representatives of the division number 27. Reports of the inspections which are of special interest are presented, and it is apparent that valuable service is given to local boards of health in solving intricate problems relating to the proper legal procedure which is required to abate nuisances.

The detailed reports of the work of the division, to which reference has been made, follow:

**Contagious Diseases on Dairy Premises.**—Under the provisions of chapter 260 of the laws of 1895 physicians in this State were required to report to the clerk, or other designated officer, of local boards of health all cases of contagious diseases attended by said physicians, and the local clerks were in turn required to send to the State Board of Health a list of the cases so reported by the physicians. There was nothing in the act which directed physicians in making reports of cases of communicable diseases to state whether the patient lived on a dairy premise, and as a result the State Board of Health was unable to learn of the existing cases or take action to protect milk consumers. The power which had been given to the State Board of Health to prohibit the sale of milk which had been exposed to the exhalations or emanations of persons ill with contagious diseases (see chapter 182 of the laws of 1898) was only exercised in a few instances where cases of contagious diseases on dairy premises were reported by individuals or milk consumers, and usually the information in regard to such cases was received after the persons had been ill for several weeks. Under such conditions any action taken by the State Board of Health was necessarily only partially protective, and there was every possibility of the spread of the disease by infected milk. To increase and render more efficient the control of the State Board of Health, and to overcome the defects in the existing law, a bill was prepared and presented to the legislature of 1909 which requires physicians to make reports of all cases of contagious diseases occurring on dairy premises directly to the State Board of Health. The act is as follows:

"Every physician who shall attend any person sick with typhoid

fever, dysentery, scarlet fever, diphtheria or tuberculosis, on any dairy premises where milk is produced for sale or distribution, shall report to the State Board of Health within twelve hours after his first attendance upon any such person sick with any of said diseases, which report shall be in writing, and shall state the nature of the disease, the name of the person who is ill with said disease and his or her place of residence. Any physician failing to comply with the provisions of this act shall be liable to a penalty of fifty dollars, to be recovered in an action of debt by the Board of Health of the State of New Jersey."

Physicians throughout the State have, as far as we know, been prompt in complying with the law, and have rendered valuable assistance in efforts to carry out the instructions of the representatives of the State Board of Health in dealing with individual cases. While the purpose of the board has been primarily to protect consumers of milk the interests of producers are also kept constantly in view, and in only one or two instances during the year has it been necessary to close a dairy on account of the existence of a case of communicable disease upon the premises. The routine practice in each case reported is to acknowledge the report of the physician, and request that he at once take measures to protect the milk produced on the premises from infection. A representative of the Division of Medical and Sanitary Inspection visits the dairy and outlines to the owner in detail the methods to be adopted, and states that unless the rules laid down are obeyed the sale of milk from the premises will be prohibited. In no instance has there been, on the part of owners where a case of communicable disease has occurred, any objection to the suggestions made, and in dealing with such cases we have met with uniform cooperation. Up to October 31, 1909, 37 cases on 19 dairy premises have been reported to the board. Following is a resume of these cases, and we would direct special attention to the manner in which the outbreak of scarlet fever on the Fairfield Dairy premises was handled.

**BRIDGEWATER TOWNSHIP.**—On Aug. 18, 1909, a case of diphtheria was reported as existing on dairy premises in the above named township. Upon investigation it was found that about 80 quarts of milk were daily produced on the premises and sold to the North Branch creamery. The milk was stored in a building separate and far removed from the dwelling in which the diphtheria patient was isolated. All the dairy work was carried on by employees who did not come in close contact with the patient and nurse. With the care that was evidently being exercised to prevent infection of the milk supply it was considered safe to continue the sale of milk from the premises, and no restraining order was served.

A case of diphtheria, reported upon the Bridgewater Township poor farm, was investigated on Oct. 21, 1909. The tenant conducts a dairy business. It was learned that the wife of the tenant who was ill with the disease was nursed by her husband who also mingled with the other members of the family. As soon as the character of the illness was determined a woman employee was secured to do the cooking for the family, and also for the large number of dependent inmates in the institution. This woman

was also found to be assisting in the care of the patient. The milking utensils and strainers were washed in the kitchen by this same woman attendant, and the milking was done by a member of the family occupying a sleeping room opening directly from that in which the patient lay. In view of the danger of infection in the milk under the conditions above described, an order was served upon the owner prohibiting the transportation or sale of milk from the premises.

**CALDWELL.**—The Fairfield Dairy, which is a certified dairy under the supervision of the Essex County Medical Milk Commission, is located in Caldwell. On May 20, 1909, the medical examiner of the Commission found one of the employees with a erythematous rash. As a precautionary measure this person was immediately isolated. After several days the person was examined by the medical examiner of the Commission, and he reported a case of the health department of Montclair, but no definite diagnosis was made. It was deemed wise, however, to remove the patient to the isolation hospital at Soho. On May 28th another employee was found with a sore throat. He was at once quarantined in the isolation hospital on the dairy, a building having been set aside for that purpose. The diagnosis of scarlet fever was made of this case on the following day. This patient was also promptly removed to the isolation hospital, and the quarters which he had occupied were thoroughly disinfected. Another suspicious case developed on May 30, 1909, but it was finally determined that this case was not one of scarlet fever. The patients who were removed to the isolation hospital slept in one of the two dormitories for employees at the dairy, and in this way there was an exposure to the disease on the course of carrying on the various operations of the dairy the employees mingled, so that the decision was reached that it was fair to presume that all the employees of the premises might be possible carriers of the disease. The number of employees was 80. On June 2 new garments were purchased for each one of these employees, and before being used they were subjected to the fumes of formaldehyde gas. On the same day all the employees were assembled in a large dormitory where each man was stripped and given a thorough soap bath in warm water, followed by complete sterilization by wiping the body with a one per cent. solution of chloride of lime. After this each employee was provided with a suit of sterile clothing and sent to his work in the dairy. The employees and the two dormitories which they occupied were thoroughly disinfected. For the protection of the milk supply all the milk which was produced on the dairy was immersed in cans in a large tank of water which was raised to a temperature of 135 degrees. During this process the milk was constantly stirred, and kept to the above temperature for thirty minutes. The temperature, however, was afterwards reduced to 150 degrees so that there might not be a loss of cream. The members of the Medical Milk Commission having supervision over this dairy deemed it wise to give the purchasers of the milk full knowledge of the fact that a case of scarlet fever had appeared on the dairy premises, and therefore sent a notice to each customer drawing attention to the fact that in order to prevent the existence of scarlet fever upon the premises the milk would be sterilized before delivery to the consumer, and that the resumption of the delivery of raw milk would occur when the Commission deemed that it was perfectly safe. On Sept. 14, 1909, three cases of scarlet fever were discovered among the children of one of the employees of this same company at Caldwell. The cases were outside of the dairy grounds, being about a mile away from the farm. The two employees at the dairy who lived in the house where the cases occurred were immediately quarantined, and were not permitted to return to the dairy.

The handling of these cases at the Fairfield Dairy, under the supervision of the Medical Milk Commission, indicates very clearly that it is possible to so care for the milk as to prevent the occurrence of dairy premises, that the consumer will be thoroughly protected and that it is not necessary to stop the sale of milk from such premises.

**DELAWARE TOWNSHIP, CAMDEN COUNTY.**—On Aug. 27, 1909, a case of diphtheria was reported as existing on dairy premises in Delaware Township. The patient was a child of one of the employees on the premises, and resided in a tenement house far removed from the dairy. All the members of the infected family were confined to the grounds around the tenement house, and the relation was such that there appeared to be no probable infection of the milk supply. No prohibition order was therefore served on the dairyman. About 350 quarts of milk were produced daily on the dairy, and distributed to consumers in Haddonfield and Haddon Heights. The water supply for washing milk cans and utensils was obtained from a dug well located beneath the shed floor. The water surrounding the well was unclean, and the privy vault and cesspool so near that there could be little doubt that the water in the well was polluted. Flies were swarming in and about the unclean milk house. The milk house, utensils and surroundings in which the milk was produced and handled on the dairy were exceedingly unclean. The attention of the chief of the Division of Creameries and Dairies of this board was directed to the un-

sanitary conditions on these premises, and definite action was taken to secure improvement.

**FRANKFORD TOWNSHIP.**—A case of diphtheria which occurred on dairy premises, located at Frankford Plains, Frankford Township, was investigated, and following is the history of the case:

The patient was employed as a fireman on the Delaware, Lackawanna & Western Railroad between Scranton and Hoboken. Prior to his return to his home he boarded at Fort Jervis. He came to his father's home on the dairy farm on May 30, and had then been ill for three days. The case was at once pronounced one of diphtheria, and the patient was placed in charge of a nurse and immunizing doses of antitoxin were administered to all the other members of the family. At the time of inspection the isolation of the case was so satisfactory that it was deemed advisable to permit the shipment of milk to the creamery at Augusta.

**GLOUCESTER TOWNSHIP.**—A case of tuberculosis was reported as existing on dairy premises near Chews Landing. The milk produced on the farm was sold to a dealer in Chews Landing, and distributed by him to consumers in nearby towns. Investigation showed that the tubercular patient had no part in the dairy work, and the milk produced on the premises was handled and stored in a milk house separate and apart from the dwelling. The patient was instructed as to the preventive measures to be adopted to guard against the spread of the infection.

**HOPEWELL TOWNSHIP, CUMBERLAND COUNTY.**—On June 8, 1909, a case of diphtheria was reported as occurring upon dairy premises, but an investigation of the circumstances showed that the person, although living upon the dairy premises, as soon as the character of the illness became known went to the home of her parents in Bridgeton where she remained during treatment. No action was therefore necessary in regard to preventing the sale of milk from the premises.

**LOWER ALLOWAYS CREEK TOWNSHIP.**—A case of tuberculosis was reported as occurring upon dairy premises near Harnersville in the above named township. The patient was instructed as to the methods to be adopted to prevent infection of milk, and to protect others.

**MEDFORD TOWNSHIP.**—A case of scarlet fever occurred on a dairy premises in this township. The patient was a daughter of the owner of the dairy. The patient was instructed as to the methods to be adopted to prevent infection of milk, and to protect others. The person became ill on May 22, 1909. The physician upon the date of his first professional attendance said that throat complications were of such a character that diphtheria antitoxin was administered. The bacteriological examinations of specimens from the throat of the patient were negative. The history showed that another child in this same family had probably suffered from an attack of scarlet fever in the early part of the year. About 80 quarts of milk were produced daily on the dairy premises and shipped to Camden. The owner of the dairy on an order from the attending physician discontinued the shipment of milk to Camden on May 14th and again resumed it on May 15th. The cans and utensils were washed and stored near the back door of the infected dwelling, and the surroundings of the dwelling were unclean. As the mother of the patient was not isolated from the remaining members of the family who were engaged in the milking and in the care of cans and utensils, it was deemed advisable to issue an order prohibiting the further transportation or sale of milk from the premises. This prohibition was issued on May 12, 1909, and was removed on May 24, 1909. No cases were traced to infected milk from this dairy.

**PASSAIC CITY.**—Investigation of a case of scarlet fever on dairy premises, located in Passaic, was made on August 17, and it was found that milk produced on the premises was sold within the city limits. The patient was immediately removed to the isolation hospital, and the usual precautions taken to restrict the spread of the disease.

**POMPTON TOWNSHIP.**Two cases of typhoid fever occurred upon a dairy premises in this township. A child that had been visiting at Miami, Florida, returned home suffering from typhoid fever, and two others of the family developed the disease shortly after their arrival in Pompton. The infection therefore was doubtless contracted in the South. A small amount of milk produced on the farm was sold to consumers in Pompton. As soon as the character of the illness was known the sale of milk was discontinued. The dairy business later on was conducted by persons living in a house separate from that in which the cases of typhoid fever occurred.

**TRENTON.**—A report was received from the health officer of Trenton that seven cases of typhoid fever had occurred on the route of one milkman, and that all these cases were in what is known as Wilbur. An investigation was made by a representative of the State Board of Health, and the sources from which the milk was obtained in Wilbur and in Trenton were inspected. The result of the investigation showed that the milk delivered by the retail dealer in Wilbur was obtained from four sources, and that other dealers in Trenton obtained milk from these same sources, and

therefore the conclusion was reached that as there were no cases of typhoid fever on the other milk routes that milk could not be regarded as the source of infection.

**UPPER PITTSBURGH TOWNSHIP.**—In this township there are many dairies. During the year the board has been called upon to investigate cases of contagious diseases occurring upon six dairy premises. On one of the dairies a case of scarlet fever was reported. Two cases of typhoid fever occurred upon another. Eight cases of diphtheria were reported as existing on four dairy premises. Each of these dairies was visited by a representative of the State Board of Health, and definite instructions were given as to the methods to be adopted to prevent infection of the milk produced on the dairies. On two of the dairies the sale of milk was absolutely prohibited, and on the remaining four dairies the milk was permitted to be sold under careful supervision.

**WESTFIELD.**—On July 1 investigation was made of a case of scarlet fever in Westfield. The father of the child who was attacked with the disease conducted a wholesale and retail depot for the distribution of milk in Westfield. As soon as the diagnosis of the case was made the father was directed to remain away from his home. These instructions were complied with, and no action was taken to interfere with the sale of milk from the wholesale depot.

**WESTHAMPTON TOWNSHIP.**—A case of diphtheria was reported as occurring on dairy premises in this township. The investigation of the case showed that no milk was sold from the premises, and therefore no action was necessary.

**Contagious Diseases in State Institutions.**—In compliance with the law passed by the legislature of 1908, the Division of Medical and Sanitary Inspection has been called upon to investigate and take the responsibility of advising as to the handling of cases of communicable diseases occurring in six of the State institutions. Four cases of typhoid fever occurred in the State Hospital for the Insane, at Trenton, and one in the State Hospital at Morris Plains. Two cases of scarlet fever were reported at the State Normal School, at Trenton, and one case of typhoid fever at the State Prison. Twelve cases of diphtheria in the State Village for Epileptics were also investigated and the history of this outbreak is of such interest from the standpoint of the sanitarian, and the limitation of the spread of the disease by the adoption of intelligent methods is so evident, that we present the report of the epidemic in full as follows:

**DIPHTHERIA AT VILLAGE FOR EPILEPTICS.**—On January 10th notice was received from Dr. David F. Weeks, Superintendent of the New Jersey State Village for Epileptics, situated at Skillman, of an outbreak of Diphtheria in one of the Institution Cottages. The population of the Institution, at the time of this outbreak numbered 365 persons, 271 of whom were patients, occupying twelve separate buildings on the Institution Grounds. The Institution was visited on January 11th, and it was learned that on Sunday evening, January 10th, the night attendant and one of the patients in Bergen Cottage were discovered by one of the resident physicians to be suffering from Diphtheria. These two infected patients were at once isolated, and the diagnosis was subsequently confirmed by bacteriological examination. It appeared that the attendant had suffered from sore throat for several days prior to his report to the physician on January 10th, and this was probably also true of the affected patient. Upon the discovery of these two cases the Superintendent conducted examinations of other persons occupying the same section of Bergen Cottage, which resulted in the discovery of two other inmates suffering from the disease. Four clinical cases had, therefore, been discovered at the time of the arrival at the Institution of your representatives.

On the Sunday upon which the first cases were discovered it was found that four infected persons had attended one or more services at the Chapel. There had, therefore, been ample opportunity to transmit the infection to persons residing in other than Bergen Cottage, and it became apparent

that the active work at once began by the Superintendent to discover others who might be suffering from the disease in Bergen Cottage, should be extended to include all persons residing at or working on the Institution Grounds, and to detect those who might be "carriers" as well as those showing clinical symptoms of the disease. The imperative necessity for the use of an isolation hospital building in which to segregate the clinical and carrier cases was at once apparent. The Institution being without such a building, or other facilities designed to meet such an emergency, Dr. Weeks appropriated a new building, then fortunately nearing completion, which was intended for occupation by female attendants. The mechanics which were at Dr. Weeks' disposal were put to work on this building and by nine o'clock in the evening the four clinical cases of diphtheria were removed there and the work of restricting the spread of the disease was fairly begun. Clinical and bacteriological examinations of all the inmates of Bergen Cottage were rapidly completed and the work of examining each individual at once begun in the other buildings. By the evening of January 12th every patient and employee in the Institution had been examined with the result that four clinical and three carrier cases had been discovered and removed to the improvised hospital.

The following suggestions for a working plan to curtail the further spread of the diseases were then adopted:

1. Taking of specimens for bacteriological examination to be continued from every patient and employee connected with the Institution, and all buildings as well as clinical cases were to be removed to the isolation hospital their clothing and bedding. The room vacated by persons removed to the hospital, together with their contents to be at once properly disinfected and cleansed.

2. In so far as the hospital arrangements permit carrier cases to be kept separate from clinical cases.

3. Immunizing doses of antitoxin to be given to all persons known to have had a direct exposure to an infected person, and also to "carrier" as well as clinical cases as soon as found.

4. Laundry from a cottage in which clinical or carrier cases occur shall be cared for separate from the general laundry.

5. The desks and papers exposed to infection in the school room to be washed with 1-1000 bichloride of mercury solution and all pencils, etc., in use to be disinfected. Books known to have been handled by infected persons to be burned. This method of disinfection also to be applied to such parts of the industrial building as the exposure to which it had been subjected should require.

6. Daily cleansing of all doors, knobs, door casings, stair rails, chairs and other surfaces liable to infection by contact to be performed in cottages from which cases are removed.

7. Intercommunication of inmates and attendants of various buildings to be avoided.

8. Seats and other surfaces liable to infection in the chapel building, visited by infected persons from Bergen Cottage, on Sunday, January 10th, to be disinfected and washed.

9. Bergen Cottage to be kept under quarantine. An order was then issued by the Superintendent, to the heads of departments, directing that the above named suggestions be carried out in detail and that the usual public gatherings among the inhabitants of the village should be temporarily suspended, and no leave of absence to be granted to employees in buildings under quarantine or observation.

On January 15th there were four clinical and eight "carrier" cases in the hospital. Eight were from Bergen Cottage, one from Meadowside, two from Pine Knoll and one hospital attendant had become a "carrier."

Meadowside Cottage was occupied by persons employed in the Institution Dairy, and the appearance of the infection among those assisting in milking and handling the milk necessitated a change of the personnel of this force. An order was issued by the Superintendent instructing those in charge of the food supply at each cottage to sterilize all milk as soon as received from the dairy. This precaution against the possible spread of infection through the milk supply was continued until assurance was had that there was no longer danger from this source. The work of repeatedly taking specimens for bacteriological examinations from all person connected with the Institution was continued and conferences were held, from time to time, with Dr. Weeks to determine upon the action to be taken on new problems which arose during the progress of the epidemic.

On January 16th, six additional cases were admitted to the hospital. Two were from Bergen, one each from Buckley, I and J Cottages, and one was an employee not residing on the grounds. The case from I Cottage was clinical with "carrier." On January 17th Bergen Cottage produced one new clinical and one "carrier" case and a nurse in the hospital was found to be a "carrier" on this date. This same nurse became a clinical case on February 18th. On January 18th two clinical cases were admitted from J Cottage. On January 19th Buckley Cottage fur-

nished its second "carrier" case and another hospital nurse was found to be a "carrier." The "carrier" from Buckley Cottage was a physically disabled patient and never left his room, thus indicating that the infection had been carried to him. On January 20th two additional "carrier" cases were admitted from Bergen and two from Meadowsides Cottage, one of the latter becoming a clinical case on January 27th.

On January 21st Bergen, G and I Cottages each furnished one "carrier" and one of the staff physicians, who had been daily collecting specimens from the throats of persons residing in Meadowsides, Pine Knoll, G, I, J, and Buckley Cottages, was admitted to the hospital suffering from clinical diphtheria. On the latter named date G Cottage furnished its first case, and there had then been received in the hospital either clinical or "carrier" cases from several of the ten buildings in which patients are cared for, and no cases were subsequently discovered among the occupants of the other three buildings. On January 27th there were forty cases in the hospital, twenty clinical and thirty "carriers," coming from: Bergen 19 cases; Meadowsides, 5 cases; J. Cottage, 3 cases; Pine Knoll, 2 cases; I Cottage, 2 cases; Buckley, 2 cases; G Cottage, 2 cases; one employee residing outside of the Institution; two hospital nurses and one physician.

Bergen Cottage continuing to be the chief center of infection, a thorough inspection and a study of the methods applied for restricting the spread of infection in this building was made on January 27th. As a result of this work a notice was issued from the Superintendent's office containing the following instructions:

1. Abolish the use of all common drinking cups, a cup to be marked with the name of each inmate and no other person to be permitted to use the same cup.
2. The second floor of the girls' wing to be used as a detention ward for cases released from the hospital.
3. One attendant to be designated to have supervision over the second floor with instructions that those under observation be not permitted to leave their rooms.
4. Patients towels, wash cloths, combs, brushes, etc., to be delivered to them by the attendants and collected by an attendant after each use. Each person's belongings to be kept by themselves.
5. Some one person in each administrative division of the building to be made responsible for seeing to the thorough disinfection of exposed surfaces liable to infection by touch.
6. Burn all books and papers which have been in common use among patients or attendants since the beginning of the outbreak.
7. Abolish the use of all toys, used by the children, except those that can be disinfected after use by each patient. Toy closets to be locked and the keys deposited with the custodian.
8. Intercommunication, by patients and attendants, between the center and wings of the building to be minimized as far as possible.
9. All persons to wash their hands after passing from one division of the building to another.

Inspections were then made of the remaining cottages for inmates on the Institution Grounds which resulted in the Superintendent issuing the following general instructions:

1. Discontinue the use of all common drinking cups. Mark all cups now in use in wash rooms, kitchen, etc., and send them to the store room. Provide a separate marked cup for the use of each inmate.
2. All roller towels to be removed from their place and their use discontinued. All clean roller towels to be wrapped and sent to the store room with the name of the Cottage from which they are sent marked on the package.
3. All books, papers, magazines, etc., now in general use in each cottage to be burned. All books and magazines not having been exposed to infection to be locked in their closets and the keys delivered to the supervisors of the divisions.
4. Solutions of bichlorid of mercury for disinfecting purposes to be prepared 1-1000 in strength and the solution to be used directly after mixing and not left standing around unguarded. A wood, fiber, or porcelain vessel, to be employed in making bichlorid solution and in disposing of any surplus solution pour the same into a water closet and flush the fixture at least twice.
5. The greatest care in the daily cleansing of the building to be given to the parts with which the hands most frequently come in contact, such as hand rails, banisters, door knobs and casings, chairs, tables, chain pulls on water closet tanks, faucets and like surfaces.

From January 27th to the 30th, in all, 106 cases had been admitted to the hospitals as follows: From Bergen Cottage, seven "carrier" cases; Buckley Cottage, one "carrier" case; J Cottage, one "carrier" case; G Cottage, one clinical case; Buckley Cottage, one "carrier" case, and one more hospital nurse became a "carrier."

From the date of issuing the last general instructions above referred to, on February 1st, to the date of the last admission to the hospital on February 21st, nine cases were admitted. These were all "carrier" cases and

came from: Bergen Cottage, four cases; Meadowsides, two cases, and J Cottage, three cases.

At the beginning of the outbreak an investigation was made to determine the source of infection of the first case. This effort proved futile. The night attendant was probably the first infected person, his case being followed by others among patients with whom he came in closest contact in the performance of his duty, the infection being in turn transmitted by them to others with whom they were in close touch, thereby indicating spread by contact and not infected food or other common source. This held true as the epidemic progressed, and while every clue to the probable source of infection for the first case was closely investigated, the results were negative.

A study of the contents of the table accompanying this report, in connection with the records of the history of the epidemic, shows some interesting and instructive facts which are summarized as follows: Introduced in some undetermined manner the infection spread by contact from the first clinical case in Bergen Cottage to other persons in the same building, from where it reached occupants of Meadowsides, Pine Knoll, I, J, Buckley and G Cottages, and one employee not residing in the Institution.

The cases were divided among these seven buildings as follows: Bergen thirty cases; Meadowsides, eight cases; J seven cases; Buckley, three cases; G, three cases; Pine Knoll, two cases, and I, two cases. Among the sixty-one infected persons admitted to the hospital forty-nine, or 80.2%, were "carrier" cases; twelve or 19.8% were clinical cases; 16.71% of the total population of the village were infected and sent to the hospital; 3.29% suffered an attack of clinical diphtheria, and 13.42% were known to have been "carriers."

The clinical cases were from: Bergen Cottage, four cases; J Cottage, two cases; Pine Knoll, one case; I Cottage, one case; G Cottage, one case; employees in hospital, two cases; and one staff physician. Five clinical and seven "carrier" cases were found among the employees of the Institution. There were three clinical cases not confirmed by repeated bacteriological examination.

Discharge of patients from the hospital was based on results of bacteriological examination. Four consecutive negative replies on cultures sent from each patient being at first required to release. Patients were then disinfected, their rooms cleaned and uninfected garments, and removed to a detention ward in Bergen Cottage from which three negative specimens were required in each case for final release. Twelve clinical and forty-nine "carrier" cases were admitted to the hospital or sixty-one individuals in all. There were one hundred and six admittances to the hospital, forty-five being made up by return cases from the detention ward following positive replies on specimens taken while there. Forty-nine days was the greatest period of hospital detention for any one case and two days the minimum.

Twenty-eight cases were tested for virulency, nineteen of which proved to be non-virulent and nine virulent to guinea pigs. The specimens from which seven virulent tests were made came from "carrier" cases and two were from cases in which clinical symptoms had developed, there being only two clinical cases tested. The specimens which proved virulent on tests were all collected from infected persons from Bergen Cottage, in which the outbreak was first discovered. Among the cases tested for virulency fifteen came from J; one from G; one from Meadowsides; three from J; two from G; one from I; and one a person not residing on the grounds.

The bacteriological work, which was done at the State Laboratory of Hygiene, proved indispensable in the satisfactory handling of this outbreak. By this aid it was possible to locate "carrier" cases, and thus remove centers of infection, and also to determine upon a time to release cases from the hospital. More than 11,200 specimens were examined, and 28 tests for virulency were made in the Laboratory in connection with this epidemic. The tests for virulency proved to be of particular value in that it permitted release from the hospital and of withdrawing all supervision over "carrier" cases that were non-virulent, thereby lessening the expense of caring for this class of cases and the hardship otherwise entailed by close confinement. Five of the "carrier" cases of the non-virulent type, discovered on January 12th, 15th, 23rd, February 5th, and 16th, respectively, were still "carrier" when last tested on October 14th, thus making a period of 275 days the longest and 241 days for the shortest known time for this group of cases to have been persistent "carriers." If virulent tests could not have been made in these cases their isolation would naturally have been continued up to the time of the disappearance of the bacilli from their throats, whereas they were released in 27, 30, 5, 20, and 3 days respectively.

From the foregoing facts the following conclusions may be drawn:

1. The chief way in which infection was spread in this epidemic was apparently from latent "carrier" cases.



2. All persons in contact with diphtheria patients should have specimens taken from their throats for bacteriological examination at frequent intervals, and if diphtheria bacilli are found, in the absence of clinical symptoms, a test for virulence should be made.

3. All persons in attendance upon cases of diphtheria should be instructed as to how the infection is transmitted.

4. All sore throats should be promptly examined bacteriologically, and one negative report should not be relied upon for a final diagnosis.

5. Specimens for bacteriological examination should be taken from the throats of all inmates of a dwelling in which a case of diphtheria appears in order to discover any "carrier" cases which may exist. All "carrier" cases should be isolated pending a test for virulence.

6. One negative throat specimen should not be relied upon to release a clinical or "carrier" case of diphtheria, and no definite number of negative reports gives positive assurance that the bacilli are not present.

7. Early diagnosis made possible by bacteriological examination of carefully collected specimens followed by prompt treatment with antitoxin undoubtedly diminished the severity of the disease in individual cases and shortened the duration of the epidemic.

8. Diphtheria bacilli isolated from specimens taken from "Carrier" cases may prove as virulent by animal test as those isolated from clinical cases.

9. The use of antitoxin in "carrier" cases had no apparent beneficial effect in hastening the disappearance of bacilli from the throat.

10. In outbreaks of this character, particularly in Institutions, early virulent tests in "carrier" cases are of great value in that non-virulent cases are thereby eliminated from among the number to be cared for in the hospital, thus minimizing release and expense.

11. Every State, and other Institution, in which a large number of persons are cared for should be provided with isolation hospital facilities in which infectious cases can be isolated for the protection of the health and life of others.

**Communicable Diseases.**—Local boards of health throughout the State frequently request the State Board of Health to send a representative to assist them in determining the origin of cases of contagious diseases, and to give advice as to methods to be adopted to prevent epidemics.

During the year 84 localities have been visited, and 467 individual cases investigated. The epidemic of small-pox which threatened to become extensive was limited to a few localities, and only 107 cases were reported.

The reports of the investigations which follow are of necessity brief, but contain valuable information as to methods by which diseases are communicated, and indicate how dependent the public is upon local health authorities for protection.

#### TYPHOID FEVER.

**BARNEGAT CITY.**—An investigation of an outbreak of typhoid fever which occurred at the Oceanic Hotel, Barnegat City, was made on Aug. 17, 1909, and the history of the cases is as follows: The proprietor of the hotel was removed to a hospital in Philadelphia on June 28. He had typhoid fever. The daughter of the proprietor suffered from the same disease, and was removed to the hospital on June 29. A colored porter, having typhoid fever, was sent to the hospital on August 5. From information obtained from the management of the hotel it was learned that the hotel was opened by the employees, including the colored porter, on June 23. The proprietor's daughter came to the house on June 18, and was cared for by the proprietor on July 1. About July 11 the proprietor and his daughter began to feel ill from which time their condition grew gradually worse, and a physician was summoned on July 26. The colored porter was feeling ill at the time or shortly after his arrival at the hotel on June 23, and owing to his physical condition he failed to perform his duties in a satisfactory manner, and spent considerable time in bed. Notwithstanding this and in spite of the fact that two other persons in the house were known to have been affected by typhoid fever no physician was called to attend the porter, but a physician temporarily stopping at the hotel saw him on August 4 and advised that he be sent to the hospital. In addition to the above cases one

other case was reported in the person of a boy 16 years of age, and it was evident that the infection had been contracted at the hotel. As the water from wells on the hotel premises was polluted a new source of water supply was ordered. All the cases were traceable to contact with the original case of the porter.

**BLOOMFIELD.**—Two persons employed in a pin factory in Bloomfield were reported as having typhoid fever. These cases were investigated, and the drinking water which was supplied to employees in the factory was submitted to chemical analysis, but no definite source of infection was determined.

**CRANFORD.**—May 3rd, a representative of this board was called to Cranford to assist the local board of health in the investigation of an outbreak of typhoid fever. At the time of this visit there had been four cases reported to the local board.

The first case occurred on March 30. It was followed by one case on each of the following dates: April 14, 15 and 20th.

These cases occurred in families who procured milk from N. A. D., and in the absence of any other apparent source of common infection, the local board of health had on April 30, revoked the dealer's permit for the delivery of milk in Cranford, pending an investigation.

Inquiry was made into the source of the milk supplied by Mr. D. and to procure a history of each of the individual cases of typhoid, which continued to appear up until May 11, eleven days following the date on which Mr. D. ceased to distribute milk to consumers in Cranford. There were in all 20 cases investigated in connection with this outbreak. Seventeen were located in Cranford, where Mr. D. served about 90 families, two in Westfield, where 4 families were served by him, and one on Mr. D.'s Dairy at Mountain Side. In one case which occurred in Cranford no milk from the D. supply was used and this case apparently had its source of infection elsewhere.

One other case unquestionably infected in Cranford, procured milk from another dairy on Mountain Side, who occasionally, when short, purchased a few quarts of milk from D. to supplement his own supply. Of the 20 cases, 17 were among persons who daily used milk supplied by Mr. D.

Not more than one case was reported in any one dwelling. Mr. D. was one of 8 dealers supplying milk to consumers in Cranford, and the number of families supplied by him did not exceed 10% of the total number residing in the village. There appeared no probable source of infection in common to all of the cases nor to any considerable number of them. In the absence of contradictory evidence these facts unquestionably point to the milk supplied by Mr. D. as the medium through which the infection in this outbreak was distributed.

Mr. D.'s dairy and milk depot is located at Mountain Side, and at the time of this outbreak, there was produced on the premises about 75 quarts of milk daily. Eighty quarts were purchased each day from the Dairy of J. J. Valley Road, North Plainfield Township. The balance of the milk supplied by Mr. D. was procured from the North Branch Creamery, there being received from this source about 8 cans of milk and 50 quarts of cream each week.

Preceding and at the time of the beginning of this outbreak there was no history of typhoid fever on Mr. D.'s dairy and milk depot premises.

The water supply was from springs apparently free from typhoid infection. The springs were, however, protected against pollution or chance infection by persons who choose to approach them. The one case of typhoid fever which occurred on the D. dairy was in the person of a relative who came to the dairy on April 5th, five days following the date of attack of the first case to occur among Mr. D.'s patrons in Cranford. This relative was not taken ill until May 3rd, and on May 7th she was sent to her home in Springfield. It therefore appears that the infection for the case which occurred on the dairy was from the same source as that which caused the cases in Cranford and Westfield.

No typhoid history was found at the North Branch Creamery nor at the dairy farms producing milk supplied to this creamery. No typhoid fever cases had been reported from other towns to which nearly all of the creamery milk was shipped.

At the J. Dairy, at Valley Road, about 135 quarts of milk was produced daily. About 60% of this amount was taken by N. A. D., and distributed by him in Mountain Side, Cranford and Westfield; twenty quarts from the J. dairy was sold daily to Mr. Geo. Robinson, who claims to have disposed of it to consumers in Mountain Side only; twenty quarts were sold daily to J. F. B. and distributed by him to consumers in Graceland, and the balance of the dairy production was sold direct to private families residing near the J. dairy or consumed by the J. family and relatives who were visiting them at the time of this outbreak. Two members of the J. family suffered an attack of typhoid fever in 1907 while on another dairy farm. A boarder at the present home of the Jensens, after several weeks absence from the place, returned to the dairy on May 10, 1908, and was three days later removed to a hospital ill with typhoid fever. Aside from the latter

named case there is said to have been no case of illness of any kind among persons residing on the J. dairy since the family came on the present farm in April, 1908. No case of typhoid fever has been known to occur among consumers supplied direct with milk from the J. dairy nor in Graceland to whom the dealer Biddulph daily supplied this milk, nor among the persons supplied by the dealer Robinson in Mountain Side. The entire output of milk from the J. dairy from Dec. 9, 1908, to about March, 1909, was disposed of to dealers in Westfield and no cases of typhoid fever were reported among the consumers of this milk during that time.

The one family in Cranford in which a case of typhoid occurred, and to which the dealer G. R. delivered milk, also procured a slightly greater daily amount from the Alderney Dairy Co. There was apparently no way by which milk having been in the possession of Mr. D. reaches this family unless delivered by the dealer R. who, as already stated, occasionally bought small amounts of milk from Mr. D. That this actually occurred, however, was not fully established.

While the above facts do not justify a conclusion that the infection which caused the cases of typhoid fever among consumers of milk distributed by the dealer D. had its origin on the J. dairy, nevertheless, to eliminate the possibility of a typhoid carrier, samples of feces and urine were collected from each person assisting with the dairy work. These samples were examined in the state laboratory of Hygiene with negative results.

The water supply on the J. dairy is also above suspicion. Further efforts were made to locate the infection on the D. dairy by procuring blood specimens from each person on the place at the time of the beginning of the outbreak and also by examining samples of feces and urine from each of these persons. These examinations were all negative.

In considering the probability of bottle infection the following facts appear.

The first case in the outbreak was a child, 7 years of age who, it is claimed, had not been outside of Cranford for several months. This case took to bed and was first seen by a physician on March 30. A diagnosis was made and the case reported as typhoid on April 5. This sick child was nursed by its mother who also supervised the general household work. It was daily removed by the dealer D. from this infected house until the results of an examination of a blood specimen, sent to the state laboratory for analysis, had been received and the case reported as typhoid fever. Mr. D. states that both the child and him from this house were always apparently well washed. The method of washing bottles and utensils on the D. dairy was unsatisfactory. Luke warm water is used for washing and the bottles are not sterilized. Milk is sold in bottles only and the milk from different sources is so mixed in bottling that it cannot be told at what point along the route any particular milk is delivered.

The second case in the outbreak occurred on April 14th, fourteen days following the first. Other cases then occurred April 15, one; April 20, three; April 22, one; April 24, one; April 25, two; April 27, one; April 29, one; May 1, one; May 2, one; May 3, three; May 10, two; and May 11, one. These dates show a lapse of two weeks, the usual incubation period of typhoid fever, between the occurrence of the first and second cases on D's milk route. New cases then continue to appear, every few days, for a infection, following the occurrence of the first case, such as were reported in eleven days subsequent to the date on which the local board of health prohibited the further delivery of milk by Mr. Darby in Cranford, thereby obviated further presumptive evidence that the infection which caused the outbreak was distributed by Mr. D. through the milk supplied by him to consumers.

INGLEWOOD.—The city of Inglewood was visited on October 22, and an interview was had with the sanitary inspector of the local board of health concerning the recent outbreak of typhoid fever. From the very meagre information in the hands of the local inspector, concerning the history of the individual cases, no intelligent deduction could be made as to the probable source of infection. There appears to have been one case to which four cases, in January last, which soon subsided. In the latter part of July one case was reported. This was followed, from time to time, by nine other reported cases with several suspects now in the hospital. In order to start the local licensed sanitary inspector in the work of procuring a history of the cases several of the infected places were visited with him, and a schedule card for use in this work was furnished. While the data thus procured was insufficient to form a conclusion concerning the probable source of infection the facts gathered apparently excluded water and milk. Enough information was obtained to show that the cases were grouped in a section of the city where the sanitary conditions were bad. Open privy vaults existed on nearly every premises, and many dwellings were not connected with the sewer. In the two cases investigated, discharges from the patients had been placed, without disinfection, in open privy vaults. The contents of these privies were not disinfected, and the

infected material remained exposed to flies and leached into the surrounding ground.

The local board of health was advised as to methods to be adopted in tracing outbreaks of typhoid fever, and as to measures to be taken to prevent the spread of the disease.

EWING TOWNSHIP.—Five cases of typhoid fever which occurred in Wilburth, Ewing Township, were investigated. The first cases occurred on premises near Wilburth station. The person was employed as a house maid. Just prior to her illness she had visited in Bordentown and Trenton for two or three weeks. Shortly after her return to Wilburth a physician was called to prescribe for her, and on July 27, 1909, the person was sent to the Mercer Hospital in Trenton suffering from typhoid fever. She was discharged from the hospital on August 10 and returned to the home of her employer on August 29, 1909. A portion of the milk produced from four cows kept on the premises where the typhoid fever occurred was sold to the neighboring families, and the balance used for butter making. The patient handled the milk, and stated that there were a dozen families who occasionally came to purchase milk. The dwelling and its surroundings were unclean, and from the conditions surrounding the dug well near the dwelling it was probable that the water supply was polluted. There was no disinfection of the discharges of the patient prior to her removal to the hospital, nor following her return from the hospital, nor was the vault in the yard in which the discharges were placed disinfected. Flies were numerous in and around the dwelling.

The second case was in the person of a child sixteen years of age. This child was one of a family of seven members, and in addition to the family there were ten Italian boarders who were employed in a nearby stone quarry. This family occupied a dwelling facing the canal directly opposite the Wilburth station. The child was taken ill August 10 and died Sept. 10. Two other children in the same family were taken ill Sept. 4. The dwelling occupied by this family, and the yard about it was unclean and flies were numerous on the premises. There were two privy vaults near the dwelling, and discharges from patients were placed on the ground in the yard without disinfection. The water supply for the family was obtained in part from an open well located on another property some distance away, and also from a pipe discharging at the foot of the canal bank. The latter supply was undoubtedly polluted canal water, and the well was not protected from possible pollution. The milk for the family was obtained from the first place on which a case of typhoid fever occurred, but the patients are said never to have used uncooked milk except in coffee. The fifth case in this locality occurred about Sept. 1. The patient was fifteen years of age, and two weeks prior to his first symptoms he was working at a bleachery in Yardville, and also had visited his friends in Trenton. The water supply on this premises was probably safe. The privy vault was located in the garden, the houses and grounds were clean and the discharges from the patient were carefully disinfected and buried. This family also procured milk from the premises upon which the original case of typhoid fever occurred.

The conclusions reached in this outbreak were that the first case was probably ill several weeks before being admitted to the hospital. During this time the contents of the privy vault on the premises and the unclean liquids in the door yard, probably became infected. Within thirty-four days four other cases developed. While it seems quite possible that the infection spread from the various places to the other dwellings no facts were obtained which pointed to milk procured on the original premises as having been the vehicle of transmission. It appears more probable that flies were the carriers of the infection.

FREEHOLD.—From July 17th up to and including Sept. 16, 1909, there had occurred twelve cases of typhoid fever among residents of the town of Freehold and three cases among persons residing in Freehold Township, just beyond the boundary line of the Town. These cases were followed by six others making in all twenty-one known cases in this outbreak, the last case being reported on Nov. 8th.

At the times of several visits to the Town, between Sept. 15th and Nov. 25th, a study was made of each individual case, and of the premises and surroundings upon which each case occurred, and such suggestions were made to the local health inspector as the facts at the time warranted.

A very careful study of the food supply in the early case, gave negative results, and this held good throughout the entire outbreak. Well water was in use on thirteen of the seventeen premises upon which cases occurred, and while the examinations showed that each of these door yard wells were polluted, yet there is nothing in the facts to suggest infection of the well water in any of the cases.

Aside from the three premises upon which secondary cases occurred, there is no indication that the infection was spread by personal contact.

The tabulation of the cases shows that the first case occurred on July 17, and the last case on November 8th. Of the persons affected there were

eleven males and ten females. There were eighteen whites and three negroes. The ages of the persons affected were:

5 to 9 years—	4
10 " 14 "	1
15 " 19 "	1
20 " 29 "	6
30 " 39 "	2
40 " 49 "	2
50 " 59 "	1
60 " 69 "	1
Total,	21

The first cases occurred on Main Street and in the Northwest section of the Town, and those on the Eastside proved to be persons whose business took them into that portion of the town in which the infection first appeared.

The evidence points to local infection for twenty cases while in one, which proved fatal, the infection appears to have been brought from out of town. The first two cases, occurring on July 17th and 19th respectively, were in persons residing on premises separated by a distance of about one thousand yards and widely differing in cleanliness of surroundings. In the first case the patient was a housewife, sixty-three years of age, residing at — street in a good residential district. The case was reported to the local board of health on August 6th and the discharges from the patient are said to have been disinfected and buried in the yard. Excreta was from a dug well. A second case occurred on these premises two months later. The second person affected in the outbreak was a negro, twenty years of age, employed in a drug store on Main street and who resided on Avenue A., just outside the Town limit, in Freehold Township. This lad was not confined to his bed continuously and during the first two of the four weeks of his illness he called every other day at the office of his physician for treatment. The case was reported to the local health authorities and in about two weeks a second case developed on the premises. The discharges from the sick were deposited, without disinfection, during the entire period of illness, in an overflowing privy vault located in the rear yard, beside the privy vault was a hog pen, in a filthy condition, and the whole surroundings were unclean and particularly favorable to the propagation of flies, which were unusually numerous on the premises at the time of the first and subsequent inspections. From this focus of infection the disease apparently spread and, in about two weeks, developed upon which much the same uncleanly conditions prevailed and upon which there was a similar lack of disinfection of the discharges from the sick, resulting in the infection of the contents of a four privy vault. On the two premises last named five cases occurred and the cases which followed the first of these were in dwellings not far removed or in persons whose movements about the town brought them near these centers of infection for meals or the purchase of food supplies. In studying the facts in each individual case, there are but three, i. e., the one imported and the two known cases, in which it can not readily be seen how it was quite possible and in most of the cases highly probable, that the infection was transmitted by flies having access to the infected filth on the two premises above described. The 17th case reported occurred in the county jail. When taken ill the patient had been in the same corridor in the jail for seven weeks, and aside from the possibility that the infection may have been carried to him by some short term prisoner, admitted and discharged in the mean time, there appeared no more likely explanation than that the infection may have been brought in by flies, of which there were a goodly number in the unclean jail corridor, at the time of inspection on Oct. 15th, and the jail is but a short distance from the two infected privy vaults still in use. The population of the Town of Freehold numbers about three thousand. There are about six hundred and forty dwellings, four hundred and forty-four of which are connected with the public sewer and about four hundred and fifty supplied with water from the public supply. There are about three hundred open privy vaults and two hundred shallow wells still in use in the built up portion of the Town. In the Northwest section of the town, and in which the two premises which proved to be centers of infection in this outbreak are located, it is stated that typhoid fever has been of annual occurrence, during the summer and fall months, for many years past.

The town is provided with a good water supply and sewers available to most of the premises in the town limits, still polluted wells are in use on many premises where town water is accessible and open privy vaults are maintained not only on premises not yet connected with the sewer but on many that have a sewer connection.

Vigorous action by the local board of health in adopting and enforcing

ordinances designed to rid the town of polluted wells and open privy vaults would doubtless be followed by a decreased morbidity and mortality records in this Town.

**GALLOWAY TOWNSHIP.**—Two cases of typhoid fever which occurred in this township were investigated. It was supposed that the persons became infected by drinking water from a spring on the banks of a small stream which flows into the Mullica river. Samples of water from this spring were forwarded to the State Laboratory of Hygiene, but there was no indication of a contaminated water supply. Samples of water were also examined from a driven well on the premises on which the case of typhoid fever occurred, but the results of bacteriological examination of the samples were negative. From the history obtained the decision was reached that the first case was contracted while away from home, and that infection in the second case was due to direct contact.

**GLEN RIDGE.**—Six cases of typhoid fever occurred in this borough. The first case reported was in the city of Montclair near the boundary line separating that municipality from the borough of Glen Ridge. The history of the cases indicated that the infection was due to polluted water. Samples of water from two wells located in the borough of Glen Ridge were examined, and there was direct evidence of contamination. The wells by order of the local board of health, were immediately closed. After the abandonment of the wells as a source of water supply no other cases were reported.

**HASBROUCK HEIGHTS.**—Three cases of typhoid fever occurring at Hasbrouck Heights were investigated, and it was found that the disease had been contracted by the parties while away on a vacation.

**HOHOKUS TOWNSHIP.**—Following is a report of an investigation of cases of typhoid fever which occurred in Ramsey, Bergen County. On Sept. 20 a physician was called to attend a child six years of age. This child was one of a family of a contractor, and was accustomed to drive with the father to his daily work and drank water and milk at various places. No definite history was obtained showing where this child contracted the disease. On Oct. 1 a aunt of the child, living in the same house, was taken ill with typhoid fever. This was undoubtedly due to direct contact. On Oct. 29 a young lady of nineteen, residing in the same house, was attacked with typhoid fever and died on the fourteenth day. There were three wells on the premises, one a dug well near the barn, one a driven well inside the house and third a driven well near the house. Case number three was married at her home on Oct. 30, and nearly eighty people from Preackness and the vicinity of Ramsey drank water from the kitchen pump, and as no history of any cases of typhoid fever occurring among these individuals was obtained it is probable that the water from the kitchen pump can be excluded as a source of infection. Samples of water were taken from the two remaining wells and forwarded to the laboratory, but the results of the chemical examinations were negative. The investigation of these cases of typhoid fever indicated that the original case was contracted by the use of infected water or milk, and that the subsequent cases were due to direct contact.

**IRVINGTON.**—Three cases of typhoid fever occurred in Irvington during the month of June, 1909. The cases were in one family, and the history of the cases showed that they had visited away from home. The water supply used by the patients was obtained from the public mains. The source of milk supply was investigated, and there was no evidence that the milk used by the patients was infected. There was, however, a history of the patients having been away from Irvington, and it is reasonable to suppose that they contracted the disease while visiting. No other cases occurred in the town.

**LAWRENCE TOWNSHIP, MERCER COUNTY.**—Two cases of typhoid fever which occurred in this township were investigated. The milk on one of the premises on which one of the cases occurred was supplied to the Wayside Cottage at Lawrenceville. The investigation did not point to any infection of the milk supplied from this dairy. Samples of water were taken and examined, and there was no evidence of pollution.

**PAULSBORO.**—Five cases of typhoid fever occurred in Paulsboro during the month of September, 1909. A careful investigation as to the origin of the disease gave negative results. The local board of health received instructions from a representative of the State Board of Health as to the methods of securing reports of cases of this nature, and also as to the duties and obligations of the local board in regard to dealing with outbreaks of a similar nature. The final conclusion in reference to these cases was that the disease was imported.

**PITTSBORO TOWNSHIP.**—Two cases of typhoid fever occurred in a family residing at Deal's Mills in the above named township. The cases were reported on April 7. They were very severe in type, and the diagnosis was established at the time of the first visit. The local board



**WALL TOWNSHIP.**—During the investigation of an outbreak of typhoid fever in Allenwood, Wall Township, Monmouth County, eleven cases of the disease were studied, two of which resulted in death.

No comprehensive history of the outbreak was to be had from the inspector of the local board of health, to whom one case only had been regularly reported by the attending physician. All of the premises upon which individual cases were reported to have occurred were visited and a record made of each individual case. Cases were investigated in eight separate premises, most of which were widely separated. The first case was O. H. F., a clerk in a general store at Allenwood, who was taken ill on July 14th. For a period of two weeks this man managed, with difficulty, to perform his duties about the store. On August the 1st he called upon a physician of Manasquan, who pronounced the case typhoid fever, and the patient returned to his home, in the store dwelling, and went to bed. On August the 6th the patient was moved to the dairy farm, conducted by Mrs. C. F. where he died on August 20th. No preventive measures were taken to restrict the spread of the disease from this case during the eighteen days that he was ill on the store premises.

The discharges were placed, without disinfection, in one or both of two privy vaults in the small yard which adjoins the store dwelling, and waste liquids from washing soiled bedding and clothing were cast upon the ground near a dug well from which a semi-public supply is drawn. The patient's wife occupied the same room as her sick husband, nursed him, and also did the housework for five members composing the two families. Mrs. F. contracted the disease and was removed from the dairy farm, upon which her husband died, to the Long Branch hospital, on August the 22nd. The proprietor of the store showed first symptoms of the disease on September 1st. Mrs. A. nursed her husband until a trained nurse was secured upon September 10th, during which time she also assisted in waiting upon customers in the store. During the period of time that Mr. F. was on the dairy premises of his mother, from August 6th until August 20th, the milk produced thereon was sold to Mr. E. A., who also owned a dairy farm, and delivered by him to consumers in the Borough of Spring Lake. On September the 8th, M. D., a summer boarder on the Abbott dairy premises, returned to her home in Brooklyn, N. Y., where she died from typhoid fever on August the 27th. On September the 13th a child of Mr. A. was taken ill with typhoid fever and removed from the dairy to the Long Branch hospital on August the 27th.

While it was established that Mr. F. had been away from Allenwood, on nine trips, during the incubation period preceding his illness, no probable source of infection in his case was established. The second case occurring twenty-seven days subsequent to the first, together with other facts connected therewith, suggests infection from the first case. A careful study of the facts in the other cases points strongly to the premises upon which the first occurred as the source of infection for the primary cases which developed in each new center of infection. Ample opportunity for this was found to have existed, in fact the conditions were most favorable. The first sufferer was ill two weeks prior to the time the patient who sickened for a period of three weeks, during which time no disinfection of the discharges took place. These were placed in an open privy vault where they were exposed to flies which are said to have been unusually numerous in this settlement during the late summer. The patient was nursed by a member of the family who also prepared the meals; and during the first two weeks of illness the patient dispensed goods in the store. Bread, a large variety of cake and pie, including product from two bakeries, cakes, butter, cheese, etc., were among the articles handled by the infected person. From the date on which the proprietor of the store took ill, on September the 1st, until a nurse was secured for him on September the 10th, his wife acted in this capacity and also took part in serving customers in the store. The nurse remained on the case for two weeks, terminating her services on September 24th, and during a visit which was made to the store on October the 15th, the patient, although quite feeble from his recent illness, was observed selling cakes and other articles to customers over the store counter. The dates upon which the case occurred, indicated a slight intermitent infection and are lacking in the elements appearing in outbreaks due to infected food or drink partaken of at one time by a comparatively large number of persons.

While the surrounding of the well on the store property, when considered in connection with its construction depth and the nature of the soil, warranted a conclusion that the water in the well was polluted, the facts in all of the cases do not support the theory advanced that the water was infected with typhoid bacilli. The primary case occurring on some of the infected premises had drunk no water from this well during the incubation period prior to the date of attack. Each primary case, however, as well as the secondary cases occurring on the same premises, had eaten food procured by themselves, or brought to them by others, from the infected store premises. The information obtained further shows that such articles

of food as are usually consumed without cooking or further preparation, and which have no protective covering while being handled by vendors, was eaten by each of those in whom the disease later developed within the incubation period following the ingestion of such food.

**WEST ORANGE.**—A report was received from the sanitary inspector in which it was stated that three cases of typhoid fever had occurred in the town, and requesting that an investigation be made. The cases were all in one locality, but there was nothing upon the premises which indicated a common source of infection. The water supply of the family is taken from the public mains, and as no other cases of typhoid fever had occurred it was reasonable to exclude this as the source of infection. The milk supplied to the patients was obtained from one milkman. In the investigation of the milk supply it was found that the milkman obtained milk from three farms. Each one of these farms was visited, and every effort made to ascertain whether any cases of typhoid fever had occurred on the premises, and also to ascertain whether there were any cases of typhoid fever near any of the farms upon which the milk was produced. The information obtained in regard to these matters was negative, and the source of infection was undiscovered.

**WOODBIDGE TOWNSHIP.**—Two cases of typhoid fever which occurred in Woodbridge Township were investigated. Every effort was made to obtain the history of the individual cases and to determine the source of infection, but the result of the investigation showed that the persons affected had been away from home and in all probability had been exposed to the disease in other localities.

#### SMALL POX.

**ATLANTIC CITY.**—On May 16, 1909, the health officer of this city was notified by a local physician that under his care a case of small-pox. The patient was immediately visited by the health officer, and the diagnosis confirmed. The patient, a woman who had been vaccinated over thirty years previous to this time, stated that she had visited Philadelphia the week before, and came direct to Atlantic City. The patient was at once referred to the municipal hospital, and the health department of Philadelphia was notified of the case. The bedding and other articles used by the patient, after an inventory had been taken, were destroyed by burning. The room in which the patient resided was thoroughly disinfected. The patient was boarding at a local boarding house. In this house at the time were 19 persons. All of these were vaccinated and were visited each day by the health officer for two weeks. The report of the case to the authorities in Philadelphia resulted in the discovery of two or three cases in that city.

**CAMDEN.**—The first case of small-pox which occurred in Camden during the year 1909 was in February. It was of a mild type, and the history showed that the patient, a colored man, has recently come from Tennessee. Before the case was discovered there had been an exposure of a number of colored persons in a pool room, and several other cases developed. All patients were at once removed to the municipal hospital, and a general vaccination of the whole district was ordered and carried out. This had the effect of stopping the spread of the disease for a short time, as only four cases followed the original case. About this time another colored man came from Maryland, and developed small-pox. The investigation of the case of the outbreak also indicated that a colored woman suffering from a mild case of varioloid had visited Camden, and then returned to the South. A total of 19 cases was reported to the board. All the cases which occurred were in the persons of colored people, and were either close friends or related to each other so that the transmission of the disease is easily accounted for.

**HACKENSACK.**—But one case of small-pox occurred in this city during the year. The patient was immediately placed under quarantine restrictions, and all persons who had been exposed to the disease were vaccinated. The origin of the case was not discovered and no other cases followed it.

**HADDONFIELD.**—On March 25, 1909, a local physician reported a case of small pox on East Main Street. The patient was a colored man who resided with his wife and two children. A meeting of the local board of health was called on March 26, and it was decided to send the patient and his family to the Camden municipal hospital. The plan was carried out, and the building where the patient resided was destroyed by fire. This method of disinfection although radical was very effective. A second case was reported on March 29, and the history obtained showed that the patient had been exposed to the original case. This patient was likewise sent to the municipal hospital at Camden, and the members of his family were vaccinated and placed under strict quarantine after the quarantine of the house was thoroughly fumigated. The vaccination of all school children was recommended, and free vaccination was offered to those unable

to pay for it. The expense to the borough in handling these cases and for free vaccination amounted to \$1,000.00.

**HIGHTSTOWN.**—During the prevalence of small-pox in Perth Amboy a person left that city and arrived at Hightstown on March 3, 1909. The physician who was called to see the case found the patient with a suspicious eruption, but inasmuch as the disease was then one week advanced, and the patient had been permitted by the authorities to leave Perth Amboy under the supposition that he was suffering from chicken-pox, the attending physician hesitated to pronounce the case one of small-pox. He advised the family, however, to admit no visitors. On March 10th the local board of health of Hightstown was notified by the health officer of Perth Amboy that the patient who had gone to his home in Hightstown was undoubtedly suffering from small-pox as there were a number of cases in Perth Amboy at that time. Immediate action was taken by the local board of health, and the house in which the patient resided was strictly quarantined. All persons who were exposed to the disease were immediately vaccinated, and every effort was made to ascertain the persons with whom the patient had been in contact in his journey from Perth Amboy to Hightstown. No other case followed the original one.

**KEYPORT.**—On Saturday, March 20, 1909, information was received by the local board of health of Keyport that a person had escaped from quarantine in Perth Amboy, and was sick with small-pox in a tenement house located in East Keyport. The tenement was occupied by 16 persons. There being no doubt as to the nature of the disease the patient was placed under the supervision of the board, and a watchman was detailed to see that efficient quarantine was maintained. As the persons living in the building were nearly all related to each other, and as there was no contagious disease hospital, the board decided to quarantine all of the individuals until the danger of the spread of the disease was past. On April 24, 1909, the attending physician reported that no other cases had appeared, and an arrangement was made by which a representative of the State Board of Health supervised the disinfection of the building. The quarantine lasted in all 38 days, and the total cost was \$533.00. Free vaccination was offered by the local board of health, and the board of education was urged to compel compliance with the law requiring vaccination of children attending school.

**LITTLE FALLS TOWNSHIP.**—One case of small-pox was reported in this township, and the history of the case indicated that the person had contracted the disease by exposure to infected persons in the city of Paterson. By an arrangement with the city authorities the patient was immediately removed to the isolation hospital in Paterson, and the infected premises were thoroughly disinfected. All persons who had been exposed to the disease were vaccinated.

**LODI.**—Only one case of small-pox occurred in this borough. It was in the person of a 25-year-old mason by the name of . . . The only history that could be obtained showed that he had visited Paterson where the disease existed at that time. As there were nine persons in the family the board, as soon as notification of the case was received, quarantined the house and the persons living in it. All persons in the family were at once vaccinated. No other cases occurred, and after the removal of the patient and thorough disinfection of the premises the quarantine was raised. The total cost to the borough for this case was \$350.00.

**NEW BRUNSWICK.**—The first case of small-pox which was reported in New Brunswick was in the person of a colored barber who had returned from a visit to a small town in Virginia four weeks previous to his illness. In consultation with a physician his disease was decided to be a modified case of small-pox. The patient was immediately quarantined in his home, and the other occupants of the house consisting of his wife and a young man negro who was a consumptive, were vaccinated. The diagnosis of this case was made on March 10, 1909. All efforts to definitely trace the source of contagion in this case were without reward, but it is possible that he became infected from one of his patrons. The second case occurred in a white person living in a portion of the city considerably removed from the first case. The diagnosis in this case was made four days after the other, viz., on March 14, 1909. The other occupants of the house, consisting of two sons 12 and 14 years of age, and the father of the patient and the husband of the patient, were vaccinated. All but the husband were quarantined in the house, he being allowed to leave the house after proper measures had been taken to prevent his from conveying the infection. The next case which occurred was on March 26 in the person of an old colored man who was the father-in-law of the first patient reported. Despite the fact that he had been successfully vaccinated he developed what proved to be the most severe case which occurred during the outbreak. The fourth case developed in the wife of the first patient on March 26. She had also been successfully vaccinated, and was caring for her husband when the disease developed. At this time it was determined by the local board of health

that the only safe procedure which could be followed was to vaccinate all persons who had been in any way associated with the patients. On April 2 the two children of the second case developed small-pox, and were quarantined in their own home with the mother. These cases were very mild in type, due no doubt to previous recent vaccination. Up to this time the disease had been practically limited to two houses, and it was therefore thought that the situation was under control. On April 3, however, another case developed in the person of an adult male living some distance from the houses. This case gave no history of exposure to the other cases. As there seemed to be an increase in the number of cases the local board of health at this time determined on opening its isolation hospital so as to be prepared for any emergency which might arise. The earlier cases with one or two exceptions were taken to the hospital, and after proper cleansing were discharged. On May 3 two cases of varioloid were reported in a portion of the city remote from all the other cases. The cases were in the persons of children, one of whom was an infant. The patients were removed to the isolation hospital on May 6, and two additional cases, occurring within the following week, were also removed to the hospital. The history of this epidemic shows that there were eleven cases in all, and although most earnest efforts were made, no source of infection could be determined.

**PATERSON.**—The first case of small-pox in this city was reported on March 15, 1909. Between this date and June 3, 1909, 23 cases occurred in the city. Each patient was removed to the isolation hospital. All persons who had been exposed to the disease were immediately vaccinated, and the premises from which they were removed thoroughly disinfected. The system which has been adopted by this board of laying special stress upon learning of all persons exposed to the infection and the vaccination of each person exposed, has resulted in markedly lessening the number of cases which occur in this city.

**PISCATAWAY TOWNSHIP.**—On July 13, 1909, three cases of small-pox were reported in this township. The patients were three children who had arrived in South Plainfield from Ellis Island about July 7, 1909. One of the children upon its arrival was suffering from eczema, and all three had evidence of eruption which simulated modified smallpox. The children gave evidence of having been successfully vaccinated. As soon as the cases were discovered the patients were removed to an isolation hospital on the township poor farm. All persons, numbering about 40, who were exposed to the disease were vaccinated and kept under strict observation. As disinfection of the premises from which the patients were removed did not appear to be entirely satisfactory to a representative of the State Board of Health a disinfection was ordered.

**PERTH AMBOY.**—On March 11, 1909, notice was received by the State Board of Health that there were some cases of small-pox in Perth Amboy. On that date ten cases of the disease had been discovered, and an additional case was under surveillance. In tracing the history of the cases it was found that exposure to the disease dated back to Feb. 27, 1909. There were cases were examined by a number of local physicians, and as there was some doubt of diagnosis two consulting physicians from the hospitals in New York City were called in consultation, and the original diagnosis of small-pox was confirmed. At a meeting of the local board of health, at which a representative of the State Board of Health was present, the following methods were advised to prevent the spread of the disease:

1. Remove all cases to the hospital when proper isolation cannot be secured in the home.
2. Vaccinate at once all persons known to have been exposed to the disease.
3. Pass a resolution calling the attention of the board of education to the necessity for the enforcement of the law requiring vaccination of all school children.
4. Advise general vaccination.
5. Offer free vaccination to persons unable to bear the expense.
6. Have every exposed person report to the board of health physician daily during the incubation period.
7. Disinfect all infected premises after the patient recovers or is removed to the hospital.
8. Endeavor to ascertain if possible the source of the present infection.

These directions were carried out almost to the letter by the local board of health, and although there had been a great number of exposures the total number of cases which were reported was 33. In nearly every instance the patient was removed to the isolation hospital. In tracing the history of the possible origin of these cases it is interesting to note that of the first eleven cases which were reported ten of the individuals had visited a theatrical performance on a date just fourteen days prior to the development of the disease. The investigation also showed that in Plainfield and New Brunswick persons who had attended the same theatrical performance were attacked with the disease.

The management of the outbreak of small-pox in Perth Amboy reflects credit upon the health board for its energy and activity, and also upon the local physicians for their thorough co-operation in every effort to prevent a serious outbreak.

**PLAINFIELD.**—On Wednesday, March 10, 1909, a conference was held by a representative of the State Board of Health with the health officer of Plainfield in reference to cases of small-pox which had occurred in that city. On March 3 a physician reported that a colored boy whom he had attended had a suspicious eruption. The house in which the boy resided was immediately quarantined, and the case kept under surveillance for several days. Several days later a blacksmith, living opposite the house in which the first case occurred, was taken ill, and the eruption which appeared within 24 hours was characteristic of small-pox. The local board of health immediately took active measures to prevent the spread of the disease. Free vaccination was offered, and all persons who were exposed to the disease were immediately vaccinated. The patients were removed to the contagious disease hospital. The total number of cases which occurred was six. Two of the patients were white and four were colored. The last case was discharged from the isolation hospital on May 1, 1909. Although every effort was made to ascertain the source of infection no definite conclusion could be reached, except that there was a possibility that some of the patients may have contracted the disease while attending a play at the theatre. Three of the cases had attended the play, and a fourth was in a house where one of the actors was entertained over night. The date of the first symptom of all of the patients corresponded with the period of incubation, using the day when the play was held at Plainfield as a basis. The theory that the infection came from someone connected with the play is borne out by the fact that in several cities of the State cases of small-pox occurred in the persons of individuals who had attended the same play, or who had been exposed to persons who had attended it. The total cost of caring for the cases was \$2,784.84.

**SOUTH AMBOY.**—In March, 1909, a case of small-pox was discovered in the person of a child attending one of the public schools. The patient was immediately quarantined by the local board of health, all the children in the school were, under the direction of the board of education, vaccinated, and the school room in which the case was discovered was thoroughly disinfected under the supervision of a representative of the State Board of Health. No other cases were reported in the city during the year.

**TRENTON.**—Only two cases of small-pox occurred in this city during the year. The first case was reported on April 29 and the second on April 30. The original case was of a very severe character, and the patient died on May 6. The second case was of a very mild nature, and the patient was discharged from the contagious disease hospital on May 17. The history of these cases shows that both of the individuals had visited in South Carolina for several weeks, and were taken ill within ten days of their return to Trenton. As there have been no cases of small-pox in this city for many years it is reasonable to assume that the disease was contracted in the South. Both of the persons affected were successfully vaccinated during childhood, but not since that time and it is evident that the protection from these original vaccinations had ceased. All persons who were exposed to the disease had been vaccinated during the previous outbreak of small-pox in 1904, and no one developed the disease.

**WOODBIDGE TOWNSHIP.**—On Feb. 27, 1909, a colored man residing at 30 New Street, came to a physician's office, and complained of headache and other symptoms indicating a mild attack of gripe. On March 6 he again visited the physician, and at this time there was an eruption on his face and body that had been noticed for four days. In all there were about 200 pustules. The patient was examined by a physician from Rahway, and also was one of varioloid. The patient was immediately quarantined in his home, and a guard placed upon the premises. The history shows that the patient was employed as a night watchman at the United States Refining Company's works, at Carteret, and that the firm had 800 employees. On inquiry it was found that in the room in which the patient worked there were but six employees. Under the supervision of the physician of the factory all persons who had been exposed to the disease were vaccinated, and the families of employees were also vaccinated and articles that had been handled by patients were either destroyed or disinfected. The local health authorities of Carteret immediately took action to care for any cases of the disease that might be contracted at that place, and the board of education issued a letter requiring the vaccination of all school children. The patient had not been away from Woodbridge for two or three months but on several occasions had visited Perth Amboy. Soon after this case was reported 10 cases of small-pox were discovered in Perth Amboy, and it is probable that the disease was contracted in that city.

## DIPHTHERIA.

**BUENA VISTA TOWNSHIP.**—Seventeen cases of diphtheria occurred in Minotola between Oct. 23 and Nov. 23, 1908. The first case was not promptly reported. In this as in all other cases which occurred the isolation restrictions were withdrawn by the local board of health upon the report of the attending physician, and no specimens for bacteriological examination were forwarded to the laboratory. In some instances the date of isolation of the infected persons did not exceed ten days from the date of attack, and the period of isolation seldom exceeded five or seven days after the disappearance of the membrane from the throat of the patient. The record of these cases showed that five were reported between Nov. 15 and Nov. 23, 1908, and yet on the latter date quarantine restrictions had already been removed from all but two dwellings. From the facts gathered it appears that the spread of the disease in this town of a few hundred persons was due to contact resulting from early removal of quarantine restrictions by health authorities while in a probability the patients were still infected. A representative of the State Board of Health conferred with the local health authorities, and outlined methods to be adopted for preventing the spread of the disease.

**BYRAM TOWNSHIP.**—Information was received from a private individual residing in Andover, Sussex County, that several cases of diphtheria not being carried out. The investigation of these cases showed that four cases of diphtheria had occurred in individuals living in Byram Township, from the borough limits of Andover. At the time these cases occurred the D. L. & W. Railroad was being constructed, and a great many laborers were engaged in this work. When the diagnosis of diphtheria was made the attending physician immediately notified the local board of health of Byram Township. No quarantine whatever was established, and the older members of the families were permitted to go to the post office, stores and other public places. The attending physician gave the families no instructions to remain at home and not to expose others to the disease. It was apparent that there was neglect on the part of the local board of health of the township in the supervision of these cases, and a letter was addressed to the secretary of the board calling his attention to this neglect. In response to this letter a communication was received from the board of health in which it was stated that the board had reorganized, and that in future more careful attention would be given to the control of all outbreaks of contagious disease.

**CHESTER TOWNSHIP.**—Two cases of diphtheria occurred in Chester Township, and were investigated by a representative of the State Board of Health. There was nothing in the history to indicate a common source of infection other than by contact with infected persons. The board of health promptly isolated the cases, and after the recovery of the patients the premises were disinfected. Specimens from the throats of school children were forwarded to the State Laboratory of Hygiene, Trenton, and if positive cases were found in the school, the board of education, under the advice of the local board of health, adopted the method of immediately excluding such children from school.

**ELIZABETH.**—In the month of April, 1909, a number of cases of diphtheria occurred in the city of Elizabeth, and on account of the prevalence of the disease in a school house on Erie Avenue, the local board of health found it necessary to close the school for a short period. This step was taken because four cases had developed in children in attendance upon this school, and it was necessary to thoroughly fumigate the school building. Under the direction of the medical inspector of schools the throats of all the pupils were examined from time to time for the purpose of detecting any incipient cases. The school building was only closed from Friday night until Tuesday. During the month of April 14 cases of diphtheria occurred in various parts of the city. It is the practice of the local board of health, in possible, to remove cases of contagious disease to the new hospital which was recently completed. The hospital contains 48 beds, and was erected at a cost of \$25,000.00. The yearly cost of maintenance is placed at \$5,000.00.

**HARRINGTON TOWNSHIP.**—Following is a report of an investigation of cases of diphtheria occurring in Harrington Township. In November, 1908, a child living at Northvale was taken ill, and a physician residing in New York State was summoned. Several visits were made upon this child and there was some doubt as to the nature of the disease, but persons living in the neighborhood were led to believe that it was suffering from diphtheria. No notification of the case was made to the local board of health. There were nine children in the family in which the first case occurred. Four of these children became ill, but the others attended the public school. From these original cases the infection was transmitted to three children in another family, one of the children dying of the disease.

The death certificate stated that the child had died of pneumonia or possibly diphtheria. From the two foci of infection above named the disease spread to others, and the principal of the public school contracted diphtheria. Four other cases which occurred in the town were traced to direct infection. The later cases in the epidemic were promptly reported by the attending physicians. As a result of the investigation a communication was addressed to the State Board of Health of New York, calling the attention of the board to the fact that there had probably been a failure on the part of the New York physicians to promptly report cases of contagious disease attended by them in New Jersey to the local board of health.

**LAKESWOOD.**—From Nov. 21, 1908, to Jan. 9, 1909, nineteen cases of diphtheria occurred in Lakeswood. The history of the outbreak showed that the original cases were exposed to the infection at Lakeswood. The spread of the disease in Lakeswood was apparently due to the failure on the part of the attending physician to diagnose and promptly report a case which occurred on Dec. 7, 1908, and also to insufficient isolation of patients on infected premises. Isolation restrictions were removed from the patients at too early a date, the local board of health not depending upon the laboratory examination, but accepting the statement of the attending physician that it would be safe to allow patients to go about. The investigation showed that in two cases the patients were released from five to seven days after the date of the attack. Under the advice of the State Board of Health representative a thorough reorganization of the township board of health has been effected, and in future there should be a more satisfactory administration of health matters in this locality.

**MANCHESTER TOWNSHIP, OCEAN COUNTY.**—Four cases of diphtheria which occurred in Lakehurst, Manchester Township, were investigated. None of these cases had been regularly reported in writing to the local board of health, but isolation was instituted in each instance. The visit of the representative of the State Board of Health to this locality resulted in the reorganization of the local board of health, and the adoption of a code of health ordinances. One case of diphtheria occurred in this township, and no report of the case was made to the local board of health, but a rumor as to the existence of the case reaching the local board of health an investigation was instituted, and resulted in establishing quarantine over the premises and disinfection after the recovery of the case.

**SALEM CITY.**—From the records of the secretary of the local board of health it was found that an outbreak of this disease occurred in April 1909. From that time to October 7, 1909, thirty cases were reported and two deaths occurred. It is undoubtedly true that there were a number of unrecognized and unreported cases during this time, and at the time of investigation there was no diminution in the number of cases occurring. The secretary of the local board of health stated that reports of cases were made to him verbally or over the telephone by the attending physicians, and that no written reports followed the verbal notification. No written reports of cases were on file in the local board of health office, and consequently it was difficult to obtain a full and complete record of the history of the outbreak. It was shown that an arbitrary time limit of 21 days had been required for the detention of all cases reported, and that isolation or quarantine restrictions had been removed without specimens being taken from the patients for bacteriological examination. The practicing physicians in this locality were entirely on clinically diagnosed and reporting cases, and during the entire epidemic but six specimens were forwarded by local physicians to the State Laboratory of Hygiene for examination. There is no medical inspection of schools. Under the conditions above stated there was every opportunity for the spread of the disease. The following recommendations were made to the local board of health:

1. The prompt isolation of all patients, with nurse or attendant, where this can be effectively done in their homes, otherwise the removal of the patient to a hospital. Quarantining of the entire household to be done only when one of the above methods are impracticable.
2. Discharge of cases to be made only on less than two negative reports on specimens taken for bacteriological examination from both patient, nurse or attendant.
3. Permit no one to be removed from an infected house to an uninfected dwelling, except following negative laboratory reports.
4. Require the attending physician to visit premises and prepare a history of each reported case, and also to investigate rumors of non-reported cases.
5. Have medical inspection of all school children, and take specimens from the throats of all children showing suspicious condition.

Permit no one to leave any dwelling in which a case of diphtheria exists, nor to return to school from a dwelling after removal of isolation restrictions, until a negative report has been received from a specimen taken for bacteriological examination.

7. Send circular letter to all physicians requesting their cooperation in obtaining prompt reports of epidemic by procuring bacteriological examination from all cases of sore throats which they may be

called upon to attend, and also to advise the members of families, to which they are called to see cases, not to change their address until the health inspector has called and sanctioned such proposed change.

8. The board of health to order an investigation for the purpose of establishing a diagnosis, in all suspicious cases not regularly reported, and if failure or neglect to report suspicious cases, is found to exist on the part of the attending physician, the board of health to bring suit for the recovery of the penalty provided for by the statute.

9. The local board of health to supply physicians with mailing cases for specimens and to forward the same, to the State Laboratory of Hygiene, with the request that replies be sent by telegram direct to the secretary of the local board of health upon all specimens for the examination of diphtheria bacilli which are received from Salem.

#### SCARLET FEVER.

**COLLINGSWOOD.**—A representative of the State Board of Health investigated an outbreak of scarlet fever in the Borough of Collingswood in January of the present year. It was learned that seven cases occurred in the borough from Nov. 4, 1908, to January 1, 1909. From information obtained in five of the cases there was no evidence to show that the infection was due to a common source, but rather suggested separate sources of infection for most of the cases. Two of the cases were due to direct contact. In the latter part of February, 1909, five cases of scarlet fever were reported, and one child was discovered in attendance upon a public school. The medical examination of this child showed that it was desquamating, and the cases which followed were directly traceable to exposure in the class room. Isolation was maintained in all the reported cases, and the usual preventive measures were enforced by the local board of health.

**HOWELL TOWNSHIP.**—Two cases of scarlet fever occurred in this township in May, 1909, and were investigated by a representative of the State Board of Health. It was found that the local board of health had quarantined the house in which the cases occurred, and that the village school at Farmingdale had been closed for a period of two weeks. These cases were not reported directly to the State Board of Health in accordance with the law.

**JAMESBURG.** Between June 23 and Oct. 17, 1909, five cases of scarlet fever occurred in Jamesburg. These cases were not regularly reported to the local board of health. The investigation of the cases showed that a child in attendance upon the public school was examined by a physician, and it was found that the child was desquamating and other symptoms were present which indicated that the child was recovering from a mild attack of scarlet fever. In addition to this two children had evidently recovered from the disease without having been attended by a physician. It therefore appears that there were several cases of scarlet fever in Jamesburg in which there was no isolation, no restriction of the patient's movements, and from these sources the disease spread. It is very interesting to note in this connection that a case of scarlet fever which occurred in the State Normal School, Trenton, was directly traceable to exposure in Jamesburg.

**LAWRENCEVILLE.**—In December, 1908, two cases of scarlet fever which occurred in the Lawrenceville township were reported to the State Board of Health. The cases occurred the school was about to close for the Christmas vacation, and therefore the authorities determined that the safest course to pursue was to close the school immediately. One of the cases was sent to the hospital, and the other was cared for upon the institution grounds. The students were immediately isolated in their homes, and all the buildings were thoroughly disinfected. No cases followed the original ones.

**MAURICE RIVER TOWNSHIP.**—Five cases of scarlet fever, which occurred in Heislerville in the above named township, were investigated by a representative of the State Board of Health. The cases were all due to direct exposure to the primary case. The board of education closed the school, and church services were discontinued. The investigation clearly showed that the local board of health of the township had appointed no physician as required by section 10 of the act approved March 31, 1887; that all cases of communicable disease were not regularly and promptly reported by the attending physicians and that when such cases were reported the local board of health took no effective measures to restrict the spread of the disease. The practice of the local board of health had been to depend upon the attending physician to establish isolation or quarantine. This method has proved entirely ineffectual. The local board of health was given full instructions in regard to dealing with outbreaks of contagious disease in future.

**FITTSBORO TOWNSHIP.**—Three cases of scarlet fever which occurred in Fittsboro Township were investigated by a representative of the State Board of Health. It was found that the physician in attendance had reported these cases in writing to the local board of health. No definite



action was taken by the local board in these cases, and the physician on the local board was instructed as to the duties of the local board of health in dealing with outbreaks of communicable diseases.

**UPPER PITTSBORO TOWNSHIP.**—Two cases of scarlet fever which occurred in this township were investigated. The investigation showed that the cases were due to direct exposure to other cases in the vicinity. The cases were reported by the attending physician to the secretary of the local board of health of the township, and definite action was taken to prevent the spread of the disease. The report of the investigation shows that the local authorities had no knowledge of the laws requiring reporting of cases of this character, but since the date of the inspection reports are now regularly received by the State Board of Health from this locality.

**WOOD RIDGE.**—A communication was received from a resident of Wood Ridge in which it was stated that a case of scarlet fever had occurred in the borough, and that after the death of the child a public funeral was held. This statement was verified by several persons, but the inspector of the local board of health stated that no funeral was held, and that only a few adults were in attendance. The body was not exposed to view, and was taken directly from the room in which the patient died to the cemetery. While the members of the family and the friends followed the body in coaches none of them entered the infected dwelling, but remained in carriages on the side of the street opposite the dwelling. The child was buried on the same day on which it died, and the premises were thoroughly disinfected.

#### LEPROSY.

A telegraphic communication was received in June of the present year from Dr. Walter Wyman, Surgeon General U. S. P. H. & M. H. Washington, D. C., in which the statement was made that under the Treasury regulations a person having a mild case of leprosy was to be transported from Washington to New York City. The consent of the health officer at the health authorities in New York City had given permission, and the patient to be received at the skin and cancer hospital in that city. The communication further stated that the patient while in transit would be accompanied by a special escort, and that all proper precautions would be taken to prevent anyone from coming in contact with him. The patient was to be segregated in a baggage car, and upon his arrival in New York would be promptly removed to the hospital.

The permission of the State Board of Health was requested for the transporting of the patient across New Jersey. Upon receipt of the telegram a reply was forwarded in which it was stated that there were no objections on the part of the State Board of Health to the transportation of the patient through the State under the conditions outlined in the telegram.

**Sanitary Survey of State Institutions**—Under the provisions of chapter 68 of the laws of 1887 the State Board of Health is given supervision over public and private institutions in the State, and from time to time the various charitable and penal institutions of the State have been inspected for the purpose of detecting sanitary defects and correcting unsanitary conditions.

The law which was passed in 1908, giving the State Board of Health full power to take action to control the spread of communicable diseases in the various State institutions, made it necessary to have complete inspections made. A detailed statement of unsanitary conditions needing correction has been forwarded to the governing body of each institution, and in almost every instance prompt action has been taken to remedy existing defects.

The State institutions number in all fifteen, and the full reports of the inspections are as follows:

#### NEW JERSEY STATE PRISON.

This institution is located at Trenton.  
The chief officer of the institution is George O. Osborne and William A.

Berry, of Asbury Park, is Secretary of the Board of Inspectors.

The total number of inmates is 1420, of which number 1356 are males and 58 females.

The buildings are located on Third Street between Federal and Cass Street. A whole city block is occupied by the buildings but the space is nevertheless insufficient. The ground upon which the buildings are erected is well drained.

The original building was constructed in 1830 and the latest addition in 1907. No fire-escapes are provided as the construction is as nearly fire proof as possible.

There are cellars under some of the buildings and inspection showed that all cellars were well lighted and ventilated.

There were no objectionable accumulations in the yard and the general condition of the yard is satisfactory.

All the buildings are supplied with water from the city mains and are connected with the public sewers.

In the inspection of the separate portions of the prison the following observations were made:

**EAST WING No. 1.**—This wing has the following dimensions: 188'x54'x39' and contains 150 cells measuring 8'x5'x7'4".

There are four tiers of cells.  
The total number of inmates in this wing is 171.

Window openings are 16 in number and 5'6"x19'x6".  
Each cell has a double opening connected with a flue.

Six ventilator openings are placed in the ceiling, these measuring 2'6"x2'6".

Eight ventilator openings are placed in the side walls and these openings measure 10'x12".

Floors are scrubbed and mopped each day and side walls are cleaned once each week.

All cells are provided with short hopper water-closets.  
Clothing and bedding of inmates are washed each week.

A slight objectionable odor was noticeable in the corridor, but the corridors were cleanly.

**NORTH HALL, WING 2.**—This wing is 225 long by 49'6" wide and 31'3" high.

There are 272 cells of the following dimensions: 8'6"x5'x7'5".  
The cells are arranged in 4 tiers and there are 270 prisoners.

Window openings are 18 in number and measure 19'x5'6", eight ventilating openings are placed in the ceiling and 8 on the side wall.

Floors are scrubbed each day and side walls each week.  
Short hopper closets are located in each cell.

Clothing of the inmates is washed each week.  
No foul odors were noticeable either in corridor or cells.

On the right side of the entrance to the corridor is an enclosed space under the draining board which is attached to the sink. This space was damp and unclean and concealed rubbish.

There are six dungeon cells under wing 2 measuring 5'x4'10"x10'x6" high, and in each of the cells there is a small window opening to the outer corridor but this closed by a solid iron shutter.

There are also two openings in each cell 3½"x6" for the escape of vitiated air.

**WEST WING No. 3.**—The dimensions of this wing of the prison are 138'x44'x22'5" in height.

The total number of cells is 132 and each cell measures 7'6"x4'x7".  
The cells are arranged in 2 tiers and 138 are confined in this wing.

Corridors and cells are lighted by 18 windows each measuring 5'6"x13".  
Ventilation is effected by six circular openings in the ceiling each having a diameter of two feet. Eight circular openings 7 inches in diameter are placed in the side walls.

Floors are scrubbed each day. Cells and side walls are lime washed.  
Some of the "runners" wash clothing and dry it in the corridors.

There are no toilet fixtures in the cells. Each cell is provided with a metal bucket. These buckets are carried each morning to a small building in the yard where they are emptied, washed and placed in the open air for about four hours. A small amount of disinfecting fluid is placed in each pail and the pails returned to the cells.

The interior of each bucket is corroded and adhesions of human excreta emit offensive odors.

The odor of the disinfectant pervades the air in the cells and is objectionable.

At the entrance to this wing there are two toilet fixtures for the use of employees. One of these is a short hopper closet which is in bad condition and the flush to the fixtures is insufficient.

There is also a cupboard in what is called the neck of this wing in which rubbish accumulates and at the time of the inspection the cupboard was in an uncleanly condition.

**SOUTH HALL No. 4.**—This division of the prison is 250' long, 49' wide and 34' high. There are 92 cells arranged in two tiers. There are 46 cells measuring 16' 1"x7' 8"x10' 10", and 46 measuring 13' x7' 8"x13' 5". There are 132 prisoners in the lower cells and 92 in the upper cells making a total of 224.

In the corridors 10 windows measuring 1' 6"x3' 6" are placed, and a small window 4'x11' is located at the end of the corridor.

On account of the small doors and thickness of the walls little light enters the cell from the corridor.

In each cell is one window with an opening 5' wide x 3' long placed horizontally in the end wall near the ceiling.

The sash is operated by hinges so that the window may be opened.

Cells on the first floor have ventilators 6'x24" extending from the base of the side walls to the outer air and these act as fresh air inlets.

On the east wall of each cell is an opening 3'x18" to allow the escape of foul air into a ventilating flue.

On the upper tier cells have fresh air openings 5x6 on the floor level. These may be used in carrying off washings and sweepings or other waste liquids, there was evidence of this in cell 92.

On the side wall near the ceiling a ventilator 6' in diameter is placed and connects with a flue.

The steam pipes in the corridor are laid in a cement conduit and 15 openings 14' x18", arranged as registers, are placed over the conduit at regular intervals.

Dust, wash water from scrubbing of floors and sputum fall in the warmed pipes and foul air results.

**SOUTH WING No. 3.**—Floors are scrubbed each week. There is a closet fixture in each cell. These are not trapped and are stopped by a wooden plug and there are no provisions for flushing except by the use of water from pails. These closets are of old construction and should be replaced by modern fixtures.

In many of these cells there was evidence of the cooking of food and bread, potatoes and other foods were kept by prisoners from the food supplied at meal time.

These corridors and cells were in cleanly condition.

**SOUTH HALL No. 4.**—The dimensions of this wing is 250' long by 49' wide and 34' high. There are 92 cells arranged in 2 tiers.

There are 46 cells measuring 16' 1"x7' 8"x10' 10", and 46 measuring 13' x7' 8"x13' 5".

There are 132 prisoners in the lower cells and 92 in the upper making a total of 224.

In the corridor 10 windows are placed, each 1' 6"x3' 6", and one window in the end of the corridor 4'x11".

On account of the small cell doors and thickness of the walls little light enters the cells from the corridor.

In each cell is one window with an opening 5' wide and 3' long, placed horizontally in the end wall near the ceiling. The sash is operated by hinges so that the window may be opened.

Cells on the first floor have ventilators 6x24 extending from the base of the side walls.

**CORRIDOR No. 5, FEMALE WARD.**—This ward is 83'x24'x23' and has in it 23 cells having the following dimensions, 9' 6"x6' 10", and six cells 9' 6"x4' 10", making a total number of 29. The total number of inmates is 58.

Light is obtained through five windows 3' 8"x13". On the east side the light is unobstructed.

Ventilation is secured by windows and three ventilator openings 12x12, which carry foul air to the roof.

The ward is heated by steam and lighted by gas.

Floors and side walls are scrubbed daily and were in cleanly condition at the time of inspection.

Drinking water is obtained from a faucet in each cell.

Short iron hopper water closets are placed in each cell and they are flushed from cisterns.

The clothing of the inmates is washed each week.

At the north east end of the ward is located the laundry with an entrance directly from the ward. The room is inadequately ventilated by windows in one end of the room only. When it is storming the laundry is also used as a drying room. Steam and odors escape from the laundry to the cells and hospital room which is located above the laundry and in summer the heat from the laundry causes excessive heat in the hospital room.

Owing to the crowded condition of the woman's wing the hospital is now used as a detention room for incoming prisoners.

The bath tub and closets for use of the inmates in the woman's ward are located in a dark room with no opening for light or ventilation.

No hospital facilities are provided for cases of contagious disease and an inmate suffering from tuberculosis occupies a cell on the first floor.

**WING No. 6.**—The dimensions of this portion of the prison is 156' long by 44' wide and 41' in height. The cells are 200 in number and measure 7'x4'x7, and are arranged in four tiers. The cells are occupied by 200 prisoners.

Windows are 24 in number each measuring 4' 6" x19".

Ventilation is secured by the Pauly system.

Floors are scrubbed each day and the side walls once each week.

There is a water closet in each cell. These fixtures are placed in a recess in the walls at the rear of the cells with a space about the fixture enclosed. With this arrangement close approach to the closet is almost impossible in a standing position and the cover surrounding the fixture and the floor in front of it becomes saturated with urine. The recessing space occupied by the closet fixture in many cells, has a curtain before it and is used as a cupboard.

The general cleanliness of this wing of the prison is satisfactory.

Under wing 6 are 8 dungeons below the ground surface. These cells are totally dark. They are 7' x6' x7' 6" in size and contain no opening for the admission of fresh air.

One opening 7"x12" connecting with a ventilation flue permits the escape of vitiated air. The provisions for the supply of fresh air in these dungeons is insufficient.

**WING No. 7.**—New Wing.—The dimensions of this wing are as follows: 225' long by 42'x22' in height. There are 350 cells measuring 5'x7'x7. The number of prisoners in the cells is 207.

Windows six in number measure 3'x3' 6" and 25 have a superficial area of 112 square feet each.

The light in the lower tiers is insufficient.

The ventilation is secured by means of the Pauly system.

Floors are mopped daily.

Each cell is provided with an enamel iron water closet and the fixtures are in good condition.

The cells and corridor were clean at the time of the inspection.

**BATHS.**—The building for bathing of inmates is located adjoining the laundry. Shower baths are used but in winter the prisoners bathe in their cells. Inmates are required to bathe each week.

The present arrangement is not satisfactory and some changes should be made that will ensure regular bathing in the place appointed for that purpose.

The laundry is equipped with hand tubs and modern appliances for carrying on the various operations in the cleaning of clothing.

**KITCHEN.**—The kitchen is located between wings three and four and is on the ground floor. The windows are ten in number measuring 10'x2' 8"x4' and are placed on the north side of the room. There are no screens in the windows. The nearness of an adjacent building makes the amount of light insufficient.

The floors are of concrete with very rough surfaces and it is difficult or impossible to properly clean them and the inspection showed that the floors are saturated with greasy material.

The sinks are two in number, made of wood. They are in bad condition and totally unfit for the purpose.

Garbage is placed in buckets and removed to a platform in the yard and every day is carted away to be used in feeding swine.

Floor brooms and brushes are stored in a dark unventilated closet in the kitchen. The rack in which cooking utensils are stored is constructed of soft wood and is unclean.

Thirty-two persons are employed in the preparation and distribution of food. A toilet is provided for these employees in the hall. No special provisions are made for the washing of the hands of employees.

Water is obtained from the mains of the city. Ice is partially manufactured on the premises and artificial ice is bought from the Kuzer Ice Co.

Groceries are kept in a store room and meats and milk in the ice box or cold storage room. This room was in a fair condition from a hygienic standpoint, but it is dark and there are no means of lighting it artificially.

**HOSPITAL.**—This consists of eight rooms containing in all 44 beds with the necessary equipment including a diet kitchen, operating room and pharmacy. The room set apart for the treatment of contagious diseases is inadequate in the event of any outbreak of a number of cases, and there is no provision for such an emergency. The sanitary condition of the hospital department is satisfactory.

**WORK SHOPS.**—Sixteen rooms are used for the manufacture of rugs, shirts, brushes, shoes, pants, brooms and handkerchiefs. The shops are fairly well ventilated and lighted.

The water closet arrangements are unsatisfactory in all of them. The closets are short iron hoppers in bad condition and poorly flushed. The toilets are located directly in the work rooms and some are situated in dark corners, many have wooden floors which absorb decomposing liquids and

emit foul odors. In the shoe furnishing departments, Room No. 9, the fixture is especially bad condition.

Drinking water is furnished to employees in the shops from wooden pails and tin dippers. In summer ice water is kept in wooden barrels in each work room.

The summary of sanitary defects noted in the State Prison is, in detail, as follows:

WING No. 1.—The air in this wing had a slight odor which indicated the necessity of more attention to the ventilation of the corridors.

WING No. 2.—The closet under the draining board of the sink was uncleanly and it should be removed.

WING No. 3.—The bucket system should be abolished and modern toilet fixtures introduced. The closet in the hall should be removed. Clothes should not be washed and dried in corridors.

WING No. 4.—The cells are old and should in time be replaced by those of more modern construction. The closets are untrapped and flushed by hand, and should be replaced by up-to-date fixtures. Insufficient air is supplied to the dungeons under this wing.

WING No. 5.—This section is overcrowded. The laundry operations should be conducted in another building. The bath room should be provided with increased light and ventilation. The hospital should be abandoned and a new one provided in a proper location.

WING No. 6.—The water closet arrangements are unsatisfactory. The closet recesses should not be used for cupboards. The dungeons under this part should be supplied with an increased quantity of pure air.

WING No. 7.—The light in the lower tier of cells should be increased.

KITCHEN.—The light in the kitchen is insufficient. Floors are rough and should be replaced. The sinks are unsanitary and modern fixtures should be introduced. The dish rack should be replaced by one of proper material. The refrigerator room should be properly lighted. The inspection of this department shows the need of an entirely new and complete kitchen to meet the requirements of the institution.

HOSPITAL.—The hospital is in excellent condition from a sanitary standpoint, but provision should be made for the care of contagious diseases, and increased accommodations for female prisoners.

WORK SHOPS.—All work shops should be provided with modern sanitary toilet arrangement.

The general condition of the Prison with the exception of the points mentioned in the detailed report, is satisfactory, many of the defects noted are due to faulty construction and the lack of proper space and buildings necessary to carrying on the various departments.

### NEW JERSEY REFORMATORY.

The New Jersey State Reformatory is located in Middlesex County, near the City of Rahway. Dr. H. Page Hough is the attending physician. The institution is governed by a board of commissioners of which D. M. Sawyer is secretary. The total number of inmates at the time of inspection was 547. The buildings are located on ground which is of a low level, somewhat wet and insufficiently drained. The buildings are of brick construction. The original institution was constructed in 1901, but an additional wing is at the present time being completed. The buildings are connected with a sewer. There are no fire escapes. There is a cellar under the whole building. This is floored with cement concrete except beneath the kitchen. The only entrance to the cellar is from the outside of the building. The cellar is not well ventilated, and some parts are not well lighted. The cellar is damp in some portions. Vegetables are stored in the cellar. Some portions of the yard north of the building are ungraded and the drainage is insufficient. The general condition of the yard was satisfactory.

No. 1 or old wing. The corridor in this wing is 255'x49'x39' 6". There are 256 cells measuring 9'x5'8"x8'4". The cells are arranged in four tiers. One inmate is placed in each cell, and in addition to this there are cots from which they sleep on cots in the corridors and upper floor in the "circle" from which this wing extends. There are 41 windows in the corridor to the outer air from and supplying light to the corridors in the wing, and does not refer to windows which furnish light to the corridors in the wing, and is deficient in some cells on the ground floor. The indirect steam heating and ventilating system originally installed in this wing has recently been abandoned, and radiators for direct steam heating have been placed in the corridors. At the present time there is no ventilating system. The corridor is lighted by electric lights. The floors are washed each week and sometimes twice during the week. Floors are scrubbed with soap, water

and brooms, and rinsed with water from a hose. The same method of cleaning applies to the side walls. The surface of the floors in the corridor in this wing are rough and poorly finished, and are apparently in a condition to absorb moisture and were not clean. Inmates habitually expectorate upon the floor, and officers were also frequently seen to indulge in this habit. The painted side walls are soiled from the touch of unclean hands and garments. The walls in front of the upper tier of cells are of wood. The boards are well worn and rough, and contain open seams. There is a closet in each cell, and there are two in the corridors. The closets are what is known as short hoppers, and were uniformly in good condition. Drinking water is furnished to the inmates from a faucet in each cell. Inmates are not permitted to keep food in the cells. The clothing of the inmates is washed once each week, and clean stockings and towels are furnished twice each week. Bedding is changed each week, and blankets regularly once a year and at more frequent intervals if particularly soiled. The condition of cleanliness of bedding varies on the cots belonging to different inmates, some examined was comparatively clean, while in many instances the bedding on the cots was soiled. The inmates are not permitted to wash clothing in the corridors or cells. The floor in the cellar beneath this wing is wet in places due to storm water seeping through the cellar walls at points where the storm water leaders are defective. The corridor floor drains connect with a horizontal drain in the cellar through three inch cast iron branch drains and traps. There is no cover on the cleanout opens of these traps, and drain air is thus permitted to enter the cellar and waste liquids to overflow to the cellar bottom. In the original plan of ventilation air was drawn from each cell through an opening 2'x4' in the side wall near the ceiling. These ventilator openings are separately connected by a sheet metal pipe with a vaulted opening directly beneath the utility corridor above, which served as a passage through which air was drawn from the cells under the original system of heating and ventilation. The earth floor in this passage is damp, partly as a result of condensed moisture from soil pipes which enter from the utility corridor on the upper floors. Various articles, such as brushes, combs, bits of garments and scraps of food stuff found on the floor in this passage evidently come from the cells above through the unscreened ventilator openings in the side walls. Shower baths are located in the basement beneath the chapel. The inmates are required to bathe once each week. The laundry is located in a basement beneath the dining room, and is equipped with modern machinery and a drying room.

KITCHEN.—The kitchen is located on the first floor, and is one story in height. It is ample in size and light is abundant and well distributed. The floor is of concrete and is in good condition. There are two sheet metal lined wooden sinks in the dishwashing room. One of these sinks is fifteen feet in length, and is so constructed along the side walls as to leave a narrow space between the back of the sink and the wall which is difficult to clean. There are two tables made with soft wood tops in the dishwashing room. One of these is four feet and the other five feet in length. These tables are used for "cleaning" and draining and the table tops are thoroughly saturated with unclean liquids, and the wide seams between the boards are filled with decomposing organic matter and they are offensive to the sight and smell. The windows and doors in the kitchen are screened in the summer time. Garbage is stored in a brick pit 5'x4'x3' near the outside of the kitchen wall from which it is shoveled into wagons and carted to the hog pens. Garbage is conveyed from the dish-washing room into this pit through a sheet metal chute about twelve inches square. This chute also acts as a ventilating duct through which highly offensive odors are drawn from the decomposing contents of the pit into the dish-washing room of the kitchen. Leakage of garbage through holes in the garbage chute beneath the kitchen floor has flowed down the foundation wall and formed an offensive pool on the earth floor of the cellar bottom beneath the kitchen. There are two small pools of offensive liquid in depressions in the cellar bottom, and the ground over an area of about fifteen feet square has evidently been recently polluted with waste liquids apparently overflowing from an obstructed drain and the ground is thereby rendered offensive. Garbage which is collected in the institution is fed to hogs. Forty-four persons are employed in the preparation and distribution of food. The personal cleanliness of the employees was unsatisfactory. The toilet rooms of the employees are all well lighted and well equipped, and the entrance is from the bakery. Wash basins in the toilet rooms are supplied with hot and cold running water. No towels are provided in this wash room. Persons washing their hands after leaving the water closet apartment must pass to the opposite side of the backshop or kitchen to use the towel.

FOOD SUPPLY.—Prisoners are fed in a well lighted dining room. About one-half of the inmates are fed on long narrow wooden top tables, while the remainder eat from smaller tables covered with table cloths. The

board top tables were cleanly, except in places where the seams had opened, and in these instances the seams were filled with decomposing food stuffs. The table cloths are said to be changed and washed three times each week. At the time of inspection they were unclean and formed a very unfavorable contrast with the carefully scrubbed clean table tops.

**WATER SUPPLY.**—The drinking water of the institution is obtained from the City of Raleigh, and passes through a mechanical filter which is located on the premises. The refrigerator is located on the first floor with two separate compartments, and it is in good sanitary condition. There are no bells on the floor traps in the floors in the cold storage room. This also applies to the floor traps in the kitchen.

**MILK SUPPLY.**—The milk supply is obtained from the dairy connected with the institution. Milk is stored in the cold storage room in uncovered vessels. The dairy has 24 cows, and the dairy barn is well constructed. The barn is located about 1000 feet from the main building. At the time of inspection milking was in progress, and the mangers and concrete floors were being swept and cleaned at the same time. Milk pails, strainers and cans are kept on a shelf exposed to dust and odors in the stable. The suits worn by milkers were unclean at the time of this inspection. About 300 hogs are kept in an enclosure located in close proximity to the stable building. The pens and surroundings are unclean. The ground surrounding the hog pens and stables is low and wet, and pools of stagnant water stand in many depressions, some of which contain water at all seasons of the year and form breeding places for mosquitoes.

**HOSPITAL.**—The only hospital arrangement consists in a poorly constructed frame building containing four small rooms, and is only used for the care of cases of contagious diseases. In April of the present year an outbreak of diphtheria occurred, and there were 39 clinical cases, together with 207 carrier cases. As there are no hospital accommodations the drill room on the third floor of the main building was used for this purpose. A small pavilion for the care of cases of tuberculosis is located on the institution grounds. This contains six or eight cots. The last patient left the pavilion August 15, 1908. At the present time there is but one case of tuberculosis in the institution. There was one death during the year from tuberculosis, and one from typhoid fever.

In the room in which shirts are manufactured in the industrial building there is one water closet and one urinal screened from view by a partition about four feet high. The closet is a long hopper with a trap about five feet below the fixture. Both closet and urinal were offensive to the sight, walls and floors of the apartment were unclean. In the overall department in which about 100 inmates are employed, there are two water closets and one urinal in the room. The wasteful amount of water used to flush the apartments and urinal are unclean. The closet arrangements in all departments in the industrial building are such that any odors which may arise from defects or uncleanness are liberated directly into the work rooms.

### STATE HOME FOR BOYS.

This institution is located at Jamesburg, Middlesex County. J. C. Kalen is the chief officer. H. D. Zandt is the attending physician. The institution is under the management of a board of trustees. There are 500 inmates. The ground surrounding the building is dry and surface drainage is good.

**HAYNES COTTAGE No. 1.**—This cottage is 34x54 feet in size, and is built of brick. There is a cellar and basement under the building which has a cement concrete floor. The cellar is well lighted and ventilated. The one room in this building is 34x45x12 feet. In this as in each separate building there are rooms for the instructors in charge. There is also a school room and recreation room, together with lockers for boys wearing apparel. Meals are served to the boys in a general dining room located on the first floor of the industrial building. There are 48 boys in this building. There are 12 windows in each ward 3x7 feet in size. The rooms are well lighted and well ventilated. Lighting is by electricity and heating by steam. The floors and sidewalls are clean, and also the beds and bedding. Bedding is changed each week. The water closets are located in the basement, and they are what is known as the long hopper pattern. The closet fixtures and apartments were in a cleanly condition. Shower baths are located in the basement. Inmates are required to bathe at least once in each week, and more frequently if necessity requires. The main laundry of the institution is located in the industrial building.

**BEDEL COTTAGE No. 4.**—The dimensions of this cottage are 28x45 feet, and the building is of brick. The floor of the cellar is of cement concrete, and windows are of ample size for light and ventilation. There are two wards in this building each 28x45x10 feet. The total number of inmates is

56. No. 1 ward has 10 windows 3x7 feet, and No. 2 has 8 windows 2' 6"x4' 6". The method of lighting is by electricity, and the building is heated by steam. The water closets are located in the basement, and the fixtures in the toilet apartments were in a cleanly condition. Shower baths are placed in the basement room.

**WARD COTTAGE No. 6.**—This building is 30x50 feet and is of brick. The cellar is of cement concrete. There are two wards which measure 25x30 feet. There are 7 windows in one ward and 8 in the other. These windows measure 3x6 feet. The lighting and ventilation is satisfactory. The toilet apartments and fixtures situated in the basement were in a cleanly condition. Shower baths are located in the basement.

**OLDEN AND RANDOLPH.**—This is one building with two wings each connected by separate passages in charge of separate instructors. The buildings are of brick. There are four wards, measuring 28x4x12 feet each. The total number of inmates is 120. Windows vary in size, but afford sufficient light and ventilation. The toilet rooms and fixtures were in a cleanly condition. There is one window about 26"x36" in size in the water closet and bath room apartment in the basement of Randolph or No. 7, half of this building. The glass in this window has been covered with paint to screen the view from passersby, thereby rendering the room dark. This single window being near the ceiling affords poor ventilation for the basement.

**GRIGGS COTTAGE No. 8.**—This building is of brick. It has three rooms, one containing 11 beds, another 16 and another 14. The total number of inmates is 41. There are 5 windows in each of two wards, and 6 in one. The size of the windows is 3' 6"x5'. Lighting and ventilation is satisfactory. Beds and bedding were in a cleanly condition. Shower baths and closets are located in the basement.

**PARKER No. 3.**—This building measures 50x30 feet. It is of brick. It contains two wards, 48x30x12 feet in size, and each contains 30 beds. The total number of inmates is 60. One ward has 7 windows 2' 6"x5' 6", and one equal to 8 windows 3' 6"x3'. The wards were in a cleanly condition, and the condition of the beds and bedding is also satisfactory.

**MURPHY No. 9 and 10.**—The dimensions of this building are 25x120 feet, and it is constructed of brick. This is a double building with a separate instructor in charge of each division. There are 108 inmates in the three wards, containing 24, 22, and 8 boys respectively. The two larger wards have 12 windows, and the smaller one three windows. These wards are known as boys dormitories.

**KITCHEN.**—There are two kitchens, one in the building on the first floor of which is also a bakery, dairy room and cold storage room, and on the second floor of which is a store room. The second kitchen is on the first floor of industrial building number one, and is joined by the boys dining room. This kitchen is well lighted by five windows, and has cement flooring and iron sinks in good condition. There is one wooden table top on which dishes are served, which contains numerous cracks filled with decomposed organic matter, and which is entirely unsuited for the purpose for which it is used. The size of the larger kitchen is 29x47x12 feet. All utensils and sinks were in a cleanly condition. Windows and doors are screened in the summer time. Garbage is placed in barrels kept in the yard. Garbage is fed to hogs which are raised, these animals are raised and slaughtered for use in the institution. The hog pens and surrounding were entirely free from objectionable accumulations and odors.

There are about 50 persons employed in the preparation and distribution of food. Attention is paid to personal cleanliness of the kitchen employees. One or two boys at work in the boys' kitchen and dining room were wearing at the time of inspection aprons which were badly soiled. There is every facility for the cleansing of the hands of kitchen employees. There are no toilet arrangements connected with the kitchen building or dining room. There are closets located in a separate building in the yard. This building upon inspection was found to be in a cleanly condition. Inmates are fed in a dining room on the first floor of industrial building number one.

The source of water supply is from springs near the Monroe school house. All food for use in the institution is kept in an orderly and clean store room. There is also a cold storage room. The milk supply is produced on the premises. The cattle are housed in a clean and well kept cow barn.

The hospital is a separate building with two wards. The ward on the first floor is 20x21x12 feet. There are living apartments for tenants on the second floor of the hospital building. The basement beneath the building is dry and well lighted. No cases of contagious disease occurred during the past year. Cases of tuberculosis are not received in the institution. There is no compulsory vaccination of inmates.

## STATE HOME FOR GIRLS.

This institution is located in Trenton. The chief officer is Mrs. Elizabeth V. H. Mansell. Dr. George H. Farker, of 422 East State St., Trenton, is the attending physician. The institution is under the supervision of a board of managers. The total number of inmates is 221. There are also women assistants, 20, and men and their families, 14, making a total population at the institution of 244. The buildings are located on high sloping ground, surrounded by ample space for light and air. There are 80 acres in the enclosure. All of the buildings are connected with the public sewer.

**ADMINISTRATION BUILDING.**—This building was erected in 1901, and is of brick. There is a cellar under the whole building, the floor of which is constructed of cement concrete. The cellar is well ventilated and well lighted. There were no objectionable accumulations in the cellar. There are two privy vaults and three box privies maintained upon the institution grounds. Three of these, one a very large privy vault, one an excavation beneath a new privy building and one a box privy surround a building occupied by the families of three male employees. The dairy barn is near these privies. The condition of the yard about the main building is satisfactory. In the building there are 34 rooms for inmates. These rooms measure 6' x 10' x 9' 6". The total number of inmates is 37. In each room there is a window 2' 3" x 6" in size. Window opening to the outer air and transoms over the door afford abundant ventilation. There are two electric lights in the hall. The building is heated by indirect steam heat. All the floors and side walls were in excellent condition. Beds and bedding are cleanly and clean sheets and pillow cases are furnished each week. The water closets were in good condition as syphon closets. There are defective and leaky joints between the closet trap flange and the lead bend on the following named water closets in this building:

1. In closet apartment entered from sewing room. 2. Two of the three closets in the general toilet room. 3. Closet in the apartment entered through the office on the first floor. The closets are flushed by cisterns. The toilet apartments and fixtures were in a cleanly condition. There is one bath tub for inmates on the second floor. The shower has in this same room are out of use. Inmates are required to bathe once each week. The laundry is located in the basement, and there is also a central laundry adjoining the boiler house. The laundry is well equipped with modern appliances.

The kitchen is located on the first floor, and is 15x30 feet in size. Five windows give ample light. The floor is constructed of boards and was in excellent condition. Table tops are of wood, and some are covered with zinc. The utensils and the kitchen itself were perfectly clean. The windows and doors are screened in the summer time. Garbage is stored in a wooden barrel and in a metal can kept in the yard near the boiler house. The ground by the garbage receptacles was unclean. The garbage is fed to hogs on the premises. As a part of the training of the inmates they are required to assist in the preparation of the food, and the employees in the kitchen gave evidence of attention to personal cleanliness. There is no separate toilet for the use of employees in the kitchen. Clean towels and facilities for washing the hands are provided for the kitchen employees. Inmates are fed in the central dining room.

The water supply for the institution is obtained from a well which is said to be 160 feet in depth. The water is pumped to a tank from which it is distributed through pipes to each building for general uses, except the flushing of cisterns. Water from the Trenton public supply is furnished through separate pipe lines for flushing water closets in all the buildings. The main supply pipes from the two sources are connected at the boiler house so that water from the Trenton public supply may be turned into the pipe lines through which the well water is distributed through the buildings. There is a storage tank mounted on a frame in the yard which is separate from the other buildings.

The food is stored in clean and well kept store rooms. Ice is made on the premises. The refrigerator was cleanly. Milk is stored in open pans in the refrigerator. A portion of the milk is produced at the institution dairy, and the remaining portion is secured from dealers. At the present time about 15 quarts of milk are procured daily from Evan Roberts. The cow stable on the institution grounds is dark and poorly ventilated. The floors, sidewalls and ceilings are dust covered and festooned with cobwebs. The sidewalls in the stalls are plastered with manure, and the cows kept in the stable and yard are unclean.

There are no facilities in the institution for dealing with cases of contagious diseases. There is a hospital for other diseases located in the main building. Tubercular cases are transferred to the State tubercular sanatorium, at Glen Gardner. A physical examination of each inmate is made upon entrance, and if the attending physician finds that the person should be vaccinated the vaccination is performed.

**MAIN BUILDING.**—This building is of brick, and was erected in 1872. There is a cellar under the whole building, and the floor of the cellar is of cement concrete. There is an outside entrance to the cellar. The cellar is not sufficiently lighted for the use which is made of it. Vegetables are stored in the cellar. There are two wings made of it. Vegetables are all 132 sleeping rooms occupied by 132 inmates and 14 officers. There is one window in each room which measures 2' 3" x 7". The rooms are well ventilated by windows and lighted by electricity. Heating is by steam. Beds and bedding are changed each week, and the bedding throughout was in good condition. Water closets are what is known as the washout type, having long hoppers. The closets are located on the first, second and third floors. Each closet is flushed from a cistern. Defective and leaky joints were noted between the closet trap flange and the lead bend in the rear washout closet in a poorly lighted and unventilated closet beneath the stairs on the first floor in the east wing. There are places in the halls and in some of the toilet rooms on the second and third floors in the east wing that are worn and in poor repair. The water closet apartments and fixtures in this building are in cleanly condition. There are five bath tubs for the use of the 132 inmates. Bathing is required each week. Most of the laundry work is done at the main laundry.

There is one kitchen on the first floor and one in the basement. The kitchen on the first floor is of ample size and well lighted and has wooden floors which are in good condition, and at the time of inspection this apartment was scrupulously clean. The basement kitchen which adjoins the dining room in the west wing of the building is poorly lighted, and the darkness is intensified by the color of the concrete floors and the wood-work. The sinks are of iron and porcelain and were in good condition. Table tops are of wood, and some of the tables were covered with zinc. All cleanliness of the employees is maintained in a cleanly condition. The personal are made for employees in the kitchen. No special toilet arrangements washing of hands, and clean towels are supplied. Food is kept in clean, well kept store rooms.

There are three rooms opening from what is termed the quarantine hall on the third floor of the building which are kept as detention rooms in which all newly committed inmates are kept under observation for a period of two weeks before assigning them to rooms among the older inmates. The medical examiners room is also located in this part of the building. No contagious diseases have occurred during the year.

**STOKES COTTAGE.**—This building which is of brick was constructed in 1906. It is connected with the sewer. There are fire escapes on the outside walls. The doors from the dormitory rooms on the upper floors of the building open outward into halls 4 feet wide and 40 feet long. These doors being 2' 6" wide, and placed directly opposite on either side of the hall, completely block the passage when opened at the same time. The windows are ample in size, except in one room in the cellar which is almost totally dark. The cellar is well lighted and ventilated, and the only objectionable condition found was in one room which is 15x30 feet, mentioned above, which is without a window. There are 46 closets in this building one window 3' x 6" in size. The rooms are ventilated by windows and by steam. Syphon water closets are used. The closet bowls have apparently been set over the outlets and screwed to the composition floors without the use of floor flanges properly bolted to the closet trap flange. Most of the closets in the building are loose from their outlets and are held in position by means of the floor pipes only. There are bath tubs on the second floor. Inmates are required to bathe weekly. There is a laundry on the first floor which is thoroughly equipped with modern appliances. The kitchen, located on the first floor, is 25x30 feet. The floors are of wood and are in cleanly condition. Porcelain sinks are used. The floors are of wood. The kitchen throughout was cleanly. Inmates are fed in the dining room on the first floor. Food is stored in properly kept store rooms.

## NEW JERSEY STATE HOSPITAL, TRENTON.

This institution is located in the northwesterly portion of the City of Trenton. Dr. Henry A. Cotton is the medical director, and Samuel T. Atchley is the warden. The institution is under the control of a board of managers, of which G. F. Vroom, Esq., is the president. At the time of inspection there were 1214 inmates, of which 657 were males and 557 females. The buildings are located on a slight elevation, and the surface drainage is satisfactory. The grounds surrounding the buildings are covered with a growth of large trees. The buildings are constructed of stone, and are connected with the city sewer system.

**MAIN BUILDING.**—This building is constructed of stone. There is a cellar under the whole building, the floors of which are of cement concrete. The cellar is not well ventilated, but well lighted. The windows are small and placed near the top of the cellar wall on account of the sill being but a few inches above the finished grade. There are two openings in the main cast iron house sewer under ward 12 through which drain air freely enters the cellar. Waste liquids from the kitchen floor, scrubbing and refrigerator drip fall upon the cellar bottom beneath the floor of the refrigerator room to the cellar. There is an accumulation of old rubbish in a dark cupboard in the cellar beneath ward 6-E. A pronounced odor of gas was noticed from decomposing organic matter, apparently sewage, entering the cellar through openings in the cellar drain, beneath the cellar bottom, under ward 6-E. This drain may connect with the sewer, or there may be a pipe connecting with the cellar drain. There are no objectionable accumulations in the yard surrounding the main building, and the general condition of the yard is satisfactory. The main building is divided into three main sections, center, east and west wings. The wings are divided into 30 wards, and the wards are sub-divided into rooms. The rooms vary in size from those designed for a single bed to larger dormitory rooms, containing as many as ten beds. There are about 339 rooms, containing 791 beds in the wards in this building. The total number of inmates in the building is 659 patients. There are no rooms in the main building without at least one or more windows opening to the outer air. There are some few rooms or corridors that are poorly lighted. This is particularly noted in the ward rooms called "room 11-B" in east wing, ward 11-B, second floor, and 12-B first floor. The latter named room is about 11 feet wide and 40 feet in length with ceiling 10 feet in height. This room contains 9 beds, and has but one window, 3x5 feet, opening to the outer air, and this window is in the extreme end of the room. The main corridor in ward 12-main, east wing, is poorly lighted. The 8-by-8 dormitory room, in ward 12-A east, is poorly ventilated and lighted by one window opening to the outer air. The clothes closets in wards 1, 5 and 6, east wing, are totally dark and unventilated. Each room has an opening for the escape of vitiated air connected by a flue in the wall to the attic space on the top floor. There are ventilators through the roof of the cellar, and electric lights. The ventilating system. The buildings are lighted by electric lights. The steam heating coils are placed in the cellar, and the fresh air supply enters through the cellar windows. The sidewalls and floors of this portion of the building were clean, and the beds and bedding in good condition. Bedding is changed on each week, and at more frequent intervals if necessity requires. Inmates are regularly supplied with clean clothing. There are separate toilet and bath rooms for each ward. The floors and sidewalls are of impervious material. The apartments are well ventilated. The fixtures are of modern construction and of good material. These apartments were clean and free from objectionable odors. There are shower baths for each ward. Inmates are required to bathe twice each week.

**LAUNDRY.**—The laundry building is separate from the other buildings. The building is badly, poorly arranged and totally inadequate for the needs of an institution of this size, and the equipment of the laundry is also inadequate.

**EAST WING KITCHEN, FIRST FLOOR.**—There are two rooms adjoining about 28x28 feet and 21x27 feet. One room has three windows and one door, and the other has one window and two doors. The board floors in the kitchen were in good condition. One iron sink in the kitchen is in good condition, and one metal lined wooden sink in very poor condition. A new stone sink has been purchased, and will soon replace the defective wooden sink. The table tops are of wood and were clean and in good condition. The cleanliness of utensils and employees was satisfactory. The windows and doors in the kitchen were screened. Garbage is stored in metal cans. The receptacles are kept in the yard on drained concrete floors which are covered and screened from flies. Garbage is removed one or more times daily, and fed to hogs on the institution premises. The surplus garbage is sold to farmers. Twelve persons are employed in the kitchen, and the same number in the dining rooms. The toilet arrangements for the kitchen employees and inmates working in the east kitchen are located in a dark, unventilated inside room between the two kitchen rooms. The only window in this bath room opens directly into the kitchen, and the glass in the window sash are painted to screen the view from the kitchen. The apartment is therefore without light and ventilation. The tub is of iron and of ancient pattern. The water closet is a long iron hopper, poorly flushed by a direct connection to the water supply pipes fitted with a hand valve. The west wing kitchen is an exact duplicate of the east wing kitchen above described, including a similar objectionable bath and toilet room.

**CENTER KITCHEN.**—This apartment measures 39x48 feet, and is lighted by six windows, measuring 46 feet. The floors are constructed of tile, and were in good condition. Stone sinks are used. Table tops are of soft

wood, but were clean and in good condition and were only objectionable on account of open cracks. There are twelve persons employed in this kitchen, and the same number in the dining room. Separate toilet apartments for male and female employees are located in the main corridor. These toilet apartments are well fitted up and well ventilated. There were no screens in the windows and flies were very numerous in each apartment. Flies were found to be unusually numerous in other toilet rooms in this building, and also in many other parts of the building, including the kitchen. Inmates are fed in separate dining rooms.

The water supply for the institution is obtained from deep wells on the premises. Food is stored in a separate store room adjoining each kitchen, and there is also one general store room. Ice for use in the institution is manufactured on the premises. There is a cold storage plant connected with the ice plant. There is also a refrigerator for each kitchen. These adjoining west wing kitchen discharges upon the refrigerator in rooming. The waste water flows over the surface of the ground and enters an opening into a surface water drain pipe. Part of the milk supply is produced at the institution dairy, and part is purchased from H. C. Scudder, near Trenton Junction. Milk is stored in the ice boxes.

The institution is supplied in general, well equipped hospital. Two colosseum buildings are used for the isolation of contagious diseases. During the past year one case of diphtheria occurred, and two cases of typhoid fever. All cases of tuberculosis are isolated in separate wards. The windows of the entire building are not screened to prevent the entrance of flies. The windows in the rooms are screened, while those in the room or hall adjoining may have no screens, thereby partly or wholly nullifying the value of the screened windows in the building.

**NEW BUILDING.**—This building is constructed of stone, and is connected with the sewer. The cellar has a concrete floor. The windows are ample except in the east wing of the cellar. Humid excreta is deposited at times in the settling basin in the floor of the cellar bottom near ward 1-E. There is a privy vault in the yard near this building. The excrement is deposited upon the ground, and beneath this privy building, which is located in a grove about 400 feet distant from this building. There is also a privy building and vault near the dairy barn, and also near the farm in which the farm horses are stabled. Flies have free access to the barn in which beneath the three privy buildings. The general condition of the accumulations is satisfactory. The building is divided into two sections, east and west wings. Each section is divided into wards. The wards are sub-divided into rooms of which there are 280, containing when in use 695 beds. The containing as many as 12 beds. The total number of patients in this building is 605. Each room has one or more windows. The rooms and corridors which are changed each week, and are in good condition. Beds and bedding are supplied with clean clothing. There is a toilet room in each ward. In the newer portions of the building syphon closets of earthenware are used. In the toilet rooms in the old portion of the building long iron hoppers and other drainage fixtures are used. There are no traps beneath the closets and of drainage a down draft in the drain pipe from each drainage fixture is supposed to be maintained by special ventilating pipes in which a force draft is maintained. At the opening of the outlet from some of the fixtures no indraft existed at the time of this inspection. Odors from the untrapped fixtures were pronounced in the toilet rooms thus equipped. The syphon closets are flushed from cisterns, and the hoppers closets direct. The old wings of the building were in good condition. Many of the fixtures were out of repair, particularly the porcelain wash bowls were loose from the marble slabs, and a number of the water closets were obstructed. Tub baths are provided for each ward. Inmates are required to bathe weekly.

The kitchen in this building is located on the first floor center. Its size is 27x54 feet. It is lighted and ventilated by four windows. Its size is 27x54 feet, and six windows, measuring 3x8 feet. The board floor in this kitchen is in rather poor condition. Iron and wooden sinks are used, but it is intended at an early date to replace the wooden sinks with stone sinks. Table tops are of soft wood, and in fair condition. The cleanliness of this portion of the building is satisfactory. Alterations and improvements were being made in this kitchen at the time of inspection. Windows and doors were screened, and flies were numerous at the time of inspection. There are 12 persons employed in the kitchen, and 14 in the dining room. Two closets apartments are located in the hall for the use of employees. These apartments are small, dark and unventilated. The inmates are fed in a separate dining room. The refrigerator is located in a room adjoining the kitchen. The drain pipe from the refrigerator is connected, without trap, to the down-draft system of drains. At the time of this inspection there was no indraft

at the opening to the refrigerator drain. Sick wards are located on the second floor of each wing. In the wooden sinks in both dining rooms in this building is broken, and the fixtures are in poor repair.

In ward one, east wing, mops and brooms are kept in a dark and unventilated closet in which there were objectionable odors. Roller towels are largely used throughout the building, and information was obtained showing that roller towels only are used in ward 1, east, and in fact this seems to be the practice throughout all the wards in the east wing. The large number of flies noted in many parts of the building indicates breeding places nearby. These were found as follows: 1. The unscreened horse stable and cow manure, about 20 feet wide by 50 feet long and 4 feet high, is being made in the garden near the green house. 2. The horse manure from stables near the laundry is cast upon the ground in front of the stable. This accumulation is said to be removed about once each week, but it is doubtful if flies do not find a breeding place in the manure which is scattered over the ground surface about the stable. Metal drinking cups and roller towels are used in most of the toilet rooms. The butler's pantry for the staff dining room is without light and ventilation from the outer air. The facilities for escape in case of fire are very poor from rooms occupied by employees on the fourth floor, center, of the old portion of the building. Flies were rather numerous in the bakery, and were freely crawling over the bread and cake. The metal covering on the table upon which bread is prepared is broken in several places, and the table was unclean. The condition of cleanliness in the bakery compares unfavorably with the kitchens, dining rooms and other parts of the buildings in which foods are prepared and stored.

#### NEW JERSEY STATE HOSPITAL, MORRIS PLAINS.

This institution is located near Morris Plains, Morris County. Dr. B. D. Evans is the medical superintendent, and Mr. O. M. Bowen is the warden. There is a regular staff of physicians attached to the institution. At the time of inspection there were 2050 inmates, and 400 employees making a total of 2450. The buildings are located on high, well drained ground, with ample space surrounding the buildings. The grounds are well supplied with shade trees, and the site affords a commanding view of the surrounding country. The building is constructed of stone and brick. The institution is provided with its own sewer system and sewage disposal plant.

**MAIN BUILDING.**—The entire length of this building is about 1243 feet, and the depth from the front of the center to the rear of the extreme wing is about 542 feet. The ground covered by the building is about 119,000 square feet. The wings on the north and south of center are all four stories in height, except the extreme ends which have rooms on but two stories. There are 20 wards in each the south and north wings. The wards are divided into large and small wards of which measure 27x35 feet, and accommodate single beds. Other rooms measure about 12x12x12 feet, and accommodate two beds each. The dormitory rooms vary in size, and all contain as many beds as can be conveniently placed. All rooms have windows opening to the outer air and in sufficient number to afford good light, except the floor of the building.

The building itself is constructed of granite and brick, and it was completed in 1876. There is a cellar under the whole building. The cellar floor is of cement concrete, and the windows are sufficient in size and number to supply good light and ventilation, except in that portion of the cellar devoted to culinary purposes. In these rooms both light and ventilation are insufficient. A dining room is located in the cellar, in which some 40 employees connected with the culinary department take their meals. This room is small and is poorly lighted and ventilated. A refrigerator and dish washing room at the end of this dining room is without a window or other opening to the outer air. The surfaces of the concrete floor in these two rooms are rough and unclean. The painted walls are dingy, the windows are without screens and flies are attracted by the warmth and odors. The "pan room" measures 18x27x8½ feet. The unscreened windows of this room open to a covered area. Three sets of stone wash trays, tables, fixed pan racks and other furniture in this room so fill the space that proper cleansing is rendered extremely difficult. The table tops, pan and floor racks are poorly constructed of soft wood which absorbs and cleaves. The wooden trim about the doors and windows is in poor repair, containing many cracks in which decomposing organic matter finds lodgment, attracting roaches and other insects. The dark painted sidewalls and ceilings, from which the paint is peeling, are unclean and fly specked. The room is dark, and poor ventilation results in overheated air and bad odors from the steam saturated room and its furnishings. Milk cans are placed, after washing in this room, on racks where they are exposed to rot and numerous flies. The sidewalls in the main duct about the eleva-

tor shaft through which supplies are brought into the building are soiled and unclean.

A meat chopper, potato paring machine, bread cutter, and other culinary utensils are located in a large room beneath the rear center. Waste liquids due to an obstructed drain partly fill a long trench in the cellar but not. Offensive odors were emitted from the decomposing liquids, and the maggot eaten carcass of a dead rat which lay beside the trench. Several cleanout openings in the main drain beneath the cement floor in the duct are closed with loosely fitting wooden covers. It is stated, however, that the main drains converge beneath a special ventilating shaft in which an exhaust fan maintains a continuous down draft in all drains throughout the building. The cellar room in which the tea and coffee urns are situated is poorly ventilated, and the air in this room is excessively warm. The butcher shop is in a basement room with a floor space about 12½ x 12½ feet in size opening near the ceiling. A poorly arranged refrigerator, in which fresh meats are stored, adjoins the butcher shop. All meats for use in the institution are cut and handled in the restricted space in this shop. The warden stated that an appropriate room will soon be available for the construction of a new plant designed to provide adequate refrigerator facilities to take the place of the very unsatisfactory rooms now in use. Discolorations from waste liquids exist around breaks in the cellar ceiling beneath wards 1-4a and 1-4b south. This is said to be caused by leakage through the floors during frequent scrubbing of the rooms in the wards above which are occupied by unclean patients.

**YARD.**—The surface of the ground beneath a number of the dining room windows is polluted by garbage thrown by patients from the windows. This is particularly so beneath dining room windows in wards 1-1 and 1-2 south. While in the exercising yards patients frequently discharge the contents of their bowels upon the ground along the side of the building, and there are such deposits may be found. This practice frequently takes place directly beneath unscreened dining room windows. In the exercising yards occupied by male patients the stone walls in the angle of the building are discolored by urine. More or less organic matter is thrown by the patients from various windows in the building upon the ground beside the foundation wall. During the daily cleansing of the ground around the building such waste materials as bits of paper and similar refuse are gathered up and at once removed and burned in open fires, while excrementitious matter which at danger to health, is more apt to be overlooked. There are six privy vaults in the yards of some of the cottages on the grounds that are occupied by employees, and also a privy vault at the coach stable. The warden stated that arrangements have been made to remove two of these vaults at an early date, and that the accumulations beneath the privy building at the breeding in large numbers in the semi-inhale accumulations in the privy vaults of the cottages occupied by the gardener, florist and one other cottage occupied by an employee.

In the forty wards there are 1600 inmates. Light is sufficient in most of the wards, except on the fourth floor. Light and ventilation are both inadequate on the fourth floor, both in main hall and in many of the rooms. The lack of light and ventilation is more pronounced on the floor by reason of overcrowding and unclean habits of the patients assigned to this floor. This is plainly indicated by objectionable odors noticed upon entering the wards. In one room on the fourth floor in the south wing of the building, containing about 2000 cubic feet of air space, there are four beds. There is one deep set dormer window 3x5 feet in size. Necessity requires the room door to be kept closed during the night. Another dormitory room on this same floor, 25x12x15 feet in size, in which there are seven beds, contains a single window 3x5 feet in size. When the room doors are closed at night the one window forms the only means of ventilation. In ward 1-4-a north there are ten rooms and there are 35 patients in this ward. Cots and mattresses which are placed about the hall at night are stacked to permit of free air during the day. This condition also exists in ward 1-4-b north, 2-a north and 2-4-b north, also in some of the corresponding rooms in the south wing of the building. Ventilation is secured in the various wards by windows during the summer. This method is supplemented in winter by artificial ventilation induced by steam heated coils in specially constructed ventilating flues. The heating system consists in forcing fresh air by fans through underground ducts to steam radiating coils located in ducts beneath each section of the building. Floors and sidewalls were in cleanly condition, with the exception that in some wards the walls are more or less soiled, and the walls generally throughout the wards are in need of paint. The walls of the rooms in some of the wards have never been painted, and the condition of beds and bedding is satisfactory, except in some of the rooms in wards to which low grade patients are assigned. The beds, sidewalls and ceilings in these rooms are subject to frequent soiling, and therefore requires

frequent cleaning. Beds and bedding are changed once each week, and at more frequent intervals if required. There is a water closet apartment and bath room in each ward. The floors in these apartments are constructed of an asphalt composition.

In many of the water closet apartments the surface of the floor has worn rough. This is particularly so in the north wing. In some water closet apartments the floor is poorly joined to the sidewalls, leaving cracks for the deposit of dirt. The water closets are of porcelain of the washbowl pattern, the bowls of which contain a small amount of water. The fixtures are mostly of non-vitrous ware, and the glazed surface of many of the closet bowls is crazed. This is also true of some of the porcelain wash basins. This condition may be seen in 1-4-a north. There are marble slab urinal stalls in all water closet apartments on the wards in the north wing. The urinals are flushed by water continually flowing through perforated flush pipes, thereby consuming a large volume of water. Offensive odors from urinals were particularly noted in apartments 3-2 and 4-1 north. Many of the porcelain slop sinks, and some porcelain baths, are defective in that the glazed surfaces have been broken from the edges and the inner walls of the fixtures, thereby exposing the absorbent material from which they are constructed, to contact with offensive liquids. These defective fixtures were particularly noticed in toilet apartments in 1-4, 1-4-a, 1-4-b, 2-4, 2-4-a, 2-4-b, 3-4 and 4-4 north. Also 1-4-a, 1-4-b, 2-4, 3-4, and 4-4 south. The slop sink in 1-4-b south was particularly offensive. In many of the water closet apartments throughout the building the porcelain wash bowls were loose from the marble slabs, and sometimes broken at the edge of the bowl and the slab, in which decomposing organic matter finds lodgment. The joints connecting the brass traps beneath wash basins with the waste and vent pipe in nearly all of the water closet apartments are not gas tight, and there are no traps on some of the lines of waste pipes from the sinks in some of the dining rooms. Such defects and omissions in the drains are, however, of no particular moment, inasmuch as it is stated that a continuous down draft is maintained in all drains in the building by a special ventilating shaft in which an exhaust fan is continuously operated. The plaster is broken from a sidewall beside and beneath a sink in the water closet apartment in ward 4-1 north, thereby exposing the lath beneath to waste liquids, and the walls in the water closet apartments in 4-1 south are broken and in poor condition. It is a general practice throughout the building to hang wet mops, directly after use, from the windows of the water closet apartments where they are left until again required for use. The bath tubs in use throughout the building are of porcelain and porcelain lined iron. They are located in separate rooms adjoining the water closet apartments on each ward. In most wards throughout the building patients take their face and hand bath at the wash basins in the water closet apartments. Here roller towels are in use. These must, however, be frequently changed as no soiled towels were noticed during the time of inspection. Inmates are required to bathe once in each week, and at more frequent intervals when it is necessary to maintain personal cleanliness.

All laundry work is done in a separate, well equipped, steam laundry building.

**KITCHEN.**—The kitchen is located in the cellar beneath the center. This description is of the main kitchen in which the food for all patients in the building is prepared. The floor in the kitchen is about six feet beneath the ground surface and opens to an area beside the foundation wall. The room is long and narrow with window openings to the outer air from one side only. There are two rows of windows. Five are 3'x5 feet in size, and open into the area. Five are about 6½x8 feet in size, and open from the side wall in the upper part of the room. The room is poorly lighted, particularly near the floor, it being necessary to supplement day light by artificial light in some parts of this room at nearly all times. Ventilation is also inadequate which results in overheating the air. The floor is constructed of marble blocks measuring 12x12 inches. The floor is porous, containing many defective joints and depressions. An iron sink, in good condition, is located in a dark corner of the room. The table tops, which are constructed of wood, were in poor condition containing open seams. The sidewalls and ceilings were discolored and unclean. Structural defects under a desirable degree of cleanliness difficult to maintain. The cleanliness is satisfactory. Windows and doors were not screened, and flies were numerous in and about the kitchen. Garbage is stored in cans, and removed three times daily. It is fed to hogs on the premises. Twenty-two paid employees are connected with the kitchen force. In the various dining rooms patients assist in handling the food, washing dishes and in cleaning the dining room, this latter work being under the direction of attendants. The general cleanliness of employees is fairly satisfactory. The toilet for the male employees is located in the cellar. The apartment is poorly lighted and ven-

tilated by an unscreened window, and it is located near rooms in which milk and other foods are stored. The fixtures consist of one painted iron bath tub, of ancient pattern; one porcelain water closet in poor condition; one poorly flushed and offensive urinal and a set of three wash bowls. Clean roller towels are located beside the kitchen sink for the use of employees.

**BAKERY.**—The bakery is located in the boiler house building at the rear of the center. The water closet apartment opens directly from the bake shop, and the fixtures in the apartment are unclean. There are no screens and flies are numerous in the water closet apartment. The woodwork around the knobs on the doors of the bakeshop is soiled from the touch of unclean hands.

The cellar kitchen in which the food is prepared for the staff dining room measures 18x15x9 feet. It has four windows which measure 3'4"x2'6". The ventilation is poor and artificial light is required to supplement day light. The air of this kitchen was excessively warm. Smoke and odors which escape from the kitchen windows have blackened the wall on the exterior of the building, and are drawn through the windows into the warder's dining room, which is located directly over the kitchen. The floors are of cement concrete with rather rough surfaces. A porcelain sink is placed in an adjoining room. The table tops in this kitchen are of hard wood with open seams partly filled with putty. The plastered walls are blackened from long accumulations of smoke and grease. Flies were very numerous in all of the rooms in this part of the cellar.

**FOOD SUPPLY.**—Inmates are fed in separate dining rooms on each ward. Food is distributed on trucks from the cellar kitchen through the ducts to dumb waiter shafts which connect with each dining room. The dumb waiter shafts, upon which the vessels containing the food are conveyed to the dining room, are poorly constructed of soft wood and are in poor repair. Food spilled by accident on the shafts cannot be dislodged from the crevices which they contain, and some of the shafts were unclean. The sidewalls in the ducts in the cellar, about the openings of these dumb waiters, are soiled from the touch of unclean hands, especially the shafts for sections 4-3, 2-3 and 1-3. The lower inner surface of the facing boards at the openings from the dining rooms into the dumb waiter shafts contain an accumulation of foreign matter and were unclean. The base boards beneath many of the dining room sinks, in the north wing, are in poor repair, and in some cases the decaying woodwork is saturated by waste liquids. Organic matter which finds lodgment in these defective places in the woodwork about some of the sinks and steam tables gives rise to odors, attract and afford lodgment for roaches which infest the pipe lines leading to the various dining room sinks and steam tables. The defects were noted in dining rooms on wards 1-2, 1-4-a, 2-2, 3-2, 3-4 and 4-4 north, and 1-1, 1-2 and 1-3 south. These same defects in the woodwork exist around some of the steam tables. Many of the dining sinks are defective in that the glazed surface has been broken from the edges at the base of the fixtures exposing a rough absorbent surface. These defective sinks were noted in dining rooms in wards 1-4, 1-4-a, 2-4, 2-4-a, 3-4, 4-4 north, and 1-4, 1-4-a, 2-4-a, 3-2 and 4-4 south. A dining room in 4-3 south is located beneath a low sloping roof. This dining room is 40 feet long, 12 feet in width with a 10 foot ceiling, along the inner wall sloping to 4½ feet above the floor along the outer wall. The room contains about 3400 cubic feet of air space, and receives light and ventilation from a single deep set dormer window, 3½x12 feet in size. A room of like size and description serves as a dining room in ward 4-3 north. The air is excessive warm on hot days in all of the dining rooms. This is due to heat radiated into the room from the steam tables and pipe connections in each dining room. Steam is maintained on the steam tables at all times. There are no screens in the doors and windows in the dining rooms in the north wing of the building and flies are numerous in most of these rooms. Flies are attracted by the warm air in these rooms as well as by their odors of food. The windows are partly screened in most of the dining rooms in the wards in the south wing, but flies from the halls and unscreened windows in other rooms may enter through unscreened dining room doors.

**DORMITORY BUILDING.**—This building consists of three stories and a basement with wings north and south from center. It is constructed of stone, and was erected in 1901. The floors of the cellar are of cement concrete. The cellar is well lighted and ventilated. In the yard of the dormitory building vaults are located in the rear of the cottage occupied by the florist and gardener, and are placed not far from the building. On the first floor are two "day rooms" in each wing, in which patients are assembled and pass the day. This method affords ample time for proper ventilation and airing of the dormitories. The "day rooms" are large, well lighted rooms with "water sections" (water closet and bathing apartments) attached. There are eight dormitory rooms, four in each wing, each measuring about 100x45x15 feet. Each dormitory contains about 70 beds, which



allows about 550 cubic feet of air space per bed. There are three small rooms, accommodating two beds each, connecting with each of four dormitories. There is in addition an infirmary dormitory in each wing. The dormitory and "day rooms" have from 12 to 15 windows in each, 3½x9 feet in size, opening from two sides and one end of each ward. The two-bed dormitories have one window each. The building is heated by indirect and direct steam radiation. Indirect radiators are encased in and take air through metal ducts from outside the building. The floors and sidewalls of the building were clean, and the condition of beds and bedding satisfactory.

"Water," closet apartments, wash rooms and bath rooms, termed "water sections," are connected with each day room, dormitory and infirmary. Water closets are of the porcelain washdown type. The water closet apartments and fixtures were in good condition considering the structural defects. With the good window ventilation there was but slight odor in the water closet apartments at the time of inspection. The surface of the composing floors in the "water sections" have worn rough in spots, partly exposing small pebbles incorporated in the floor material, thereby rendering the floors difficult. Defects were noticed in the porcelain sinks located in the "water sections," connecting with day rooms Nos. 1 and 2 south; dormitories 3, 4 and 5 south; infirmary dormitories south; dormitories 4 and 6 north and an infirmary dormitory north. In each "water section" in the north wing there are slate slab urinals with perforated metal flush pipes. There are no screens in the windows and doors in the "water sections," and flies were rather numerous around many of the fixtures in these rooms, and were observed feeding upon fecal matter wherever found adhering to the water closet seats or fixtures.

The kitchen for this building is located on the first floor. Its size is 32x54x15 feet, including the steam table room measuring 12x54 feet, which is located between the kitchen and dining room. The kitchen is lighted by 12 windows, measuring 3'9"x9". The floors are of cement concrete and were in fairly good condition. Iron and stone sinks in the kitchen were in good condition. The glass surface is broken from the dish washing sink in the steam table room exposing the absorbent material beneath. The wooden drain boards at each side of this sink were in poor condition. Table tops are constructed of wood, and were in poor condition. The walls in this division were in need of paint. The kitchen utensils were in fair condition with the exception that the tinning is about worn off of the copper pans on the steam table, and the edges of the copper pan covers have been battered by use causing rough edges and crevices which are difficult to clean. The windows and doors of the kitchen were screened, but there were said to be no screens over the opening in the light and air shaft above the roof. A few flies were noticed in the dining room and kitchen. Garbage is removed in metal cans three times daily, and fed to hogs on the premises. The number of persons employed in the preparation and distribution of food is 18. Patients distribute the food in the dining room, and also assist in the cleaning of utensils. The personal cleanliness of employees is satisfactory. Two toilet apartments for the use of kitchen employees are located on the second floor directly over the kitchen. These toilet apartments have windows opening into the light and air shaft from the kitchen. The apartments are dark and, by reason of their location, the air in them is excessively warm. Flies were numerous in these two toilet apartments. A light, airy dining room adjoins the kitchen on the first floor. The doors and windows of this room were screened. The sidewalls are somewhat soiled, and in need of paint. Patients procure water for drinking purposes at faucets in the "water sections," using drinking cups in common. The basement of this building is in good condition. The infirmary wards are located in each wing on the second floor. Cases of contagious diseases are isolated in small rooms, opening from the halls in the infirmary wards. There are now three tubercular cases in this building. If these patients expectorate they are assigned to a small infirmary room, and their sputum is disinfected. There is no control over the promiscuous expectoration of tubercular patients when they leave the building for exercise. There are no screens in the windows and doors in the "day rooms" and dormitories, other than the infirmary dormitories, in this building.

The supply of drinking water for the institution is furnished from ordinary water coolers, and from the faucets in the water closet apartments in each ward. Drinking cups are used in common by the patients. No ice was harvested on the ice pond belonging to the institution during the past building are apparently well cared for.

The milk supply, of which 1100 quarts are used daily, is produced on the dairy in connection with the institution. Milk is produced in a dark, poorly ventilated, vat room in the cellar, in which the air is excessively warm and in which there were numerous flies. This totally unsuitable milk room,

the warden stated, is to be changed upon the completion of the proposed refrigerator plant.

The infirmary rooms for hospital purposes are located in the various wards. At the time of inspection a case of typhoid fever was isolated in a room on ward 1-2 north. There is no isolation hospital building now used exclusively for this purpose connected with the institution.

In the portions of the main building occupied by patients there are comparatively few windows and doors that are screened. Flies were very numerous in the most of the dining rooms, water closet apartments, and food are handled in the cellar in which the kitchen is located and food are handled.

Stable manure is said to be removed from where it is stored upon the ground beside the coach stable about once in each week. Flies were breeding in the accumulation of manure at the coach stable at the time of this inspection. There was an accumulation of horse stable manure 20 feet square by 8 feet in depth in an uncovered pit located near the building in main and the dormitory building, and the accumulation of manure above referred to affords a breeding place for house flies upon a large scale.

More than 100 hogs are being raised in a large pigery located some distance from the nearest building occupied by patients. All garbage which accumulates at the institution buildings is fed to the hogs which are constructed of wood, while they are washed and kept free from accumulations, the wood is thoroughly saturated with unclean liquids, is offensive and attracts swarms of flies.

Mr. O. M. Bowen, the warden of the institution, accompanied the State inspector during the time of inspection of the institution, and at once ordered the removal of the nuisance caused by the obstructed cellar drain, and also issued orders for the correction of other objectionable conditions due to oversight and neglect on the part of employees under his direction.

#### HOME FOR FEEBLE MINDED WOMEN.

This institution is located in Vineland. M. J. Dunlap, M. D., is superintendent and medical director. The institution is governed by a board of managers. There are 151 inmates and 24 employees, making total population of 205. The buildings are placed on level, dry, sand soil, and are surrounded with ample grounds. The buildings are connected with a sewer. Sewage is discharged from the buildings into a cesspool from which it is pumped daily through the buildings into a cesspool through a small screening basin which at the time of inspection was uncovered. An accumulation of screened material lay upon the ground beside the basin. By reason of the nearness to the dairy barn and milk house it will be much better, particularly during the fly season, to keep the screening basin covered, and that all material removed from it should at once be placed in the furnace fires and burned, or otherwise safely disposed of.

**MAIN BUILDING.**—This building was erected in 1889, and is of brick. It is provided with fire escapes. There is a basement under the whole building, the floors of which are covered with cement and boards. The cellar is well lighted and ventilated. The general condition of the yard surrounding the main building is satisfactory. There are four wards containing respectively 30, 43, 33 and 17 beds. In addition to this there are 20 beds in the outside galleries.

There are other small rooms in which beds are placed to accommodate the number of inmates now in the institution. The number of windows in each ward give sufficient light and ventilation. The wards are lighted by gas and electricity, and heated by steam. The floors and sidewalls were in excellent condition, and the same may be said of beds and bedding. The inmates are regularly supplied with clean clothing. The water closets are closets apartments and fixtures were in cleanly condition. Tub baths are used in the institution.

The laundry is a separate two-story building, measuring 60x60 feet, well equipped with modern appliances. The building is well lighted and heated. The kitchen is located in the basement. The room is about 40x50 feet, and is lighted by twelve windows, measuring 2½x3 feet. The floor is of wood, and at the time of inspection was in good condition. Sinks are of enameled iron. Table tops are covered with zinc and were in cleanly condition. The cleanliness of the room and utensils is excellent. Garbage is taken to an open field on the institution grounds, and is burned with rubbish. The amount of partly burned residue at the place of disposal at the time of inspection would be found objectionable if located near human habitations, but the location at this season of the year is such that a nuisance.

ance is not caused thereby. The employees in the kitchen department were cleanly, and ample provision is made for the washing of hands of employees and clean towels are provided. The inmates are fed in a general dining room.

The water supply of the institution is obtained from the mains supplying the Borough of Vineland. There is a supply derived from a deep well on the institution grounds, which, although the water is pure and of excellent quality, is used only for fire purposes. Food for use in the institution is kept in a clean orderly store room in the basement. Artificial ice for use in the institution is purchased from a local dealer in Vineland. The refrigerator is located in the basement, and it is in cleanly condition.

Milk for use in the institution is produced on the premises from a well kept herd of cows. Milk is stored in a separate room in the basement. One ward, with 21 beds, on the first floor of the main building is used as a hospital. No isolation hospital is provided. A two-story frame building with 8 small rooms has recently been acquired and placed in a grove at the rear of the grounds. This building could be used as an isolation hospital. In the event of a serious outbreak of contagious disease the upper floor of the laundry building could be used as a hospital ward. No cases of contagious disease have occurred during the past year.

### NEW JERSEY STATE VILLAGE FOR EPILEPTICS.

This institution is located at Skillman, Somerset County, and is under the supervision of David F. Weeks, M. D. John A. Fuld is the secretary of the board of managers. There are 149 male inmates and 122 female inmates, making a total of 271. The buildings are widely separated in the open country on undulating ground where good surface drainage is afforded. All the buildings are connected with the sewer. The water supply for the institution is obtained from deep bored wells. It is pumped to a tank and distributed under pressure through pipes to each one of the buildings. The milk supply is obtained from the dairy on the institution grounds. The cows have all been tuberculin tested, and 300 quarts of milk are produced daily. The dairy barn is well constructed and the dairy is well managed. Milk is cooled and delivered to each building directly after each milking. There is a separate laundry building to which laundry work from all the buildings of the institution is taken. The laundry is equipped with modern machinery.

**WARD COTTAGE.**—The size of this cottage is 35x100 feet. It is constructed of brick, and was erected in 1901. There is a cellar under the whole building, the floor of which is of cement concrete. The cellar has five windows, measuring 3x5 feet. The cellar is not well ventilated nor well lighted. Vegetables for immediate use are stored in the cellar. There were three objectionable accumulations in the cellar. There are two wards 17'6"x24'x9', and one 17'6"x26'6"x9'. The total number of inmates is 30 patients and 5 employees. The wards are amply lighted and ventilated. The building is lighted by electricity and heated by steam. The condition of beds and bedding was excellent. Inmates are regularly supplied with clean clothing. Water closet apartments are located on the first and second floors. The style of water closet is what is known as the washout. These have flushometers, and the flushing of toilets is not satisfactory. Tub baths are located on the second floor, and inmates are required to bathe weekly.

The kitchen is located on the first floor. It is 12x13 feet in size, and light is provided by two windows 3x7 feet in size. Board floors are used, and these were in good condition. The sinks are constructed of iron with oak drain boards. Table tops are of wood with oil cloth covers. Garbage is placed in metal cans in the yard, and is fed to hogs which are raised on the institution farm. Three persons are employed in the kitchen. The toilet rooms for employees are on the first floor. Facilities are provided for the washing of hands. Inmates are fed in a dining room located on the first floor. Food is stored in the pantry. The sanitary condition of this cottage is entirely satisfactory.

**GARRISON COTTAGE.**—The size of this building is 35x100 feet, and in addition there are day rooms 20x20 feet in size. It is constructed of brick, and was erected in 1901. There is a cellar under the whole building which has a cement concrete floor. There are five windows in the cellar measuring 3x5 feet. The cellar is not well lighted nor ventilated. There are two wards 17'6"x24x9 feet in size, and one 17'6"x26'x9 feet. The total number of inmates is 28. The windows in the wards are of ample size. The cottage is lighted by electricity, and heated by indirect steam. The condition of the floors, sidewalls, beds and bedding is excellent. Water closet apartments are located on the first and second floors. The style of closet is what is known as the washout, and they are flushed by flushometers. Tub baths

are located on the second floor, and inmates are required to bathe once each week. The kitchen is located on the first floor, and measures about 12x13 feet. It is lighted by two windows 3x7 feet in size. The floor is of boards and is in good condition. Iron sinks with oak drain boards are provided. Table tops are of wood covered with oil cloth, and were in cleanly condition. Three persons are employed in the preparation and distribution of food. The cleanliness of employees is satisfactory. The toilet room for employees is located on the first floor. Facilities for the washing of hands of employees, and clean towels are furnished. Inmates are fed in the dining room on the first floor. The sanitary condition of this cottage is entirely satisfactory.

**G COTTAGE.**—This cottage is 40x55 feet in size. It is constructed of brick, and was erected in 1902. There is a cellar under the whole building which has a cement concrete floor. Ten windows measuring 2'x2'6" furnish light. The cellar is well lighted and ventilated. Vegetables are stored in the cellar for immediate use only. There are eight rooms, measuring 10'6"x12'x9'6". Six of these contain two beds each. The two corner rooms are slightly larger, and contain three beds each. The total number of inmates is 18. In each room there is a window 2'6"x5" in size, and the two corner rooms have additional windows. The building is lighted by electricity and heated by direct steam. The condition of beds and bedding is excellent. The water closet apartments are located on the first and second floors. Syphon jet fixtures are used. These are flushed by a low-down tank. The toilet apartments and fixtures were in cleanly condition. Bath tubs are located on the second floor, and inmates are required to bathe each week.

The kitchen is located on the first floor, and measures 15x15 feet. Four windows 2'6"x5" furnish light. Board floors are used and were in good condition. Iron sinks with marble drain boards are used. Table tops are covered with oil cloth. The general cleanliness of the kitchen and of employees is satisfactory. The dining room is located on the first floor. The report shows that the sanitary condition of this cottage is satisfactory.

**H and I COTTAGES.**—These buildings, which are combined, measure 40x15 feet, with an extension 18x36 feet. They are of brick and were constructed in 1902. There is a cellar under the buildings, the floor of which is of cement concrete. The cellar has 12 windows, measuring 2x3 feet. The cellar is well ventilated but poorly lighted. There are two rooms 14x16½x9½ feet in size which contain four beds each, and 16 rooms 9x12x9½ feet in size, containing two beds each. The total number of inmates is 20, and there are 7 employees. There is one window 3½x5 feet in size in each small room, and five in each large room. The method of lighting is by electricity and heating is by direct steam. The beds and bedding were in excellent condition. Water closet apartments are located on the first and second floors. The water closet are what is known as syphon jet, and are flushed by low-down tanks. The toilet apartments and fixtures were in cleanly condition. There are also two tubs and a basement room, and tub baths on the second floor. Inmates are required to bathe each week. The kitchen, which is located on the first floor, measures about 18x36 feet, and is lighted by five windows 2½x5 feet. The floors are constructed of boards. Sinks are of iron with marble drain boards. The dining room is located on the first floor. The report shows that the sanitary condition of this cottage is satisfactory.

**J COTTAGE.**—This cottage measures 40x55 feet. It is constructed of brick, and was erected in 1905. The cellar under the whole building has a cement concrete floor. It is lighted by 10 windows, measuring 2x2½ feet. It is well lighted and ventilated. Vegetables for immediate use only are stored in the cellar. The building contains two wards 16½x23x10 feet in size, and one ward 16½x32x10 feet in size. The total number of inmates is 29. The wards are well lighted and ventilated. The condition of beds and bedding is excellent. The water closet fixtures are what is known as the washout, and are flushed by syphon jets with perforated cast-iron cisterns. The water closet apartments and fixtures were in cleanly condition. Bath tubs are located on the second floor. The kitchen is located on the first floor. It is a room about 17x18 feet in size, and is lighted by windows 2½x6½ feet in size. Board floors are used. The sinks are constructed of porcelain. Table tops are covered with oil cloth. Three persons are employed in the preparation and distribution of food. There is a basement wash room for the use of kitchen employees. Inmates are fed in a dining room located on the first floor. The report shows that the sanitary condition of this cottage is satisfactory.

**BUCKLEY COTTAGE.**—This building measures 23x100 feet. It is constructed of brick, and was erected in 1905. There is a cellar under the whole building which is well lighted and ventilated. The building contains 10 rooms, 10x15x9½ feet in size. Each room accommodates two patients. There are 16 patients and 2 employees in the building. Each room has a

window 2'4"x1'6" in size. The building is lighted by electricity, and heated by direct steam. Inmates are supplied with clean clothing weekly. Water closets are located in the basement, and on the first and second floors. The fixtures are of the wash-down type, and are flushed from cisterns. The rooms and fixtures were in cleanly condition.

The kitchen is located on the first floor, and measures 24x21 feet. It is lighted by four windows 24x3 feet in size. The kitchen floor is of boards, and is in good condition. Porcelain sinks are used. Table tops are wood and covered with oil cloth. Windows and doors are screened. Three persons are employed in the preparation and distribution of food. A wash stand and roller towel are provided for the use of kitchen employees. The report shows that the sanitary condition of this cottage is satisfactory.

**BERGEN COTTAGE.**—This building consists of two wings about 30x60 feet in size, connecting with a central or administration building about 48x66 feet in size. The building is constructed of brick, and was erected in 1905. The cellar has 52 windows measuring 24x3 feet. It is well lighted and ventilated. There are eight wards 15x27x10 feet in size. The total number of inmates is 85, consisting of 70 patients and 15 employees. In each ward there are five windows 24x5 feet in size. The wards are well lighted and ventilated. The condition of beds and bedding is excellent. Water closets and fixtures were in cleanly condition. Shower baths are located in the basement. The kitchen is located in the basement, and it is about 21x33 feet in size. Light is furnished by four windows 24x3 feet in size. The cement floors were in good condition. Porcelain sinks are used. Table tops are covered with oil cloth. The toilet arrangements for employees are located in the basement. Inmates are fed in a basement dining room. The report shows that the condition of this cottage is entirely satisfactory.

**MEADOWSIDE COTTAGE.**—This cottage measures 30x33 feet, together with a wing extension measuring 25x50 feet. It is of frame construction. It is not connected with the sewer. There is a cellar in the main building. The floor of the cellar is of brick. The cellar is lighted by four windows 24x14 feet in size. The light and ventilation of the cellar is fair. There is a privy vault located in the yard. This measures 8x9 feet in size, and is constructed of boards. It is located 30 feet from the house. The condition of the privy vault is good, with the exception of the offensive privy which is not in a satisfactory condition. There are four wards containing 3, 4, 7 and 8 beds each. The total number of inmates consists of 21 patients and 3 employees. The building is heated by a hot air furnace, and lighted by electricity. The condition of the beds and bedding is excellent. Bath tubs and a wash room are located on the second floor. Inmates are required to bathe weekly. The kitchen is in the first floor extension, and measures 15x18 feet. Light is furnished by three windows 24x3 feet in size. The kitchen floor is covered with linoleum. Iron sinks are used. Table tops are covered with oil cloth. Employees use the outside vault. Inmates are fed in a dining room on the first floor. The report shows that the sanitary condition of this building is satisfactory. The privy vault located in the yard is objectionable and should be removed.

**PINE KNOLL COTTAGE.**—This cottage measures 11x55 feet. It is a frame building. There is a cellar under a portion of the building. The cellar is not well lighted nor lighted. The cement floor is broken, and the cellar is damp. There is a privy vault located in the yard 40 feet from the house. The vault was leaky, and offensive odors were noticeable. A cesspool is also located in the yard. The general condition of the yard is satisfactory with the exception of the privy vault. The cottage contains one ward 17'x32'4" in size. The total number of inmates is 14. The ward has seven windows 2'4"x5'. The building is heated by a hot air furnace, and the furnace is not provided with a fresh air inlet. Tub baths are located on the second floor. The kitchen is located on the first floor. It is 12x13 feet in size, and is lighted by a window 2'4"x5' in size. The floor is covered with linoleum. Iron sinks are used. The wooden drain board attached to the sink is in poor condition. The table tops were clean, but were not in good condition. In addition to the institution supply water is obtained for this cottage from a well or spring in the meadow near the house. The condition of this cottage is satisfactory with the exception of the privy vault located in the yard, and the draining boards and table tops in the kitchen. Aside from these minor details the sanitary condition of the cottage is satisfactory.

In addition to the buildings separately described there are two 19 room cottages nearing completion which are to be used for the attendants. Other buildings on the institution grounds are Maplewood, which is the superintendent's building. Brookview, which is the farmer's house. Fernwood, also a farmer's house. Spring Run Cottage, a farmer's house. Administration Building, Industrial Building, Chapel, Power House, Admy stables, etc.

**HOSPITAL.**—The institution has no hospital for the care of cases of communicable diseases which are liable to occur. During the extensive outbreak of diphtheria which recently occurred fortunately a building for the use of employees was nearing completion and this was utilized for hospital purposes. There is no institution for which a separate hospital for the care of cases of this character is more necessary, and immediate steps should be taken by the board of managers to provide a new and up-to-date hospital for this purpose.

#### SANATORIUM FOR TUBERCULOSIS.

This institution is located at Glen Gardner. The chief officer is Dr. Samuel B. English, and Mr. A. L. Beavers is secretary of the board of managers. The institution is located on the southern slope of a mountain, and the buildings are protected by a wooden elevation in the rear. The exposure is toward the south. The buildings are constructed of cement concrete.

**SERVICE BUILDING.**—The size of this building is approximately 84x106 feet. It was completed in 1907. All buildings of the institution are connected with the sewer. No fire escapes are used as the construction is supposed to be fire proof throughout. There is a cellar under one-half of the building. The floor of the cellar is of cement concrete. The cellar is not well ventilated nor well lighted. There are no objectionable accumulations in the yard. The general condition of the yard is satisfactory. The first floor of this building contains the kitchen, dining room, store rooms, etc., and the rooms on the second floor are for the use of nurses. The rooms are well lighted and satisfactorily ventilated. Electricity is used for lighting purposes, and steam for heating. The floors and sidewalls of the building were in cleanly condition. The water closet apartments are located on the first and second floors. The fixtures are of the syphon type, and are flushed from cisterns. The water closet apartments were in cleanly condition. The laundry is located on the first floor, and is thoroughly equipped with modern appliances.

The kitchen is located on the first floor of the service building. It is lighted by four windows about 3'6"x11 in size. The floors are of cement concrete and were in good condition. A portable wooden grating covers the floor in front of the range, and also in front of one of the kitchen sinks. These slat covers are poorly constructed from very rough boards, and are therefore exceedingly difficult to clean. They were unclean at the time of inspection. The sinks are constructed of wood with metal lining. These were in poor condition and should be replaced by well constructed metal sinks. The kitchen tables have wooden tops in good condition. The top of the table in bakery is poorly constructed from narrow boards, and contains many open seams that are unclean. The kitchen utensils were cleanly. Windows and doors are screened. Garbage is stored in metal cans in the yard and it is removed each day and fed for the most part to hogs. The personal cleanliness of employees is satisfactory. There is a separate toilet room with closet and basin for the use of employees. Inmates are fed in the general dining hall.

The water supply for the institution is obtained from springs on the premises. Food is stored in a well arranged and well kept store room. The milk supply is from Laker Hopatcong. The refrigerator is located in a first floor room, and was in cleanly condition.

No special facilities for the treatment of contagious diseases other than tuberculosis are provided. Vaccination in time will be made compulsory.

**EAST WARD.**—This building is for male inmates. Its dimensions are 30x132 feet. The building is of concrete and was erected in 1907. There is a basement under the whole building. There are seven rooms in the basement occupied by employees. The floor level of all these rooms is above the ground surface, and the rooms have good light and ventilation. On the first floor there are six rooms 10' 4" x 19' 6" in size, containing three beds each, and two rooms 10' 4" x 27', containing four beds each. There is one ward on the second floor 25' 8" x 64', which contains twenty-six beds. The total number of inmates in this building is 62. There are 13 windows in the ward and two in the small rooms. These windows measure 3' 6" x 7'. Light and ventilation were satisfactory. Beds and bedding were in excellent condition. Bedding is changed twice each week, and the clothing of all patients is disinfected by formaldehyde before being delivered to the laundry. The water closet apartments are placed in the basement and on the first and second floors. The apartments and fixtures were in cleanly condition. On each floor a shower bath and two tub baths are provided. Inmates are required to bathe daily. All laundry is removed to the central building.

**WEST WARD.**—This ward, for the use of women, is an exact duplicate of the east ward above described.

**THE SHACK.**—This building has recently been erected. It consists of two wings 20x44 feet extending west from a central building. The central building measures 22x44 feet in size. The wings are constructed of wood, and the central building of stone. The building is connected with the sewer, and has a cellar under the center only. In each of the two wings there are eight beds. The south-exposure of the wings is entirely open. The central building is heated by hot air. Beds and bedding are changed twice each week, and bedding and beds at the time of inspection were in cleanly condition. Water closets and shower baths are supplied.

#### HOME FOR DISABLED SOLDIERS, VINELAND.

This institution is located in Vineland. John Shields is the commandant, and Dr. J. S. Halsey is the attending physician. The institution is governed by a board of managers. The total number of inmates is 244, of which 87 are male and 157 female. If to this is added 26 absentees it brings the total number up to 270. In addition to this there are 23 employees. At the date of inspection the population of the institution was 267. The buildings occupy a clear space of ground on the outskirts of Vineland. The soil upon which the buildings are placed is dry and sandy. The building is 43½x322 feet. It is constructed of stone, and is connected with the sewer. There is a basement under the whole building, the floor of which is of boards. The basement is well lighted and ventilated. The general condition of the yard was satisfactory. There is one small ward for men, containing 10 beds. There are 91 single and 89 double rooms. They vary somewhat in size. Each room has one or more windows, and the light is sufficient. The rooms are lighted by electricity, and heated by steam. The floors and sidewalls were in cleanly condition, and the examination of the beds and bedding was satisfactory. Bedding is changed once each week. Inmates are regularly supplied with clean clothing. There are water closet apartments on each floor. The closets are mostly of the siphon type, and are flushed by cisterns. The following defects were found in the plumbing: On the second floor, south end of the building, the trap beneath the wash basin. Third floor, north end of the building, trap beneath the wash basin. Third floor, south end of the building, water closet loose from the floor flange and floor. Fourth floor, south end of the building, water closet loose from floor flange and floor.

Inmates are required to bathe once each week. The laundry, which is well equipped, is located in the basement of the main building.

The kitchen is located in the basement and is 15x30 feet in size. It is lighted by three windows 3x1½ feet in size. Board floors were in use at the time of inspection and were in good condition. The condition of the table tops and benches were satisfactory. The floors are covered with zinc. The iron sinks in use is satisfactory. The kitchen utensils are kept clean. Windows and doors are screened. Garbage is stored in wooden receptacles at the rear of a small stable building. It is removed daily and fed to hogs kept in pens at the rear of the power house. About 50 hogs are said to be raised and marketed at the institution each year. The refuse of raising hogs is said to be solely to consume the refuse from the institution. Eleven persons are employed in the preparation and distribution of food. These persons appeared to be cleanly. There are ample facilities for the washing of hands of employees, and clean towels are provided. Inmates are fed in a basement room.

The water used in the institution is from the public supply of Vineland. Food is stored in rooms in the basement. Artificial ice is purchased from a dealer in Vineland. The refrigerator is located in the basement, and is in good condition. The milk used is supplied by N. C. Downs, of Vineland. Milk cans are placed in the refrigerator.

There is no general hospital building, but rooms on the first floor are used for hospital purposes. There is no method provided for dealing with contagious diseases, and no such diseases have been reported during the year.

#### HOME FOR DISABLED SOLDIERS—KEARNY.

This institution is located in Kearny, Hudson County. Major Peter F. Rogers is the superintendent, and Eugene H. Goldberg is the attending physician. The institution is under the control of a board of managers of which Major Rogers is secretary. The total enrollment is 531. There are 13 officers and employees other than inmates. There are 501 male inmates. The buildings are located on high sloping ground on the bank of the Passaic river. Surface drainage is good and light and air are unobstructed. The buildings are frame built on the pavilion plan. All buildings are connected with the sewer. The sewer discharges into a sewer which has its outlet into the Passaic river.

**WARD No. 1.**—This ward is a one-story basement building, measuring 40x153 feet. It was erected in 1888. Ample doors opening near the ground surface provide efficient opportunity for escape from fire. There is a cellar under a portion of the building which measures 40x30 feet. This is above the ground surface and is used as a lounging and smoking room. The floor is covered with boards. There are ten windows measuring 2'6"x6". This room is well lighted and ventilated. There are no objectionable features in the yard. The general condition of the yard is good. There are two wards, one 40x74 feet, containing 50 beds, and the other 20x74 feet, containing 25 beds. The total number of inmates in this ward is 76. In one ward there are 19 windows measuring 3'6"x9", and in the other 9 windows measuring 2'6"x9". Light is sufficient. The floor is secured through ceiling ventilators which connect with a ventilated loft above the wards. The building is heated by steam. The floors are clean, well swept and oiled. The sidewalls are clean. The beds and bedding were in cleanly condition, and clean bedding is furnished each week. Inmates are also furnished with clean underclothing each week. There are three toilet fixtures in the toilet room on the first floor, and two in the basement room. The closets are of the washout and siphon type. They are flushed from cisterns. The toilet apartments and fixtures were in a cleanly condition. There are three bath tubs in the room on the first floor. This building is used as a convalescent hospital for those physically disabled, but not ill enough to enter the regular hospital. Inmates are required to bathe each week.

The general laundry is located in a separate building, and is equipped with modern machinery. The general kitchen is located in a separate building, but there is a small room in ward one with a steam table for keeping the food warm when it is brought from the general kitchen. There is also a dining room in this ward, these arrangements being necessary in view of the physical condition of the inmates which renders them unable to go to the general dining room. The floor of the kitchen is of wood, and was in good condition. The utensils and sinks were cleanly.

**WARD No. 2.**—The dimensions of this ward are 40x153 feet. It is a one-story wooden building, and was erected in 1888. There are ample doors on all sides of the building for escape in case of fire. There is a cellar which measures 30x40 feet under a portion of the building. The floor of this portion is constructed of boards. There are 10 windows in this building which measure 2'6"x6". This basement room is used for recreation. It is well lighted and well ventilated. There are two wards measuring 40x74x16 feet. One ward contains 50 inmates and the other 150. There are 20 windows in each ward measuring 3'6"x9". The light is sufficient. The wards are ventilated through the ceiling into a ventilated loft above. The floors and sidewalls are clean and the floors are regularly oiled. Beds and bedding were in good condition. There are two washout closets in the basement, and also two urinals. These are flushed by cisterns. Inmates are required to bathe each week.

**WARD No. 3.**—This is a one-story wooden building, having dimensions of 40x153 feet. The floors are of boards and cement concrete. In the lounging room in the basement there are 10 windows. A portion of the cellar beneath this ward is used as a store room. There are two wards measuring 40x74x16 feet. There are also two dormitory rooms, one 18x16x9 feet, containing three cots, and one 12x22x9 feet, containing two cots. These rooms are above the ground surface and are well lighted. The total number of inmates is 108. There are 20 windows measuring 3'6"x9 feet in each ward. Light and ventilation is satisfactory. The floors and sidewalls are cleanly and in good condition. Beds and bedding are satisfactory. Bedding is changed each week. Washout closets and urinals are located in the basement. The fixtures and apartments were in a cleanly condition.

**WARD No. 4.**—This is a one-story wooden structure measuring 40x153 feet. It was erected in 1894. There is ample provision for escape in case of fire. This ward is an exact duplicate of ward number three, and the statements in regard to ward three apply to this ward. In wards 2, 3 and 4 the water closets in the basement are intended for emergency uses only. The general privy arrangements for the use of inmates in these three wards are in a separate building located in the rear of the ward. The building is well ventilated and has a flagging stone floor. The offensive odors which were pronounced in the building at the time of inspection were due to the unclean condition of latrines, seats and urinals.

**LAUNDRY.**—The laundry is located in a separate building. Inmates are divided into groups, and the time of bathing is so arranged that the small number of tubs are used to serve each person at least once each week. **KITCHEN.**—This apartment adjoins the dining room. Its size is 40x40 feet. It has eight windows. The floor is of cement concrete with rather rough surface. The sink is of wood and is copper lined. A steam dishwasher is used. Table tops are covered with zinc. The cleanliness of

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utensils and tables was only fair. The windows and doors are not screened. Garbage is placed in barrels on an elevated wooden platform directly beside the fence separating it from the sidewalk. The barrels are covered, and the barrels and platform are unclean. Garbage is removed daily by a farmer. Employees use the general privy and also have a urinal without a flush beside the fence in the yard near the kitchen door. At the time of inspection this urinal was unclean and offensive and filled with urine due to an obstruction in the waste pipe. Its construction and condition is objectionable. Kitchen employees wash their hands in the kitchen sink and a very much soiled roller towel for drying hands was noticed at the time of inspection. Inmates are fed in a general dining room adjoining the kitchen. About 200 inmates in the hospital take their meals in the dining rooms connected therewith.

The water supply is obtained from a bored well located on the grounds. This well is 600 feet deep. The general food supply is kept in a store room beneath ward three. The ice box in which meats are kept, and the rather poorly lighted portion of the basement in which it stands, were not in cleanly condition at the time of inspection. The ice supply for the institution is purchased from local dealers. More attention should be paid to cleanliness in the various kitchens connected with the institution.

**HOSPITAL.**—Four wards projecting from a central point are used for a hospital. These wards contain about 100 beds. This hospital is in addition to that which has been described in ward one. The general hospital has a dining room attached, also baths and wash rooms, and is equipped so that it can be run independently of the other buildings. The toilet rooms in the hospital are rendered unnecessarily dark by reason of high seven foot partitions separating the closet and bathing fixtures. The closets were not in a cleanly condition. A small room at the end of one of the wards is used as a detention room for incurable cases, and during the past year one case of tuberculosis has been kept in this room. There is no provision in the institution for isolating contagious cases, and in view of the advanced age of the inmates the necessity of a separate hospital for this purpose is doubtful.

## STATE NORMAL SCHOOL—TRENTON.

This institution is located in Trenton. Prof. J. M. Green is the principal of the school. The pupils employ physicians of their own choosing, and there is no regularly appointed medical attendant. The institution is under the supervision of the State Board of Education. The total number of students is 888, 22 of which are male and 866 female. The buildings are located on dry ground with ample light and air space surrounding. They are constructed of brick and connected with the sewer. The buildings include north, center and south halls for girls, and one dormitory for boys, all connected with the school administration building in which is located the kitchen, bakery, store rooms and girls dining room. This building is of brick. The buildings show alterations and extensions which have in some instances resulted in leaving some toilet and basement rooms dark. The cellar is fairly well ventilated and lighted under most of the building. The cellars are kept in a cleanly condition. There is one privy vault on the premises 8'x8'x12'. This large privy vault is maintained for the use of a few male employees. It is located not more than 70 feet from a dormitory and 60 feet from the kitchen window. Information was obtained showing that the vault has not been cleaned for many years. The yard was free from objectionable features other than the privy vault and the garbage receptacles. The dimensions of the rooms in the various halls were not taken, but they are ample in size and provisions for light and ventilation is adequate for the number of occupants in each room. Not more than two persons occupy any one room. The rooms are lighted by electric light and gas, and heated by steam. The beds and bedding in the rooms examined was in cleanly condition. A change of bedding is made each week.

The bathing facilities for the pupils and teachers occupying rooms in south and center halls, are located in three rooms opening from the main hall on the second floor of the main dormitory. In one room 20'6"x17'3"x10'0", on the west side of the hall, there are seven porcelain enameled iron tubs and one washout water closet. Each tub is in a separate compartment, 5'0"x6'5", set off by wooden partitions about seven feet in height. The room is lighted by one window 2'8"x6'0" and one sky light 3'9"x7'6", while the light which enters through these openings is adequate for the center of the room, the tub compartments are dark. Ventilation is by the one window and a circular opening, 12 inches in diameter, leading from the sky light well to the outer air. The seal of the washout water closet trap in this room is broken by syphonic action, when

waste liquids from other fixtures are discharged into the drains. Drain air is also let times, forced into the room through this trap seal by the pressure exerted by waste liquids passing through the drains.

The joint between the brass furrel connecting the branch lead vent with the cast iron vent pipe, for this closet trap, is defective.

In an adjoining room, 20'6"x8'6"x10'0", there are four porcelain enameled iron bath tubs in compartments 5'2"x5'6", set off by 7 feet board partitions. Light and ventilation for this room is from one window, 2'8"x6'5", through which no direct sunlight enters. The tub compartments are dark and inadequately ventilated.

In a room 14 feet x9 feet x10 feet, on the opposite side of the hall, are three porcelain enameled iron tubs in separate compartments, 4'8"x9'9", set off by board partitions seven feet high. This room has one window, 2'8"x6'5".

Eight porcelain washout water closets are located in compartments, 2'9"x4'4", in the main hall. Two of these water closet compartments receive direct light from one window and two from a skylight opening above them. Four are inadequately lighted. All are ventilated directly into the hall. One porcelain slop sink is located in a totally dark closet on this floor.

The wooden floors in the water closet and bath rooms above referred to are covered, in the bath and closet apartments, with galvanized sheet metal and, in the halls and passages, by linoleum. The metal floor covering is open to the objection of breaking and exposing jagged edges, which are liable to cause injury to the feet of persons using the baths and, through breaks in the metal covering, waste metal is brought through to the wooden floor beneath. Heat and steam incident to the use of the bath rooms causes curling at the edges of the linoleum floor covering beneath which dust and dirt accumulates and is difficult to remove.

The restricted size of some of the compartments in which tubs are set necessitated placing the fixtures close against the board partitions, thereby rendering poor light at the ends of the tubs difficult.

All of the separate apartments in which closets and tubs are placed are inadequately lighted and ventilated.

The material of the floors and floor coverings, and the wooden wainscoting and partitions which surround the tubs, are poorly adapted for toilet rooms in an institution of this character.

There are 14 dormitories for the use of about 250 pupils and teachers occupying rooms in South and center halls.

In North Hall there are three porcelain washout water closets and one slop sink located in a space, 3'8"x13'0"x9'9", divided into box like compartments by wooden partitions. There is one window 2'8"x5'1", opening from one end of this narrow room beneath a porch in the shadow of the walls of the building. No direct sunlight, and but very little diffused light, enters this room making artificial light necessary on the brightest days.

On the second floor there are four washout water closets in a room, 6'6"x13'4"x9'6", separated by board partitions into compartments 3'9"x3'6". On a window 6'5"x5'0" furnish light and ventilation. The bath room adjoining on this floor is 10'9"x14'0"x9'9" and contains four porcelain enameled iron tubs in compartments set off by wooden partitions seven feet high. The room is lighted and ventilated by two windows, 2'8"x5'1", through which direct sunlight enters two of the bath tub compartments; the others are made dark by reason of the high partitions. The water closet and bath tub arrangement on the third floor of the building is an exact duplicate of that on the second floor except that the height of the ceilings in the rooms is six inches less. The floors in the bath and closet apartments are covered with sheet metal, while there is no covering over the rather rough wooden floors in other parts of the rooms.

Bathing is not compulsory. The laundry is located on the ground floor, and was in good condition. The kitchen is located on the first floor. It is of ample size and has five windows. The floors are of wood and are in good condition. The sinks are of stone with copper lined sink drainers. The table tops are of wood, and mostly covered with zinc. The kitchen was in excellent condition. The windows and doors are screened in summer. Garbage is stored in wooden barrels. Removal is by a private party. The barrels are kept on a stone cement concrete floor, and protected by a wooden enclosure from view but not from flies. Garbage is removed three times each week and fed to hogs.

There are 29 persons employed in the preparation and distribution of food. Personal cleanliness of employees is satisfactory. There is no special toilet arrangement for employees. There are ample facilities for washing hands, and clean towels are provided. A separate dining room is provided for girls and one for boys on the ground floor.

The water supply for drinking purposes is obtained from the city mains. It is delivered through a range boiler connected with water backs in the

kitchen range, and piped to water coolers located at convenient points in the various buildings. In the water coolers the water is cooled by direct contact with artificial ice. No examinations were made to learn to what temperatures the water is raised by the method of heating referred to, nor the variations in temperatures which evidently occur at different times.

Food is stored in clean and well kept store rooms in the basement and on the first floor. Artificial ice is purchased from Trenton dealers. The refrigerators located in the basement and on the first floor were in good condition. The milk supply is obtained from J. H. Longstreet, of Bordentown. Milk is stored in kettles holding about ten quarts and kept in a separate refrigerator.

Four rooms, containing seven beds, located in the central portion of the building are used for the care of hospital cases, with the exception of cases of contagious diseases. A separate two-story brick building, located 15 feet in the rear of the dormitory buildings, is used as servants quarters, and as a contagious disease hospital. On the second floor of the north end of this building are eight box-like rooms each 7'6"x7'6"x8' in size which open into a central hall 2'8" in width that are used for the reception and care of cases of contagious diseases. Six rooms on the first floor in the north end of the building are occupied by women employees, and male employees occupy rooms on the first and second floors of the south end of the building. One case of German measles was reported on May 11, 1908. No tubercular cases are received. Vaccination is only required in case of the existence of small-pox. A very complete list of all cases of illness occurring among the inmates is kept.

#### SCHOOL FOR COLORED YOUTH—BORDENTOWN.

Following is a report of an inspection of the Manual Training and Industrial School for Colored Youth, made January 14, 1909. The institution is located in Bordentown, Burlington County. The Chief officer is J. Thomas Caruthers. Dr. William H. Shipp, of Bordentown, is the attending physician. W. D. Forbs is chairman of the sub-committee of the State Board of Education which has supervision over the institution. The total number of inmates is 102, of which 51 are male and 51 female. Fourteen teachers are employed. The buildings are located on high dry ground on the south bank of the Delaware river. There are four brick buildings, and the others are of wood. All buildings are connected with a sewer which drains into the Delaware river. No plans of the sewer system are on file.

**ADMINISTRATION BUILDING.**—This building is 60x90 feet and is constructed of brick. It was erected in 1904. It has no fire escapes. There is a basement under the whole building. The floor of the cellar is made of cement concrete, and there is an outside entrance to the cellar. The cellar is well ventilated and generally well lighted. Vegetables and food are stored in the cellar. The bell is broken from the floor trap in the corridor. There are two privy vaults on the premises, one near the dormitory and one in the yard of the farmer's dwelling. While the privy vault near the dormitory is said to be used at times by students there are ample toilet arrangements in the building, and there appears to be no necessity for the maintenance of this vault. The yard in general was in good condition. There is but one room in the building used as a dormitory for students. This room contains 4800 cubic feet of air space, has three large windows and is occupied by six students. The instructor having supervision over the part of the building in which this room is located stated that no windows are opened for ventilation during the time the room is occupied. Four teachers or attendants also sleep in this building. Other portions of this building are used for school rooms, offices, dining room, kitchens and store rooms. There are a sufficient number of windows in the various departments, and the light is ample in all the rooms above the basement. The school rooms are ventilated by an artificial system, supplemented by natural methods. The lighting is by kerosene lamps. The building is heated by steam. The stairs and the floor of the rooms used as a dormitory were not in a cleanly condition. The bedding in the dormitory was untidy in appearance. Bed clothing is changed each week. Inmates furnish their own clothing, and underclothing is washed each week. Water closets are located in the basement. They are what is known as the "Cottis International" system. The fixtures are very badly flushed by direct connection to the water supply pipe. The fixtures are clean. The toilet apartments are unfinished. The plastered walls in the boy's toilet room were unclean, and covered with pencil writings and scratches made by pointed instruments. There are two bath tubs in each of the two toilet rooms in the basement, and inmates are required to bathe once each week.

**LAUNDRY.**—The laundry is located in a separate building, and is equipped with porcelain tubs and hand washing machines. The kitchen is located in the basement room, and is 15x24x10 feet in size. There are two windows and the light is sufficient. The floors are of cement concrete with rough surfaces. Sinks are of iron and were in good condition. Table tops are made of narrow boards with open seams and were in good condition. Table organic matter, and at the time of inspection the table top were unclean. Kitchen utensils were in fairly good condition. Windows and receptacles kept in the kitchen and in the corridor in the basement. This situation take part at various times in the cooking, and are fed in the kitchen for domestic service. There are no arrangements for the washing of hands of employees in the kitchen. The students are fed in the dining room in the basement of the administration building. As the room is below the level of the ground, the porch on the south side of the building water is pumped from the Delaware river into metal lined tanks in the attic of the administration building and girls dormitory, and distributed through pipes throughout the building for all uses except drinking purposes. Drinking water is obtained from the public supply of Bordentown, and is brought to the premises in covered barrels which are kept in the basement store room was in good condition. The refrigerator located on the premises, and four cows are kept. Several calves and four cows with pigs are kept in the cow barn. The stable and cows were unclean. Milk is stored in cans in the refrigerator.

**GIRLS DORMITORY.**—The dimensions of this building are 40x142 feet, 1908. There is a cellar under the whole building, and the cellar floor is of jectonable accumulations were noticed in the cellars. The building is divided into four dormitories or rooms, and each of these divisions accommodates 18 pupils. The light is sufficient and ventilation by windows satisfactory. Kerosene is used for lighting purposes. The buildings are heated by steam. The floors and side walls were clean, and the beds and the water closets are of syphon variety. The bedding is changed once each week. The water closets are of syphon variety. The water closet apartments and room, and inmates are required to take weekly baths.

**THE MANSSION.**—This building is about 35x60 feet and has two and one-half stories. It is of frame construction. There is a cellar under the building. There are two outside entrances to the cellar. The cellar has six windows, measuring 1 1/2x3 feet, and four windows measuring 3x3 feet. The cellar is well lighted and ventilated and is used for the storage of vegetables. Some rubbish has collected in the cellar. There is a privy vault near the building which is merely a large hole in the ground beneath the privy vault. There was very little accumulation of fecal matter, and it is evident that this vault is seldom used. Thirty students and ten employees reside in this building. There are several rooms which are occupied. These vary in size and also in the number of occupants. Most of the rooms are too small, and do not allow of sufficient air space per occupant. The building was not originally intended for the purpose for which it is at present used, and a change should be made so that the house is so divided as to make ample room for its occupants. The only method of ventilation for the rooms is by windows and the ventilation is insufficient. All rooms on the third floor have dormer windows which interfere with satisfactory ventilation. Each room has a small window which is 2x3 feet 4 inches in size. The building is heated by steam, and the method of lighting is by kerosene. The floors and sidewalls were not in cleanly condition, and at the time of inspection were soiled and discolored. The beds and bedding used in this building were not satisfactory. Bedding is changed once each week. Students supply their own clothing, and are obliged to furnish all washable garments sent to the laundry once each week. The fixtures are of short hopper pattern. The closets are poorly flushed by a direct flush pipe. The wash room on the second floor contains one water closet, one bath tub and a number of stone wash basins. The wooden floor around the water closets is stained with urine. The floor mop corner of the room. The soiled floor and wet mop give off offensive odors. Inmates are required to bathe once each week.

A new, one-story hospital building is now under construction. During the year cases of mumps and tonsillitis occurred among the students. There are no cases of tuberculosis among the students.

SCHOOL FOR THE DEAF.

This institution is located in Trenton, New Jersey. John P. Walker is the chief officer, and Elmer Barwis is the attending physician. The institution is under the control of the State Board of Education. There are 160 inmates of which 98 are male and 62 female. The building is located on dry ground with ample light and air space surrounding. The construction is of brick. The building is connected with the city sewer.

**MAIN ADMINISTRATION BUILDING AND DORMITORY.**—The material of construction is brick. There is a basement under the whole building. This basement is covered with a board floor, and the joists of this floor are laid in cement concrete. The floors are apparently dry and there was no indication of ground air in the basement. The windows are of ample size, and the light is sufficient. The cellar is also well ventilated. No objectionable accumulations were observed in the yard. The general condition of the yard was satisfactory. There are thirteen rooms in this building in which pupils sleep. The rooms are of various sizes and the largest one contains 20 beds. The smallest room is 15x18½ feet and contains 5 beds. Each room has a sufficient amount of light. The rooms are heated by steam and lighted by gas. Bedding is changed each week. The bedding and beds were in satisfactory condition. The inmates are regularly supplied with clean clothing. There are water closet apartments, bath rooms and wash rooms on each floor. The children assemble in the wash rooms where wash towels and running water are provided. Roller towels are used for drying the face and hands, and the same combs and brushes are used in common. The laundry is located in the industrial building and is properly equipped.

The kitchen is located in the basement and the room measures 21x36 feet. Light is obtained from three windows. The board floor in the kitchen is in good condition. Sinks are of porcelain and iron. Table tops are of wood and partly covered with zinc. Utensils, tables and sinks were in good condition. Garbage is stored in uncovered wooden barrels in the area near the kitchen door. Garbage is removed three times each week, and is fed to hogs. The employees in the kitchen pay attention to personal cleanliness. The employees in the kitchen use the general toilet rooms on the first floor. There are facilities for washing the hands and clean towels are provided. The inmates are fed in a basement room which is well lighted. The water supply is obtained from the city supply at Trenton. The water supply for drinking purposes passes through a range boiler connected with the kitchen range, and is distributed through a separate line of piping to water coolers in various parts of the building. Water is cooled in the pipes and does not come in contact with the ice. Sanitary drinking fountains are provided at each cooler and common drinking cups are not in use.

The hospital is a separate two-story building with four wards, each containing seven beds. In addition to this there is a physicians room, drug room and diet kitchen all well equipped. The two wards on the second floor of the building are intended for use in case of contagious disease. The arrangements of the building are such, however, that the entire building can be used in case of such an outbreak. Cases of rubecola and measles occurred in February, 1908, and resulted until May, 1908. The former is of the former and 17 of the latter named disease. It was stated that all those suffering from measles were first affected by rubecola. Well developed cases of tuberculosis are not received nor permitted to remain in the institution. Children are vaccinated before entering the institution.

SCHOOL FOR FEEBLE-MINDED GIRLS AND BOYS—VINELAND.

This institution is located in Vineland, Cumberland County. E. R. Johnstone is superintendent, and Dr. Louise Patterson is the resident physician. Dr. John S. Halsey, of Vineland, is the visiting physician. The institution is under the management of a board of directors. The total number of inmates is 330 of which 258 are male and 122 female. There are 91 employees, making a total population in the institution of 471. The buildings are well separated and surrounded by ample grounds, and are located on a dry and sandy soil. The discharge pipe from each building is connected with a separate cesspool from which sewage is pumped to a newly constructed sludge basin. Openward filtration sewage disposal beds are also to be constructed on the institution grounds. There are four buildings, viz., Etard, Bridgeman, Seguin and H. C., the cesspools for which have no connection with the general sewage disposal plant.

The milk supply for the institution is produced on the premises. About 400 quarts of milk are produced daily. Milk is stored in cans partially submerged in a small vat in the milk house located near the dairy barn. The milk house is very small and poorly equipped for handling this amount of milk in a satisfactory manner. The milk is also subjected to the steam and odors incident to washing cans in this small room.

The general hospital for the use of the institution is a two-story building called the Wister hospital. It is well constructed, but poorly arranged for hospital purposes. In the various small rooms in the hospital building forty beds can be placed. There is but the one hospital building on the institution grounds. General hospital cases can be transferred to a ward in some one of the dormitory buildings, and contagious disease cases can be placed in the hospital building at an outbreak of contagious disease require it. Nineteen cases of chicken-pox have recently occurred in the institution. Two attendants were treated for diphtheria in the hospital building during the month of July last. Cases of tuberculosis are placed in the hospital building and kept in an out of door room constructed on the second story of the back porch. Vaccination is only required in case of the prevalence of small-pox.

**MAXHAM COTTAGE.**—This building is 45x90 feet in size, and is constructed of brick. It was erected in 1900. There is a basement under the whole building. One-half of the basement has a concrete floor. The cellar is well lighted and ventilated. A small supply of vegetables is stored in the cellar. The yard is in a satisfactory condition. There are two wards in this building which measure 19x35x12 feet, and there are two end rooms with two beds each. The total number of inmates exclusive of employees is 36. Ventilation is secured by the fan system. Gas is used for lighting purposes, and the building is heated by steam. Beds and bedding were in excellent condition. There is a water closet apartment on the second floor for the use of inmates. The fixtures are of syphon type, and they are flushed from cisterns. The water closet apartments and fixtures were in cleanly condition. There are tub baths located on the second floor, and toilet rooms fitted with stationary wash stands. The six children assemble for morning baths in the two wash rooms. Separate combs and brushes are provided, and there are four roller towels in each room. Roller towels or other towels for use in common among the inmates are supplied in most of the buildings. Inmates are required to bathe at least once each week. The laundry is located in a separate building in which the inmates for the institution do their own washing.

The kitchen in this building is for the use of employees only. It is 18x13 feet in size. The floor consists of boards laid over cement concrete, and at the time of inspection was in good condition. The condition of the iron sinks which are in use is satisfactory. Table tops are of wood covered with zinc. The floor is in cleanly condition. The fixtures are in use for the collection of garbage, and these are to be used in all of the cottages in which food is prepared and served. Garbage is fed to about 100 hogs which are on the premises. The hog pens were in cleanly condition. Twelve persons are employed in the preparation and distribution of food in this building. The personal cleanliness of employees is satisfactory. There is a general toilet room for employees, located on the first floor. All employees are required to cleanse their hands before entering the kitchen. The water supply is obtained from deep wells located on the institution grounds. It is supplied from a high storage tank. The food for use in this building is kept in a cleanly well arranged store room, store room from which supplies are issued to the various buildings on the institution grounds. Artificial ice for use in the institution is purchased from a dealer in Vineland. The refrigerator is located in the basement, and upon examination was found to be in a cleanly condition.

**WILBUR COTTAGE.**—This cottage is about 50x80 feet in size. It is constructed of brick, and was erected in 1899. There is a basement under the whole building. One-half of the floor is cemented. There are six wards containing 64 beds. The total number of inmates is 57. Eleven windows about 2x4 feet in size give light. The unused portion of the cellar is not well lighted. Latrine water closets, which are flushed by automatic tanks, are used in this building. The water closet apartments were in cleanly condition, especially considering the long time in which the fixtures have been in service. The combs and brushes in the wash room are used in common by the inmates, and towels are also used in common.

The kitchen is located on the first floor, and cooking is done for 125 inmates. The size of the kitchen is 15x13 feet, and it is lighted by three windows of ample size. The fixtures are of boards over zinc. The iron sinks in use were in good condition. All table tops consist of boards covered with zinc. Brooms, brushes and floor mops for use in this kitchen are stored in an inside, dark and unventilated closet in this building. The plan adopted in some of the other cottages of keeping these articles on the outside porches in slat enclosures is much to be preferred. For other details in regard to this building see report on Maxham Cottage.

**MOORE COTTAGE.**—This building is constructed of brick, and measures 40x60 feet. It was erected in 1882. The total number of inmates is 2. It is connected with the sewer, and there is a cellar under the whole build-

ing. Light is supplied by 19 windows about 2½x3 feet in size. The cellar is well ventilated and well lighted. There are five wards containing in all 27 beds. Water closet apartments are located on the first and second floors, and the apartments and fixtures were in cleanly condition. Tub baths are located on the second floor. Separate combs, towels and brushes are used in the wash room.

**SEGUIN COTTAGE.**—This building measures 30x40 feet with an addition 20x30 feet. It is of frame construction. The building is not connected with the sewer. There is a very small cellar under a portion of the building. The building contains six rooms having 23 beds. The total number of inmates is 23. Short hopper closets are used in the water closet apartments on the first floor. The apartments and water closet fixtures were in cleanly condition.

The kitchen for this cottage is located on the first floor. It is 18x24 feet in size. There are six windows of ample size. The floor is constructed of boards, and was in good condition. Iron sinks are used. Table tops are covered with oil cloth. The kitchen throughout was in cleanly condition. Inmates are fed in a dining room and kitchen combined. Food is stored in cupboards in the kitchen.

**JANE S. ROBBINS COTTAGE.**—This building is constructed of brick. The total number of inmates is 96 exclusive of employees. Ventilation is secured by the fan system, and heating is by steam. The closet apartments and fixtures were in cleanly condition. Shower baths are used. Inmates are required to bathe once each week.

**CATELL COTTAGE.**—This cottage adjoins and is connected with the Robbins Cottage. It is constructed of brick and was erected in 1899. The number of inmates is 55. The building contains seven wards, and 55 beds. The building is lighted by electricity, and heated by steam. The kitchen is located in the basement, and measures 20x40 feet. The cleanliness of the kitchen is entirely satisfactory. Inmates are fed in a basement dining room. About 170 inmates from this and surrounding buildings go to the dining room for meals. The latrines which are in use in this building are old, and the interior walls are discolored and rough.

**H. C. COTTAGE.**—This building measures 20x30 feet, and is a frame building. The cellar is well lighted and ventilated. Vegetables are stored in large quantities in this cellar, and also a number of pumpkins. Some of the pumpkins were decayed and emitted offensive odors. These were being removed at the time of inspection. There are two wards in this building each containing seven inmates. The general condition of the building was very satisfactory, considering the low grade of patients which reside in it. The cleanliness of the toilets, and in fact the general cleanliness of the cottage is commendatory.

**ITARD COTTAGE.**—This building measures 40x60 feet. It is constructed of frame and brick. There are two wards containing 42 inmates. The ventilation is secured by artificial means, and lighting is by electricity. The building is heated by hot water. The floors and sidewalls were clean. The building is occupied by a low grade of inmates, and it is therefore more difficult to keep it in a cleanly condition. However, the report shows that throughout every effort was made to secure sanitary conditions. The kitchen is located on the first floor in the old portion of the building. It measures 15x15 feet. It is well lighted and ventilated. The floors, utensils and table tops were in a satisfactory condition. Garbage is stored in metal cans, and is fed to hogs on the premises. The cleanliness of employees is satisfactory.

**BRIDGEMAN COTTAGE.**—This cottage is used as a dormitory for men. It is of frame construction. The cellar has concrete floors. There is one ward, containing 16 beds, and two rooms containing two beds each. Total number of inmates 18. The rooms are well lighted and ventilated, and the sanitary condition of the entire building is satisfactory.

**Sanitary Inspections.**—Frequently local boards of health are called upon to deal with nuisances when there is some doubt as to whether action should be taken for abatement, and the problem is presented as to the proper method of legal procedure to be adopted if it is determined that a nuisance exists. Valuable advice and assistance is given by the State Board of Health under such circumstances, and useless and expensive litigation is avoided. When the assistance of the central bureau of health is sought an opportunity is given the representative of the board not

only to advise in reference to dealing with the nuisance which is under consideration, but also to awaken the interest of members of local boards of health, to plan methods of dealing with communicable diseases, and to present an outline of the duties and responsibilities of each individual member of the local board of health. Often times one meeting with a local board of health results in changing an inactive board into an active and useful one. The Division of Medical and Sanitary Inspection has been called upon in over thirty sanitary districts to investigate nuisances, and the reports as to a few of these inspections which are of special interest, are given herewith.

At Mays Landing, Atlantic County, the public school building was inspected, and it was found that in one of the rooms in the building the amount of cubic air space was scarcely sufficient for the needs of the pupils. The garments of the pupils are hung on hooks on the sidewalls so that the garments touch each other. Common drinking cups were in use, and separate towels for the use of pupils were not provided. There were three privy vaults in the yard containing large quantities of human excreta which was exposed to flies. In the kindergarten department the air space allotted to each pupil was 164 cubic feet. The drinking water in the school was kept in pails and supplied with a single drinking cup. The conditions above described were referred to the State Superintendent of Public Instruction, and a communication was addressed to the board of education, drawing attention to the defects and requiring that some action should be taken by the board looking toward improved sanitary conditions.

The public school at Lyndhurst, Bergen County, was inspected, and it was found that the cloak room was located near the toilet apartments, and that there were no separate compartments in which to place the clothes. The latrine closet system which is in use in the school is of modern pattern and properly installed, and there was nothing objectionable either in the closets themselves or in the manner of construction. The location of the cloak rooms in the building, however, was highly objectionable in that the pupils visiting the cloak rooms and toilet apartments were brought in close contact, and the garments in the cloak room were exposed to objectionable odors. The attention of the board of education was directed to these objectionable features, and action will be taken to remedy them.

Complaints are received from time to time from the various portions of the State in reference to nuisances caused by the transportation of manure on railroad cars to the various districts



of the State. The railroad companies have usually limited the time in which the manure is delivered to farmers to the colder months of the year. The attention of the State Board of Health was directed to a nuisance at Hazlet, in Raritan Township, Monmouth County, where the citizens complained that the odors arising from the manure on the cars near the railway station was such as to compel them to close the windows of the houses. During the spring and winter over 900 tons of manure were deposited near the station at Hazlet, and was allowed to remain there during the summer. As a result it became the breeding place for numberless flies. In addition to the above during the month of May 157 car loads of manure were brought on the Central Railroad to Hazlet. These cars were unloaded on the siding located about 300 yards south of the depot. At the time of inspection eight cars on the side tracks were being unloaded by farmers. As the result of the inspection letters were addressed to the Superintendent of the Long Branch Railway Company, requesting that the matter should receive immediate attention. The responses to these communications stated that every effort would be made by the transportation company to shorten the time in which manure is delivered to the locality, and to avoid as far as possible unloading of the manure during the spring and summer.

The attention of the board was directed in January 1909 to unsanitary conditions existing at a school house in Hoboken. This building is known as No. 5, and is located at the corner of Second and Clinton Streets. This section of Hoboken originally consisted of meadow land, and where the school building is located a small creek at one time had its course. The building is constructed on piling. At the southerly end of the building it was found that the depth of the cellar was only three and one-half feet, and at the northerly end there was a depth of six and one-half to seven feet. The ground in the vicinity of the school is subjected to the fluctuations of the ground water level due to the rise and fall of tides in the Hudson river. At the time of inspection the cellar was half full of water. As a result of this investigation a communication was addressed to the board of education in which the suggestion was made that the cellar should be filled with clean earth and cinders to the floor level, and a cement floor should replace the present floor which is of wood.

An inspection was made of a school building in Cranford, Union County, in which the kindergarten department was placed in the basement and to which location the parents of the children in attendance upon the school had made serious objection. One

of the principal objections found to the room was that the air was drawn from the cellar floor through the temporary board floor which had been placed in the kindergarten department. As a result whenever a window was open there was a continuous draft. The conclusions in regard to the investigation were that although the room might be useful temporarily for instruction, its use as a permanent class room was not advised. As there was ample room for the accommodation of these children in the high school, the suggestion was made that all the children in the kindergarten department should be removed from this school to the high school.

For several years complaints have been received from various points along the New Jersey shore in reference to garbage and other undesirable materials which come upon the beach under certain conditions of wind and tide. Last year this matter was thoroughly investigated, and the conclusion was reached that the most of the material which was deposited upon the New Jersey shore was due to the dumping of refuse from the scows of the street cleaning department of New York City. A conference was held with the New York City authorities at that time, and the understanding was reached that this method of disposal of street refuse would be discontinued. A reinspection was made during the present year for the purpose of ascertaining what the true conditions were. This inspection showed that there was no evidence of the deposit upon the shore of material dumped by scows from New York City, but that there was considerable objection made by people living along the shore to fish offal which was deposited at times, and on account of its decomposition gave rise to foul odors. The report of the investigation showed that fishermen bringing fish from the fish pounds, before reaching the land, were accustomed to throw back into the sea unsalable fish which were taken in the nets. The fish were cleaned on the shore, and the offal was thrown in the surf to be again returned to the shore. From information obtained during this investigation it would appear that there has been a great improvement this year in the conditions along the shore over that of the past year, and that if the annoyance caused by the deposit of fish offal can be remedied it will be possible to keep the shores of the coast in a satisfactory condition. The local boards of health along the shore were directed to keep careful supervision over the shore line, and to take definite action against any individuals found placing decomposing material in the water along the shore or on the shore itself.

Last year an inspection was made of the camp meeting grounds at Pitman Grove. At that time a number of unsanitary conditions were noted, especially in regard to the disposal of excreta. A meeting was held with those representing the camp meeting association and the representatives of the local board of health, and definite directions were given as to methods to be adopted to improve unsanitary conditions on the camp grounds. A reinspection of the grounds was made during the present year, and it was found that no action whatever had been taken to remedy the unsanitary conditions; that at the time of inspection the vaults under the public privies contained large amounts of uncovered fecal matter; that offensive odors were caused thereby and that flies in great numbers were feeding upon the filth in the vaults; that there was no adequate sewer system for the removal of waste liquids from the dwellings, and that decomposing household waste was thrown upon the ground. A number of shallow wells, with pools of waste liquids near by them, were still in use. The conditions as at present existing upon the camp grounds call for immediate action upon the part of those who are responsible.

Numerous complaints were received from the inhabitants of Keansburg, Monmouth County, in reference to a nuisance caused by a fish rendering establishment located on the shores of Raritan Bay. The investigation made by a representative of this board showed that the nuisance created by the plant was due to the pollution of the air by gases incident to conducting the business in the present manner, and to the pollution of the waters of the bay by the escape of waste liquids from the plant. The fish are brought to the establishment and are there rendered for the purpose of procuring the fish oil, then pressed into cakes and spread upon the uncovered floors to dry in the open air. This material is then sold for fertilizing purposes. The drying floors in use at the plant cover at least two acres of ground surface. In wet weather the uncovered fertilizer material is stored in bulk as it is necessary to wait for favorable drying weather. Under these conditions decomposition progresses rapidly, and foul odors are disseminated around the plant. A considerable amount of decomposing liquids was escaping from the plant and overflowing the surface of the beach into the bay, and a film of grease covered the surface of the water for a considerable distance from the plant. This polluted water at times washed the shores of the beach upon which a number of new dwellings have recently been erected. Everything in and about the plant at the time of inspection was reeking with filth, and the odors which were given off

from the decomposing organic matter were exceedingly offensive. The conditions existing at the plant were such that the nearby residents brought action before the grand jury to secure the indictment of the parties responsible for the nuisance, and the local board of health was directed if necessary to apply to the chancellor for an injunction to restrain the parties from continuing the nuisance.

Unsanitary conditions existing in the Borough of Secaucus were investigated, and it was found that no provision is made in the borough for the disposal of sewage and that house drainage is permitted to flow through the street gutters. The inspection showed that the only permanent and satisfactory method of relief for the existing conditions would be in the introduction of a complete sewer system. The attention of the mayor and common council of the locality was therefore directed to the necessity of taking immediate action looking to the installment of a sewer system in the borough.

The method of disposal of bunk mattresses taken from steamers in Hoboken was investigated, and it was found that the steamship companies which bring immigrants into this country are required by law to furnish to each immigrant a mattress. In sailing from the other side the mattresses which are supplied consist of burlap coverings packed with either seaweed or excelsior. Whenever a case of contagious disease occurs on a steamer the mattress of the patient is immediately destroyed. No complaints in regard to the handling of mattresses have been received by the local board of health of Hoboken for a number of years. At one time there was a complaint that fleas were brought in in the seaweed, but this contention was not substantiated. For over two years it has been the custom of the North German Lloyd Co. to return the mattresses to Europe and have them refilled and renovated there. A dealer in Jersey City secures the mattresses from two companies, viz., the Hamburg and Holland lines. The average number of mattresses which are taken each week from the steamships to his factory is 800. The major portion of the mattresses are filled with seaweed, and the remainder with excelsior. The mattresses are taken from the steamships to the factory, and are there ripped open and the excelsior or seaweed placed into mechanical presses and made into bales. These materials are sold to druggists, furniture dealers and furniture manufacturers, and are used for packing drugs and are also sold for the upholstering of furniture. The burlap covers, which measure six feet by twenty-four inches, are cut into six squares measuring twenty-four by twenty-four

inches. These squares are shipped to localities where it is said they are used to cover barrels in which vegetables are shipped to the New York market. The examination of the mattresses showed that they were not soiled, but it was apparent that should the covering of a mattress be used for the purpose above mentioned, and the mattress were used by a patient having scarlet fever or diphtheria the disease might be transmitted thereby. It is difficult, however, to prove that in any given instance any mattresses have become infected, and the problem of securing the proper handling of mattresses is not easily solved. It is certain, however, that none of these mattresses or the materials of which they are made, should again be used until they have been subjected to some process of fumigation or disinfection.

## Report of the Division of Creameries and Dairies.

GEORGE W. McGUIRE, Chief.

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

GENTLEMEN:—I have the honor to submit herewith a report of the operations of the Division of Creameries and Dairies for the year ending October 31, 1909:

### SUMMARY.

Number of creameries in New Jersey . . . . .	140
Number of creameries licensed during the year . . . . .	116
Number un-licensed at the end of the year . . . . .	24
Number of creameries abandoned during the year . . . . .	4
Number of creameries which have changed owners . . . . .	10
Number of creamery firms consolidated . . . . .	2
Number of licenses revoked . . . . .	15
Number of creamery inspections . . . . .	202
Number of pasteurizing machines in creameries . . . . .	35
Number of creameries which manufacture butter . . . . .	36
Number of creameries which manufacture cheese . . . . .	8
Number of creameries which manufacture condensed milk . . . . .	7
Number of creameries which manufacture casein . . . . .	5
Number of creameries which manufacture ice cream . . . . .	7
Number of suppliers of milk to creameries . . . . .	5,475
Number of quarts of milk received in creameries daily . . . . .	440,422
Number of water samples collected from creamery premises . . . . .	78
Number of letters sent to creamery operators requesting improvements . . . . .	98
Number of inspections of dairy farms . . . . .	1,223
Number of dairy farms visited: first inspection . . . . .	972
Number of dairy farms reinspected . . . . .	251
Number of certified milk plants inspected . . . . .	16
Number of inspections of milk supply of State institutions . . . . .	11
The maximum score recorded in dairy inspections . . . . .	100%
The minimum score recorded in dairy inspections . . . . .	23 1/2%
The average of all the dairy inspections . . . . .	59 7/8%
Number of reports received from veterinarians on the health of animals . . . . .	67
Number of letters sent to dairymen, requesting improvements . . . . .	574
Number of quarts of milk produced daily on 972 farms visited . . . . .	108,003
Number of water samples collected on dairy premises . . . . .	480
Number of applications received from local boards of health requesting dairy inspections . . . . .	29
Total number of quarts handled daily in dairies and creameries inspected . . . . .	548,425
Value of milk handled per day in all of the dairies and creameries inspected, at the value of 4c. per quart . . . . .	\$21,937.00
Per year . . . . .	\$8,007,005.00

INSPECTION.—Through the system made possible by the creation of our new Department, the Division of Creameries and Dairies, we have been enabled during the past year to do work more thorough and satisfactory than any yet accomplished in the history of New Jersey dairy inspection. With the small working force of the Division we have found it impossible even to attempt

the inspection of all dairies contributing to our State's milk supply and in consequence we have adopted a plan whereby the work we are able to do will be particularly effective and give us promise of permanent benefit. In this we have been greatly aided by the hearty co-operation of local boards of health. For example, at the very beginning of our work we received from the borough of Princeton an application for a special investigation of all the sources of milk supplying that borough. This was followed by similar requests from the local boards of health of Asbury Park, Bordentown, Bound Brook, Burlington, Collingswood, Englewood Cliffs, Hopewell, Jersey City, Lawrenceville, Metuchen, Millburn, New Brunswick, Orange, Perth Amboy, Riverton, Roselle, South Orange, Summit and Trenton.

We responded to these requests by thoroughly inspecting all the dairies and creameries supplying the above-named places, and a record of the inspection was given every owner on the Board's official score-card which requires answers to seventy-two questions concerning the condition and equipment of the dairy inspected. Where the score seemed too low for the local boards to accept, we were requested to go over the ground again, and it became necessary for us to make repeated visits to some of the dairies before permission was granted them for the sale of their milk. A number of dairies failed to meet the requirements of their respective boards of health and are under the ban, the sale of their milk being prohibited. This was only done after every effort toward good sanitation had been exhausted, and only when the milk was considered dangerous for use.

During this year seven local boards of health have adopted arbitrary minimum standards for dairy premises, the standard of all of them being fixed at 60 per cent. of the perfect mark, as indicated on the State's official score-card. We also have communications from other local boards that they contemplate doing the same thing.

At first many doubted the wisdom of this plan, but experience has proved it a success where it has an active board to enforce it, such as the New Brunswick board, whose local investigations, coupled with the help of the State officers, show fine results in raising the standard of dairies and the quality of milk from many places in that vicinity. In certain cases of failure to meet this standard, six dairies were excluded, while several took their milk to a market less particular.

During the year the officers of this Division have made 1223 dairy inspections for the purpose of investigating their sanitary

conditions. Every county in the State, with the single exception of Atlantic, is represented in the list given below:

Bergen, 8; Burlington, 248; Camden, 25; Cape May, 1; Cumberland, 1; Essex, 76; Gloucester, 6; Hudson, 63; Hunterdon, 109; Mercer, 67; Middlesex, 48; Monmouth, 119; Morris, 53; Ocean, 6; Passaic, 2; Salem, 10; Somerset, 155; Sussex, 155; Union, 35; Warren, 36.

These inspections were all made at the solicitation of local health boards or citizens who are interested in the purity of the public milk supply. The inspection of each of these dairy farms is recorded on a score-card filed in the office of this Division. The total number of points awarded each dairy represents the condition of the premises found as compared with a standard of perfection. The maximum award of 100 points was reached by only one dairy. The minimum was 23½ per cent. and the average score of all the dairies inspected was 59 per cent. Classified tables showing the number of dairies, the total number of inspections in given localities, and the percentages reached are appended to this report. From these tables can be learned what improvement has been made as a result of the systematic methods followed.

LEGISLATION.—There were two bills introduced in the legislature at the session of 1909, whose object was to increase the power of State and local boards of health in dealing more effectively with extreme cases of unsanitary dairy conditions. The act establishing State and local boards of health, and its supplement approved April 23, 1897, do not expressly confer the same power as the bills in question, nor do they contain so full a description of the conditions under which the sale of milk may be prohibited. The proposed acts would have given all the authority needed to control sanitary conditions on dairy premises. Unfortunately, these bills were defeated, possibly because the opponents were not conversant with their importance.

At the same session of the legislature, an act was passed entitled "A supplement to an act entitled 'an act to secure the purity of foods, beverages, confectionery, condiments, drugs and medicines, and to prevent deception in the distribution and sales thereof, approved March 20, 1907.'" This act, which is Chapter 231 of the Laws of 1909, gives State and local boards of health special power to compel every dairy, creamery, cheese factory, etc., to be conducted in a sanitary way, and provides a penalty of fifty dollars for its violation. This act deals specifically with the subject of food inspection, but it differs from the defeated bills in that it does not confer upon local boards of health the power

to license and control the dairy premises in the same specific way provided for in those bills.

**UNSANITARY DAIRIES.**—We readily took advantage of the power vested in us by the above act (P. L. 1909, Chapter 231) in dealing with an unsanitary dairy complained of by citizens of Englewood Cliffs in Bergen County. The following is a description of this dairy, taken from the report of an inspector:

"Forty-three cows are kept on the premises and about 400 quarts of milk is produced daily. The entire premises occupy an area of about 150 feet square, on which there are two cow stables, milk house, poultry and pig pens, dog kennels and a large manure yard. The place is filthy in the extreme. Little or no bedding is used for the cows. The large accumulation of manure is in a semi-liquid condition, and is very offensive, filling the whole place with a foul odor. Brewer's grains with some molasses feed is exclusively fed to the cattle, and a large cement pit is used for storing the grains. The well is located near the barn, and the sample of water collected from it was found to be highly polluted. On the east side of the stable the ground is strewn with human excrement which helps to render the place most foul."

A very wise provision of the same act is included in Section 8 which says:

"Whenever any person shall violate any of the provisions of this act, the State Board of Health or the local board of health having jurisdiction over the locality in which said violation occurred, shall cause the person so violating this act to be prosecuted for the recovery of the penalty fixed in this act for said violation; *provided however*, that in any case, the said State board or local board may, in their discretion, instead of prosecuting such person for the recovery of such penalty, cause an order to be served on such person, commanding him to discontinue or abate such violation or to make such improvements as may be necessary to abate such violation within a reasonable time, to be fixed by the said board and stated in said order. Such order shall be in writing, and the person receiving such order shall have the right to be heard, either in person, or by attorney, by the board making such order."

Under the provisions of this section, an order was served on the owner of the Englewood Cliffs dairy to abate the violation of said act as set forth in the said order within ten days from October 15, 1909.

Two more cases occurring during the year may be cited to show to what a degraded state some dairies may fall. In the

month of January a communication was received from the superintendent of a county isolation hospital in the upper end of the State, asking for an investigation of a dairy which supplied the hospital with milk. The following is the inspector's report of this dairy:

"The score awarded this dairy was 26 out of 100 points (perfect). The twenty-three cows housed in the three stables on these premises were very dirty; their hides were plastered with manure; the stables were dark; the air in the stable rooms was foul, there being absolutely no ventilation. A cow which had calved while tied in her manger was sick, and the new-born calf laid in the manure yard dead, showing that there was no provision made for housing a sick animal in a separate building. The interior surfaces of the building used as a milk house were covered with decomposing milk and other filth, and the floor contained rubbish of all descriptions. The ventilation was poor, and the odor offensive. The conditions under which milk is handled in this dairy render it unfit as a marketable product."

Subsequently we received the report of a veterinarian employed by the owner himself to examine the cattle, which stated that one cow was recovering from cow-pox, one had tuberculosis of the lungs well advanced, and one other catarrhal conjunctivitis. A report of this dairy was sent to the hospital authorities, and the milk therefrom was immediately excluded.

An investigation in the second case referred to was made through a communication which was received from a health officer in Passaic County. The conditions had become so bad that the Society for the Prevention of Cruelty to Animals had complained to the local health board, who in turn referred the matter to this Board. An inspection of these premises showed that the owner was a man of ample means, who had been selling milk to the residents of a nearby summer resort. The score made of this dairy was too low for it to be considered a fit place for the production of milk. The complaint, however, came too late for us to take proper action in the matter, as the owner had ceased to sell the milk. At the time of inspection of these premises, one cow was found down in the stable and unable to rise. The inspector was informed that she had been in that condition for two weeks. She was poor and emaciated and sores had formed on her sides. The cow was killed in the presence of the inspector. Other cows had been killed on the premises when they had become incapacitated through lack of proper care. The hide of one cow was found hanging on the railing inside of the stable. These premises

were condemned, and no milk has since been produced there for sale.

**VETERINARY CERTIFICATE.**—The adoption by the Board of a veterinary certificate, showing the physical condition of dairy cattle, has resulted in 67 dairymen having their herds examined, thereby enabling us to add from 3 to 8 points to the score of each. This examination is optional with the owner. If the animals in a given herd are examined by a reputable veterinarian and certified to be free from any diseases of the udder, and not suffering from any other disease, 3 points are allowed. If in addition, the tuberculin test has been applied and all tuberculous cows have been excluded from the herd, or none found, 5 additional points or a total of 8 points are allowed. The great fear among farmers of having their herds condemned accounts for the small number of veterinary reports received. This feeling, however, is gradually diminishing and we confidently expect to receive reports from a larger number of dairymen during the coming year, since all of them are anxious to attain the higher award to which an examination of their herds entitles them.

The following is a copy of the veterinary certificate referred to:

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

**REPORT OF VETERINARIAN**

Chief of the Division of Creameries and Dairies,  
 Trenton, N. J.

DEAR SIR: I have examined the dairy cattle of..... (Name)  
 ..... (P. O. Address)..... (Township)  
 ..... (County)..... 19..... (Date), and find the following conditions:

1. Total number of animals in herd.....
2. Number milking.....
3. How many passed veterinary inspection?.....
4. How many were tuberculin tested during the past year?.....
5. Have all cows which react to tuberculin been separated from the herd?.....
6. Are any cows suffering from diseases of the udder?.....
7. Are any cows suffering from any other disease, and if so, state what?.....

Remarks:.....  
 .....  
 .....  
 Signature of Veterinarian.....  
 Date..... 19..... Street and No..... Town.....

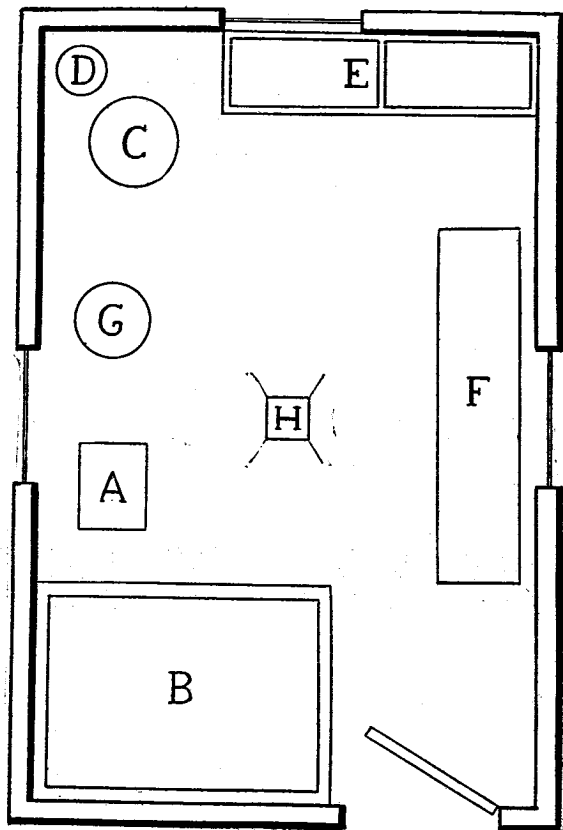
**MILK HOUSE.**—In scoring a dairy we have found that one of the principal factors tending to reduce the score is the lack of a proper place in which to handle the milk, wash and sterilize cans and utensils, and keep them properly protected while not in use. A common practice among dairymen who have no milk house is to set the cans of milk over night in the stable, or kitchen, or some

place about the premises where it is not secured against meddlers or the dust and air of the surroundings.

The cooling of milk and its subsequent handling should be done in an atmosphere that is free from dust, and from stable or other bad odors. Some dairymen have realized the necessity of providing a place for the cooling and storing of milk but have made the mistake of locating the room in a stable building, with a direct opening into the room where the cows are kept. In selecting a site, care should be taken to locate it far enough away from the cow barn to prevent the stable odors from reaching the inside of the milk house, but not so far that the milk cannot be conveniently carried there for straining as soon as it is drawn from the cows. The room should have a cement floor and smooth interior surfaces; all openings should be screened against the entrance of flies, and care should be taken to prevent dust from entering the room while the milk is exposed to the air.

The score-card used by the State Board of Health gives a rating of 7 points on the 7 items included under the heading of "milk house" and it frequently happens that a zero mark is given under this heading simply because there is no special place about the dairy for cooling, straining or handling milk, and therefore it is liable to be kept in the kitchen over night with the lid off, or in a tub of water at the barnyard, whereas if a small milk house was provided, it would not only aid the farmer by improving his system, but the milk would be better by being thus cared for. We have frequent applications for some simple plan of a milk house, and several have been erected since the score-card has been in use. In the case of a small dairy, the expense of a suitable building for the storage of milk need be very small indeed, but in the case of a dairy of from 25 to 50 cows, the milk house must necessarily be a little more elaborate. The floor plan herewith submitted combines the best facilities of several that have come under our observation, and would fit a dairy of the latter kind:

FLOOR PLAN OF A MILK HOUSE FOR A DAIRY OF FROM 25 TO 50 COWS.  
 SIZE 10 FEET X 15 FEET.



A Cooler  
 B Cooling Vat  
 C Stove  
 D Hot Water Tank

E Wash Sinks  
 F Can Rack  
 G Separator  
 H Drainage Outlet.

Many farmers do not feel justified in going to the expense of building a milk house on account of the uncertainty of their tenancy, and the majority of dairymen who are lax in this particular come within this class. If the tenant makes milk his specialty, however, he frequently takes a real interest in his work and endeavors to produce milk which will meet with the approval of the health authorities. In August last we were called upon to inspect a dairy in Union County operated by a tenant, who was doing the best he could with the cheap buildings and meager facilities that he had for his business. This milk was sold in the city of Plainfield, which municipality is blessed with an efficient health officer, an active board of health and a thorough system of milk inspection. The permit system of licensing dairymen is in operation in this town, and samples of the milk of each dairyman are regularly taken and examined. After inspection of this dairy, the rating given was  $67\frac{1}{2}$  per cent. If he had received the full mark for a proper milk house, 4 points would have been added to his score, raising it under this one heading to  $71\frac{1}{2}$  per cent. Yet, notwithstanding this fact, the monthly bacterial count of the milk produced on this dairy for the year averaged only 10,433. The maximum number of bacteria in any one month was 13,000 and the minimum 4500. No sediment was found in the milk during eleven months of the year, and in only one month, January, was there a slight showing. The examination of this milk showed that it was equal to most certified milks, and inquiry into the methods of the dairyman and his system of handling milk revealed the cause of the good results shown. The dairy was a small one, of course, producing only 150 quarts of milk from 13 cows, but it was learned that the owner himself carefully supervises every detail of the work. He informed the inspector that he had been present at every milking during the year, with one exception, and personally looked after every detail in preparing the milk for market, and that his milk was in demand at 10 cents per quart, while many of his neighbors received but 8 cents, and some less. Two photographs taken of this dairy are reproduced for the purpose of showing with what simple equipment a dairyman may produce clean milk, provided each step in its handling is given careful supervision.

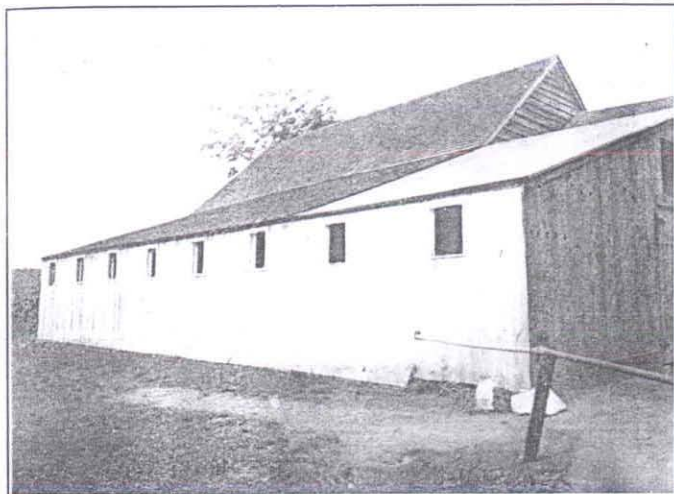
**CERTIFIED MILK.**—There are six establishments in this State which are producing milk of a high grade especially intended for infant feeding and for use in hospitals and sick rooms. These establishments are subject to and come under the provisions of an act passed at the recent session of the legislature entitled "An

act providing for the incorporation of medical milk commissions and the certification of milk produced under their supervision." Section 10 of the above act, which is Chapter 237 of the Laws of 1909 states that the work and methods of any medical milk commission, organized thereunder, and of dairies on which milk is produced under contract with any such commission, shall at all times be subject to the investigation and scrutiny of the Board of Health of the State of New Jersey.

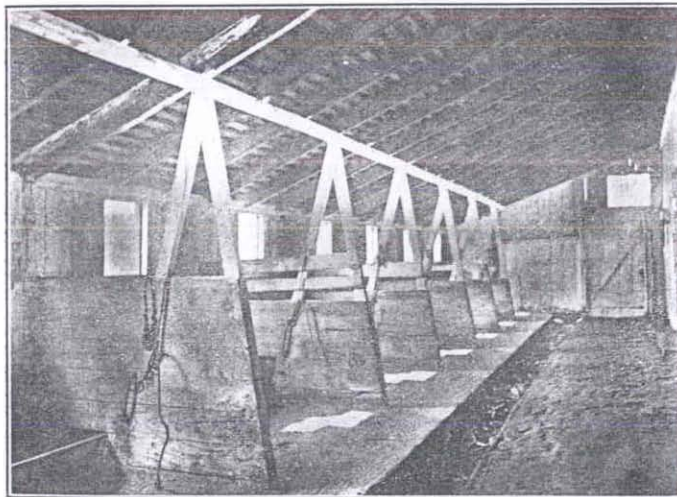
During this year we have made a very careful examination of the methods and equipment used in these dairies and have used the official score-card of the State Board of Health in recording the investigations made of each. The ratings awarded each dairy were as follows: 100 per cent, 96 $\frac{3}{4}$  per cent., 95 $\frac{1}{2}$  per cent., 93 per cent., and 84 per cent. In one case extensive building operations are in progress, and while milk is produced as "certified milk," it was impossible to give them a satisfactory rating on account of the progress of the building work.

The number of dairies handling a high class milk in this State is rapidly increasing. These are equipped with all modern facilities for handling milk and stand well in the matter of veterinary inspection of animals, low bacterial count and sterilized containers. They are thus producing a milk which closely approaches the standard of the certified product. It is therefore quite probable that before another year many of these dairies will have taken advantage of the above act. The score-card now in use by this Board for the scoring of dairies is not entirely applicable to certified dairies, and I would therefore recommend that the Board adopt the card used by the United States Department of Agriculture. The advantage of this score-card is that it records a description of not only the construction of buildings and equipment and the general sanitary condition of the premises, but what is more important, the practical methods used in the handling of milk. The total of 100 points is made up by an allowance of 60 per cent. for methods and 40 per cent. for equipment. Under this system a more rigid inspection of methods is required than is called for by our present score-card.

The evident intention of section 10 of the certified milk act above referred to is that the State Board of Health shall advise with medical milk commissions as to proper rules and regulations to be adopted. I would therefore suggest that the State Board of Health recommend to the medical milk commissions now or hereafter formed the advisability of putting in the contract the regulation that the dairy shall be scored by the Chief Inspector of



View showing exterior of an inexpensive stable in which the milk produced had a bacterial count of approximately 10,000 per cc. for one year.



View showing interior of an inexpensive stable. The milk from the cows stabled in this barn had a bacterial count of approximately 10,000 per cc. for one year.





View showing milk house and polluted well of an unsanitary dairy in which 400 qts. of milk are produced daily.



View showing unsanitary conditions surrounding a dairy in which 46 cows are kept and about 400 qts. of milk produced daily.

the Division of Creameries and Dairies of the State Board of Health in accordance with the requirements of the score-card, and that no milk shall be certified from any dairy which does not score at least 95 per cent.

Following is a copy of the score-card recommended.

**UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF ANIMAL INDUSTRY  
DAIRY DIVISION**

**SANITARY INSPECTION OF DAIRIES**

**DAIRY SCORE CARD**

Adopted by the Official Dairy Instructors' Association.

(Subject to revision at future meetings.)

Owner or lessee of farm .....  
P. O. address..... State.....  
Total number of cows..... Number milking .....  
Gallons of milk produced daily .....  
Product is retailed by producer in .....  
Sold at wholesale to .....  
For milk supply of .....  
Permit No. .... Date of inspection ..... 19 ..  
REMARKS .....

(Signed) .....  
Inspector.

DETAILED SCORE.

INSPECTION OF MILK SUPPLIES OF MUNICIPALITIES.

The following statements give in brief the result of work done at the request of the local boards of health of the respective municipalities. They include the number of inspections made in each locality and the average score attained by the dairies supplying it with milk:

**ASBURY PARK.**—A communication dated July 20th, 1909, was received by the Secretary of the State Board of Health, requesting a thorough inspection of all the dairies supplying Asbury Park with milk. This communication being referred to the Chief of this Department, the work was immediately undertaken and 253 dairies scored. These included a number whose output formed the supply of five creameries. Since the milk delivered to these creameries is all mixed before shipping to the several consignees, it became necessary to inspect the premises of each of the dairies supplying it. The average score of the 253 dairies was 57%; the highest score being 78¼% and the lowest 35¼%.

**BORDENTOWN.**—The inspection of the dairies supplying Bordentown with milk was made at the request of the local board of health in a communication dated December 2, 1908. The work was begun in January, and 48 inspections were made. These include a number of reinspections and resulted finally in the average score of the dairies being raised to 60%. The maximum score was 72¼% and the minimum 49%.

**BOUND BROOK.**—Fourteen dairies were inspected in response to the following communication from the secretary of the Bound Brook board of health: "To the State Board of Health:

"Gentlemen:—Would it be convenient to you to let us have an inspector of dairies? We have not made our spring inspection yet and would like to have a State inspector with us this time. These places are spread over a good deal of ground, and we will furnish means of reaching each one."

After the work suggested in the above letter was finished, the local board was furnished with a detailed report of every dairy inspected. The average score was 59%.

**BURLINGTON.**—An inspection of the dairies supplying Burlington with milk was made at the request of a representative of the local board and was begun in February. Two inspections of these dairies were made, and the result was an increase of 13% in their general average. A number of the wells on these premises were found to be polluted, but the owners have all shown a disposition either to secure new water supplies or to so improve their present sources as to meet the law's requirements. Considerable work is yet to be done for the further betterment of these dairies. The average score thus far obtained is 58%.

**COLLINGSWOOD.**—A communication referred to the Chief of this Division by the Secretary of the Board requested an inspection of all the dairies supplying Collingswood with milk. This work has been practically completed, and the local board furnished with the score of each dairy. 62 inspections were made, which includes the different dairies supplying two creameries. The average score of all the dairies inspected was 54%; the maximum mark being 73% and the minimum 40¼%.

**ENGLEWOOD CLIFFS.**—Two dairies have been inspected in Englewood Cliffs, as a result of complaints from the local board of health regarding the unsanitary conditions existing in one of them. The score of this dairy is 29¼%, and the owner has been notified either to make radical changes in the present

EQUIPMENT.	SCORE.		METHODS.	SCORE.	
	Perfect.	Allowed.		Perfect.	Allowed.
<b>COWS.</b>					
Health . . . . .	6		<b>COWS AND STABLES.</b>		
Apparently in good health . . . . .			Cleanliness of cows . . . . .	8	
If tested with tuberculin once a year and no tuberculosis is found, or if tested once in six months and all reacting animals removed . . . . .	5		Cleanliness of stables . . . . .	6	
(If tested only once a year and reacting animals found and removed, 2.)			Floor . . . . .	2	
Comfort . . . . .	2		Walls . . . . .	1	
Bedding . . . . .	1		Ceiling and ledges . . . . .	1	
Temperature of stable . . . . .	1		Mangers and partitions . . . . .	1	
			Windows . . . . .	1	
Food . . . . .	2		Stable air . . . . .	6	
Water . . . . .	2		Barnyard clean and well drained.	2	
Clean . . . . .	1		Removal of manure daily to field or proper pit . . . . .	2	
Fresh . . . . .	1		(To 50 feet from stable, 1.)	2	
Light: Four sq. ft. of glass per cow (Three sq. ft., 3; 2 sq. ft., 2; 1 sq. ft., 1. Deduct for uneven distribution.)	4		<b>UTENSILS AND MILKING.</b>		
Ventilation: Automatic system. (Adjustable windows, 1.)	3		Care and cleanliness of utensils . . . . .	8	
Cubic feet of space for cow: 500 to 1,000 feet . . . . .	3		Thoroughly cleaned . . . . .	3	
(Less than 500 feet, 2; less than 400 feet, 1; less than 300 feet, 0.)			Inverted in pure air . . . . .	5	
<b>STABLES.</b>					
Location of stable . . . . .	2		Cleanliness of milking . . . . .	9	
Well drained . . . . .	1		Clean, dry hands . . . . .	3	
Free from contaminating surroundings . . . . .	1		Udders washed and dried . . . . .	6	
Construction of stable . . . . .	4		(Udders cleaned with moist cloth, 4; cleaned with dry cloth at least 15 minutes before milking, 1.)		
Tight, sound floor and proper gutter . . . . .	2		<b>HANDLING THE MILK.</b>		
Smooth, tight walls and ceiling . . . . .	1		Cleanliness of attendants . . . . .	1	
Proper stall, tie and manger . . . . .	1		Milk removed immediately from stable . . . . .	2	
<b>UTENSILS.</b>					
Construction of utensils . . . . .	1		Cleanliness of milk room . . . . .	3	
Water for cleaning . . . . .	1		Prompt cooling. (Cooled immediately after milking each cow.)	2	
(Clean, convenient and abundant.)			Efficient cooling; below 50° F. (51° to 55°, 4; 56° to 60°, 2.)	5	
Small-top milking pail . . . . .	3		Storage; below 50° F. (51° to 55°, 2; 56° to 60°, 1.)	3	
Facilities for hot water or steam . . . . .	1		Transportation; iced . . . . .	3	
Milk cooler . . . . .	1		(For jacket or wet blanket allow 2; dry blanket or covered wagon, 1.)		
Clean milking suits . . . . .	1		<b>HANDLING THE MILK.</b>		
<b>HANDLING THE MILK.</b>					
Location of milk room . . . . .	2		Location of milk room . . . . .	2	
Free from contaminating surroundings . . . . .	1		Free from contaminating surroundings . . . . .	1	
Convenient . . . . .	1		Convenient . . . . .	1	
Construction of milk room . . . . .	2		Construction of milk room . . . . .	2	
Floor, walls, and ceiling . . . . .	1		Floor, walls, and ceiling . . . . .	1	
Light, ventilation, screens . . . . .	1		Light, ventilation, screens . . . . .	1	
Total . . . . .	40		Total . . . . .	60	

Score for equipment . . . . . + Score for methods . . . . . = Final Score.

NOTE 1.—If any filthy condition is found, particularly dirty utensils, the total score shall be limited to 49.

NOTE 2.—If the water is exposed to dangerous contamination or there is evidence of the presence of a dangerous disease in animals or attendants, the score shall be 0.

conditions or to abandon the place for the production of milk. This case will undoubtedly be referred to the Attorney General for legal action.

**HOPEWELL.**—Three dairies were inspected at the request of the local board of health, the general average of them being 50%.

**JERSEY CITY.**—The thirty inspections made in this city were all of dairy premises located within the city limits, and were made at the request of the local health officer. The general average of the thirty dairies was 50%, the minimum being 28½% and the maximum 74¾%. These dairies are located in very small areas on ordinary city lots, and the conditions found in the majority of them were extremely bad. In several the milk produced is unfit for food on account of its imperfect manipulation. The local board of health has been notified of these facts and informed that this Board will give any assistance to the city authorities in abolishing or improving the present conditions, but thus far there has been no disposition on the part of the local board to co-operate with this Department.

**LAWRENCEVILLE.**—Nine inspections were made of the dairies supplying milk to the Lawrenceville Schools, this being a continuation of the work performed last year at the request of the Board of Trustees. The general average of all the dairies inspected is 68%. There is a continued improvement in the conduct of these dairies, and the milk produced in them is handled with the greatest care.

**METUCHEN.**—The health board of the borough of Metuchen, in a communication dated May 7th, requested an inspection of the dairies supplying their borough with milk, and in consequence 9 dairies were examined. The average score of these 9 dairies was found to be 70%. The inspection of the previous year showed only 5 dairies supplying the borough with milk, the average score being 63%. The Metuchen board takes a lively interest in the purity of the milk supply, and is insisting that proper sanitary regulations shall prevail in all dairies.

**MILLBURN.**—The inspection of the dairies supplying the villages in Millburn Township, Essex County, was undertaken pursuant to several communications received from a resident interested in the purity of the milk supply, and also from the chairman of the Millburn Township committee. 8 dairies in the immediate vicinity were inspected, and showed an average of 69%. The maximum score allowed these dairies was 93%, and the minimum 49%. There are several high class dairies in this vicinity, which accounts for the high average score. One dealer receives his supply from a creamery, and it was therefore necessary for us to score 33 dairies furnishing this creamery with milk. The records were all sent to the township board of health, and we are informed that they have revised their sanitary code in order that a more stringent supervision may be had over the milk supply.

**NEW BRUNSWICK.**—The history of the inspection of dairies supplying New Brunswick with milk dates from 1907, on the appointment of the present executive officers of the local board. During that year 82 dairies were inspected, and the average total score awarded them was 52%. When the records of these inspections were placed in the hands of the board of health of the city of New Brunswick, and the details examined by them, they revised their sanitary code in order to meet a condition which was anything but satisfactory. Since that time there have been four inspections made of all the dairies furnishing this supply, besides a number of reinspections of condemned dairies and others. These latter were dairies whose owners, on receiving their scores, expressed a desire to bring their places up to the standard required by the New Brunswick board, and the reinspections were made for this purpose.

The last inspection of 98 dairies during the year 1909 shows the results indicated in the tables below. These results are very gratifying, and are similar to those in other localities in which our forces are at work.

TABLE OF 60 DAIRIES SHOWING IMPROVEMENT.

Average score of first inspection.....	56¼%
“ “ “ last inspection.....	68½%
“ increase .....	12¼%

TABLE SHOWING DECLINE IN RATING OF 20 DAIRIES.

Average score of first inspection.....	62¼%
“ “ “ second inspection.....	53¾%
“ decrease .....	9¾%

AVERAGE RATING OF 18 DAIRIES WHICH HAVE NOT AS YET BEEN RE- INSPECTED .....	55%
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The following letter, received from the President of the local board of health of New Brunswick, will serve to show the cooperative interest which has been manifested by that board during the progress of this work:

DEAR SIR:—I take pleasure in sending you herewith a copy of our dairy records. The copy gives examinations made by you and your assistants, as well as the recent inspections made by us. Some apparent irregularities in the figures may be explained as follows:

In certain cases where there has been a considerable advance in the score, there has been a decided improvement either in the way of new buildings or the institution of advanced methods. These improvements are particularly striking in some dairies. In other cases there is an apparent retrogression; this is due in certain instances to the fact that the dairymen are not upon the same farms as in the previous examination. In other instances it is due to the fact that there has been a change in the score-cards; in the first score-card there was an undue credit for many items such as health of stock, water supply, milking methods, etc., while in the new scores we have not given credit to any water supply which has not been examined, or unless the surroundings and all other considerations are favorable. In the health of the cows we have in each instance required a certificate, or its equivalent, a statement, from the veterinary surgeon.

In certain instances we must concede that there has been a relaxation, and we have been obliged to notify six dairies to discontinue.

In going over our records we find that quite a number of our former dairies have discontinued, others have taken their product to places where there are no requirements. For the most part, their places have been filled by a better class of operators.

On the whole we believe that our scoring is fair, and that we can congratulate ourselves upon the average shown.

Yours very truly,  
F. B. KILMER.

**ORANGE.**—113 dairies were inspected at the request of the health officer of Orange, and the record of each dairy was forwarded to the local board of health. Copies of the scores were also sent to the dairymen whose premises were scored, and those falling below 60% of perfection were requested to make such improvements as would satisfy the board of health of that city. Part of the milk supply of Orange is derived from farms in the state of New York, which were all inspected by the local health officer, copies being sent to this office for filing. The average score of the 113 dairies was 61%.

**PERTH AMBOY.**—The local board of health by resolution requested the State Board of Health to inspect the dairies supplying this city with milk. 8 local dairies were inspected, which showed an average score of 50%. The records were sent to the city board of health, and we were subsequently informed that the dairies falling below 60% had been excluded from selling milk in the city. Part of the supply of this city is drawn from four creameries, which were inspected and their records sent to the local board of health.

PRINCETON.—Annual inspection of the dairies supplying the borough of Princeton with milk have been made for several years. During the past year 44 inspections were made, showing an average score of 56%. The local board is active in milk inspection and keeps a watchful eye upon the conditions existing on dairy premises.

RIVERTON.—5 dairies were inspected at the request of the board of health, the lowest score being 40½% and the highest 56%. Copies of the score-cards of these dairies were forwarded to the board of health and letters were sent from this office to individuals whose scores fell below 60%.

ROSELLE.—173 inspections were made of the dairies whose product contributed to the milk supply of Roselle. The total score of these dairies averaged 52%. Several of the dairies were excluded from selling milk in this borough until their methods and sanitary conditions should be improved to such an extent that they would meet the approval of the local board of health.

SOUTH ORANGE.—10 dairies were inspected at the request of the local board of health, and showed an average score of 71%.

SUMMIT.—63 dairies were scored, whose general average was 65%. Letters were sent to all dairymen whose premises scored less than 60%. It was necessary to make several reinspections of the dairies supplying this borough with milk before the needed improvement in some of them was accomplished.

TRENTON.—A communication from the health officer of Trenton, addressed to the Secretary of the State Board of Health was received early in April and referred to this Division. It stated that the Trenton board of health had adopted a recommendation that an inspection be made of all the sources of milk supply coming into that city, and that the State Board of Health be requested to make such inspection. In response to this communication, the Chief of the Department, by invitation, met with the board of health of the city of Trenton and discussed the scope of the work to be undertaken, intimating that it would be necessary for the city board to cooperate in this work by continuing it systematically as far as its jurisdiction extended, and that, after the initial inspection, the Board would reinspect from time to time all dairies which fell below the standard adopted by the local board. 68 dairies were accordingly inspected and a copy of the record of each dairy sent to them. No further work was done, however, because the local board did not consider their present code adapted to the requirements of the proposed new method of dairy inspection. We are now informed that the milk ordinance of the board is being revised to meet these new conditions.

#### INSPECTION OF MILK SUPPLY OF STATE INSTITUTIONS.

Investigations of the milk supply have been made at the following State institutions:

- New Jersey State Hospital, Trenton.
- New Jersey State Hospital, Morris Plains.
- New Jersey Village for Epileptics, Skillman.
- New Jersey Home for Feeble-minded Women, Vineland.
- New Jersey School for the Deaf, Trenton.
- New Jersey Sanitorium for Tuberculous Diseases, Glen Gardner.
- New Jersey State Normal School, Trenton.
- New Jersey State Normal School, Upper Montclair.
- New Jersey State Home for Girls, Trenton.

New Jersey State Reformatory, Rahway.

New Jersey State Prison, Trenton.

The result of these investigations is here given with the score awarded in each case:

#### NEW JERSEY STATE HOSPITAL, TRENTON.

Hospital score, 83%  
Adjacent dairy, 70½%

The milk used in this institution is derived from two sources. 56 cows are kept in the hospital dairy barn, and supply about 536 quarts per day. The balance, about 300 quarts daily, is purchased from a dairy adjacent to the hospital grounds. The hospital dairy is managed by a competent dairyman, and all sanitary requirements are carefully observed. The dairy barn has a brick floor, and is well lighted and fairly ventilated. There are 803 cubic feet of air space per cow. The milk house is separate from the dairy barn and the milk is well supervised until it reaches the kitchens of the institution. The purchased supply is taken directly from the premises of the dairyman to the hospital kitchens. This dairy was awarded a score of 70½%. All of the containers of this milk are washed in the hospital kitchens, where there are good facilities for doing the work. After washing, the cans are inverted on racks in rooms specially built for the purpose.

#### NEW JERSEY STATE HOSPITAL, MORRIS PLAINS.

Score, 83½%

This institution maintains its own dairy of 108 cows, which yield about 150 quarts of milk a day. All of this milk is used in the institution and none is bought from the outside. The cows maintained by the institution are housed in two barns. The main building is of modern construction with cement floors, is well lighted and ventilated, and has ample air space for the cows there housed. The auxiliary building, which is used for the housing of 36 cows, is not so well ventilated as the main building. A milk house in the main building is equipped with a milk cooler and storage vat, through which running water flows constantly. None of the inmates have anything to do with the dairy work. The milkers are provided with white duck milking suits, and the dairy manager gives careful attention to the care of the cattle and the handling of the milk. The milk cans and utensils were old and dilapidated, and the seams were not soldered flush. The report received from the veterinarian shows that part of this herd has been tuberculin-tested, and 5 points have been added to the score first given, raising it to 83½%.

#### NEW JERSEY VILLAGE FOR EPILEPTICS, SKILLMAN.

Score, 90¾%

This institution maintains its own dairy and produces about 250 quarts of milk per day. No milk is used in the institution except that which is produced on the premises. The animals in the dairy have been tuberculin-tested during the year, and all reacting animals excluded from the herd. The cows are housed in a brick building which was found to be clean and well kept. There are 771 cubic feet of air space per cow. The management of the dairy is good. A milk house attached to the stable has a cement floor, and is equipped with a cooling apparatus and facilities for strong containers and utensils. The milk is divided in this room into the quantities required for the different cottages in the village, and is distributed soon after milking.

#### NEW JERSEY HOME FOR FEEBLE-MINDED WOMEN, VINELAND

Score, 76%.

This institution maintains its own dairy, and produces 150 quarts of milk per day from 14 cows. Everything about the dairy was found to be scrupul-

ously clean, the barn having cement floors and smooth interior surfaces. The cow stable is located in a building formerly occupied as a dwelling house. The original building has been added to until it now embraces two horse stables, two cow stables, wagon house, milk house and sleeping room for five helpers. There is also a vegetable cellar under the horse and cow barn. A cement cesspool into which the sewage of the institution is discharged is located about 90 feet from the stable. This cesspool is covered only with a board covering, and odors from it permeate the air of the entire premises surrounding the stable. There is also at the end of the wagon house a cement cesspool or tank into which the drainage from the stable is discharged. This is about the same distance from the cow stable. At the time of inspection, the atmosphere inside of the cow stable was charged with the stench from the sources above named. This is certainly detrimental to the health of the animals while in their stalls and not conducive to the purity of the milk which is handled in the stable.

#### NEW JERSEY SCHOOL FOR THE DEAF, TRENTON.

Score, 50%.

125 quarts of milk are produced daily for use in this institution by a farmer in Ewing Township, Mercer County. These dairy premises were inspected and given a rating of 50% on the official score-card. The low mark awarded this dairy was due to the condition of the stable in which the cows are housed, and not to the methods used by the dairyman in handling the milk. A new stable is in process of construction, which, when completed, will serve to increase the score.

There are 250 quarts of milk produced at this dairy, part of which is re-tailed in Trenton, the remainder being delivered to the School. The milk is well cared for on arriving at the institution.

#### NEW JERSEY SANITORIUM FOR TUBERCULOUS DISEASES, GLEN GARDNER.

Scores, 63½% to 72%.

About 260 to 300 quarts of milk are furnished daily to this institution by a local dealer in Glen Gardner. The milk is purchased from the creamery at Hampton, a distance of about 2 miles from the Sanatorium. 46 farmers supply about 2400 quarts daily to this creamery. The dairy premises of each of these farmers have been inspected and scored, and were rated from 38¾% to 72%. The following recommendations were made by this Board to the trustees of the institution:

That the managers be requested to provide special cans, which shall be used only for the transportation of milk to the institution. Also that said cans be washed at the Sanatorium, and not at the creamery. Also that they be urged to secure milk for the institution from a source where the sanitary conditions can be depended upon to render the milk safe at all times. This institution, probably more than any other in the State, should own its own dairy, and secure competent help to manage it, in order that the patients may be provided with clean, fresh milk.

#### NEW JERSEY STATE NORMAL SCHOOL, TRENTON.

Score, 63½%.

The milk supply of this institution is produced on a farm near Bordentown and is carted to the Schools every morning, arriving there at about 8 o'clock. The milk in the transportation cans is divided into smaller cans owned by the Schools, and immediately placed in refrigerators. The milk is carefully looked after by the persons in charge of the refrigerators. The students are allowed all the milk they wish for breakfast and lunch, and about 175 to 200 quarts per day are consumed. An inspection was made of the dairy producing this milk and a rating of 63½% allowed.

#### NEW JERSEY STATE NORMAL SCHOOL, UPPER MONTCLAIR.

Scores, 68½%, 68½%, 71½%.

The only milk used at this institution is served at lunch to the day pupils. The meal is served by a woman under the direction of the principal. Only about 25 quarts of milk a day are brought to the institution. Some is purchased from the Borden's Condensed Milk Company and some from a local dealer at Montclair. We made inspections of three dairies located in New Jersey, part of whose supply is included in that sent to the School, and we also, through the courtesy of Mr. C. H. Wells, health officer of Montclair, received information concerning the dairies supplying Borden's Condensed Milk Company, which are located in the State of New York. These dairies have all been inspected by the local officer, and he reports, that they each score above 60% of perfection.

#### STATE HOME FOR GIRLS, TRENTON.

Score, 46-58%.

Approximately 175 quarts of milk are daily consumed by the inmates of this institution. The Home maintains a small dairy of five cows, which produce about 25 to 30 quarts of milk. The cow barn is a dilapidated structure, and is dark and poorly ventilated. The 150 quarts of milk purchased from the outside are produced on a nearby farm, and the milk is delivered at the institution every morning. These premises have been inspected two or three times during the season. The rating given the dairy from which the purchased milk is obtained was 58% of perfection.

#### NEW JERSEY REFORMATORY, RAHWAY.

Score, 75½%.

In the dairy connected with this institution 175 quarts of milk are produced daily by thirty cows. The stable in which the cows are housed is brick, with cement floors, and smooth interior surfaces which had been freshly painted at the time of the inspection. A new dairy house is in course of erection, which will be used for straining, cooling and storing the milk. There will also be special facilities for the use of the milkers where they may wash their hands before milking. The milkers are clad in white duck milking suits, and the general supervision of the dairy is good. A number of the milk containers were found to be rough on the inside and rusty. The cattle have all been tuberculin-tested during the year. Five animals reacted and were killed.

#### NEW JERSEY STATE PRISON, TRENTON.

Score, 63½%

The milk supply of this institution is furnished by the same dealer who supplies the State Normal School. The amount used has been very much curtailed in the past year. Formerly about 300 quarts of milk a day were consumed in this institution, but the contract for this year calls for only 100 quarts per day. Whenever the farm supply is short, the needed additional amount is procured from neighboring dairies.

TABLE SHOWING DAIRIES SCORED IN EACH COUNTY AND TOWNSHIP AND THE CLASSIFICATION OF THE SAME IN PERCENTAGE OF TEN POINT INTERVALS, THE NUMBER OF QUARTS AND ALSO THE NUMBER OF MILK DEPOTS.

LOCATION.	Number of Inspections.	Quarts of milk produced daily.	SCORING FROM							Milk Depots.
			20 to 30%	30 to 40%	40 to 50%	50 to 60%	60 to 70%	70 to 80%	80 to 90%	
<b>Bergen County.</b>										
Englewood Cliffs.....	7	590	2		1	4				
Fairview.....	1	200			1					
<b>Burlington Co.</b>										
Bordentown.....	12	60								2 milk depots.
Bordentown township.....	27	994			1	13	12			
Burlington township.....	17	1,005			2	7	5	1		
Chester township.....	1	80			1					
Chesterfield township.....	41	2,407			2	14	24	1		
Eastampton township.....	1	50								
Evesham township.....	2	220			1					
Florance township.....	2	454			1	1	4			
Lumberton township.....	6	60								
Mansfield township.....	45	5,081			5	24	14	2		
Medford township.....	4	440				4				
Mount Laurel township.....	8	100			1					
New Hanover township.....	1	800					3	1		
North Hanover township.....	9	1,320			1	4	2	2		
Pemberton township.....	20	1,379	1		1	2	2			
Southampton township.....	19	1,597			5	11	3			
Springfield township.....	32	2,735			4	17	11			
West Hampton township.....	9	360			1	6	3			
Willingboro township.....	3	85			1	2				
<b>Camden Co.</b>										
Audubon.....	2	180								1 milk depot.
Center township.....	2	450								
Collingswood.....	1	435			1					
Delaware township.....	7	940								4 milk depots.
Haddon township.....	4	397			1	2				
Haddonfield.....	2	390								1 milk depot.
Oaklyn.....	2	200								1 milk depot.
Voorhees township.....	1	62								
Westmont.....	2	460								2 milk depots.
<b>Capo May Co.</b>										
Lower township.....	1	550								
<b>Cumberland Co.</b>										
Vineland.....	1	115								
<b>Essex Co.</b>										
Belleville township.....	1	240			1					
Fairfield.....	1	6,080								
Livingston township.....	43	4,983			3	12	18	7	1	
Milburn township.....	2	150						2	3	
Orange.....	1	20								
Orange township.....	5	633			1	1	2	1		
Roseland.....	7	1,860								
South Orange township.....	5	690								
West Caldwell.....	1	800					3	1	1	
West Orange township.....	14	1,755					3	5	1	
<b>Gloucester Co.</b>										
Mantua township.....	1	120			1					
Monroe township.....	1	80								
South Harrison township.....	3	165					3			
Woolwich township.....	1	50						1		
<b>Hudson Co.</b>										
Hoboken.....	4	416	1	2						
Jersey City.....	59	2,404	1	3	10	12	3	1		29 private dairies.
<b>Hunterdon Co.</b>										
Alexandria township.....	2	152		1			1			
Bethlehem township.....	30	1,140			6	16	6	2		
Clinton township.....	6	552								
Hampton.....	5	159			2	3				
Lebanon township.....	14	491			3	2	9			
Raritan township.....	23	1,537	2		7	7	5	2		

TABLE SHOWING DAIRIES SCORED IN EACH COUNTY AND TOWNSHIP AND THE CLASSIFICATION OF THE SAME IN PERCENTAGE OF TEN POINT INTERVALS, THE NUMBER OF QUARTS AND ALSO THE NUMBER OF MILK DEPOTS.—Con.

LOCATION.	Number of Inspections.	Quarts of milk produced.	SCORING FROM							Milk Depots.
			20 to 30%	30 to 40%	40 to 50%	50 to 60%	60 to 70%	70 to 80%	80 to 90%	
<b>Hunterdon Co.—(Continued).</b>										
Readington township.....	6	390			1	3	2			
Union township.....	23	1,037	2	4		9	7	1		
<b>Mercer Co.</b>										
Ewing township.....	6	910			1	3		2		
Hamilton Square.....	1	120								
Hamilton township.....	1	70			1					
Hopewell township.....	8	493			1	5	2			
Lawrence township.....	12	675			1	9	4	2		
Princeton township.....	17	970			2	9	4	2		
Princeton.....	1	20			1					
Trenton.....	2	336							2	
Washington township.....	8	455			1	6	1			
West Windsor township.....	11	589			2	9				
<b>Middlesex Co.</b>										
East Brunswick township.....	3	110			1	1	1			
Metuchen.....	3	325				1	1	1		
Monroe township.....	1	60			1	5	2			
North Brunswick township.....	11	225			1	3	5			
Piscataway township.....	11	1,526			1	6	1		2	2
Raritan township.....	7	515			2	1	2	2		
South Brunswick township.....	11	3,320			2	7	1			1
Woodbridge township.....	1	560								
<b>Monmouth Co.</b>										
Allentown.....	1	94					1			
Atlantic township.....	15	821			5	10				
Freehold township.....	4	270			1	1	2			
Hamilton.....	3	385								2 milk depots.
Howell township.....	3	230					1			1 milk depot.
Marlboro township.....	2	135			2					
Millstone township.....	1	80					1			
Neptune township.....	9	480					2			
Ocean township.....	7	420			1	3	2			
Shrewsbury township.....	5	310					7			
Upper Freehold township.....	66	5,751			1	9	32	17		
Wall township.....	4	440				3	1			
<b>Morris Co.</b>										
Chatham township.....	5	2,565					1			2 milk depots.
Chester township.....	19	1,072			5	10	4			
Florham Park.....	2	246					2			
Hanover township.....	2	230					2			
Millington.....	1	0								
Montville township.....	10	478			5	4	1			
Morris Plains.....	1	1,050					1			
Passaic township.....	7	190			2	2	3			
Pecanock township.....	1	40								
Pine Brook.....	1	225								
Stirling.....	2	40					1			
Washington township.....	2	336						1		1
<b>Ocean Co.</b>										
Bay Head.....	1	400								1 milk depot.
Plumstead township.....	5	470					3	1		
<b>Passaic Co.</b>										
West Milford township.....	2	20	2							
<b>Salena Co.</b>										
Lower Penns Neck township.....	1	20		1						
Pilesgrove township.....	2	220			1		1			
Upper Pittsgrove township.....	7	792			1	3	2	1		
<b>Somerset Co.</b>										
Bernards township.....	3	65					2	1		
Bound Brook.....	4	471			1					1 milk depot.
Bridgewater township.....	7	815				5	2			
Franklin township.....	37	1,818	1	2	7	11	15	1		
Hillsboro township.....	39	1,930			1	6	23	8		

TABLE SHOWING DAIRIES SCORED IN EACH COUNTY AND TOWNSHIP AND THE CLASSIFICATION OF THE SAME IN PERCENTAGE OF TEN POINT INTERVALS. THE NUMBER OF QUARTS AND ALSO THE NUMBER OF MILK DEPOTS.—*Con.*

LOCATION.	Number of Inspections.	Quarts of milk produced daily.	SCORING FROM							Milk Depots.
			20 to 30%	30 to 40%	40 to 50%	50 to 60%	60 to 70%	70 to 80%	80 to 100%	
<b>Somerset Co.—(Continued).</b>										
Montgomery township.....	59	3,695		1	9	25	20	3		1
Somerville.....	1	280								
South Bound Brook.....	2	118				2	1			2 milk depots.
Warren township.....	2									
<b>Sussex Co.</b>										
Andover township.....	23	1,496			1	3	11	6	1	
Green township.....	38	2,873				10	16	12		
Hardiston township.....	12	820				1	4	3		
Lafayette township.....	35	5,342			1	3	8	16	10	
Sandyston township.....	18	1,802			1	6	11	10		
Sparta township.....	7	945				3	4	2		
Walpack township.....	20	1,282				11	7	4		
<b>Union Co.</b>										
Linden township.....	3	188	1		1	1				
Mountainside.....	1	0				1				
New Providence township.....	2	70				1	1	1		
Plainfield.....	2	190						1	1	
Rahway.....	1	173							1	
Springfield township.....	7	1,241			1	1	1	2	1	1 milk depot.
Summit.....	1	20						1		
Summit township.....	5	169					3	2		
Union township.....	13	977	1	2	3	6	1			
<b>Warren Co.</b>										
Allamuchy township.....	1	240								
Franklin township.....	10	450	1		5	4				
Frelinghuysen township.....	3	150			1	2				
Mansfield township.....	4	320				3	1			
Washington township.....	18	778				11	6	1		
Total.....	1,223	108,003	8	27	145	487	371	109	17	10 20 milk depots. 29 private dairies.

### CREAMERIES.

The following is a summary of facts and conditions resulting from our work of creamery inspection during the past year:

On October 31, 1909 there were 140 creameries in the State, which were subject to Chapter 139 of the Laws of 1906, relative to the licensing of creameries. The previous year 138 were reported. In these 140 creameries 440,422 quarts of milk supplied by 5475 dairymen are handled daily. Four creameries operated during the previous year were abandoned during this year, and two of the total number have consolidated into one. Seven new creameries have been established, ten have changed hands, and fifteen licenses have been revoked. Thirty-six creameries are engaged in butter making and seven manufacture condensed milk. In addition to the shipping of milk, eight of them make cheese and five, casein. Ice cream is manufactured in seven creameries.

Seventy-eight samples of water have been collected from creamery premises, and analyzed in the State Laboratory of Hygiene.

Licenses have been issued, after a thorough inspection, to 116 of the one hundred and forty creameries, leaving twenty-four unlicensed on October 31, 1909 as against forty-eight on the same date of the preceding year. The rule of the Board for the annual re-issuing of creamery licenses was changed in 1907, and consequently all licenses expiring July 5, 1908 were either renewed at that time, or were discontinued by the Board's refusal to renew.

A list of the twenty-four unlicensed creameries is given below with a statement of the reasons for which the licenses were refused:

**ALLAMUCHY.**—(Alex. Campbell Milk Co.) This creamery was formerly operated by Halprin Bros. of Newark, and a license was refused on account of the defective drainage and inadequate facilities for caring for the milk stored within the creamery. Several inspections were made of the premises without the requested improvements being made, and the owners finally abandoned it. It is now operated by the Alexander Campbell Milk Company, of Brooklyn, N. Y., and extensive improvements are in progress to place the structure in good condition and equip it with all modern conveniences for the handling of milk. It is expected that after the next inspection, the creamery may be licensed.

**BAPTISTOWN.**—(Geo. H. Scott). This creamery was originally occupied by a family in violation of section 1 of the creamery act, and after repeated notices from the Board, suit was entered against the owner for operating the creamery without a license. Finally the owner dispossessed the family in the creamery and undertook to reconstruct the building for the manufacture of condensed milk, and also for the handling and shipping of whole milk and cream. The handling of milk in this creamery in all its forms takes place in what is practically one room. This room contains milk vats, which are uncovered, condensing pans, pasteurizing apparatus, boiler, engine, washing outfit, coal pit, etc. The drainage from the wash tubs is discharged into a cesspool, whence it is forced by steam through an underground pipe, and then into an open ditch in the field. The floor drainage is discharged into a gutter along the road side for about 700 feet. The people in the neighborhood of the creamery recently complained of the stench and applied to this Board for relief. The owner was notified late in the year to comply with certain requirements made by the Board, which if not obeyed, will no doubt cause suit to be entered against the operator for maintaining a creamery in violation of the act.

**BELLE MEAD.**—(Farmers' Exchange Co.) No license has been issued to this creamery since the former one expired, for the reason that the size of the creamery rooms and their present location are inadequate for the handling of the 5000 quarts of milk daily received and manipulated. The owner has been notified that this Board deems the creamery unsuited to its present use, and he has stated that if he is permitted to continue its operation until he can build a new creamery, one will be started very soon.

**BEVANS.** (Seiler Bros.) During the last month of the fiscal year an inspection of this creamery showed a very deplorable condition. The wooden floors had become very leaky, and the drainage discharged through wooden gutters to a settling basin under the floor was found to be in a very unsanitary state. The stench arising therefrom throughout the creamery rooms was unbearable. The owners were notified, and work is now in progress to clean the space beneath the creamery and build new floors throughout.



**CALIFON.** (Samuel Tiger). This is a small receiving station, only 350 quarts of milk being received daily, which is shipped to dealers in Bayonne and Newark. It was thought best not to license this creamery until a reinspection had taken place.

**CAMDEN.** (Wm. C. Cramer.) This creamery was refused a license on account of lack of proper facilities for bottling and handling milk. During the coming year, the owner will be required to comply with the provisions of the law.

**CAMDEN.** (James Daly). This creamery does not meet with the requirements of the law, and the methods of handling the milk are uncleanly. The owner, however, claims that he does not wholesale milk, and therefore does not come under the requirements of the act.

**CHESTER.** (Seiler Bros.) The reason the refusing a license to this creamery was on account of the leaky floors and the inadequate facilities for protecting the milk against contamination. The floors, however, have been since repaired, and a reinspection may show the necessary improvements.

**COLTS NECK.** (Colts Neck Creamery Co.). The milk received at this creamery is shipped daily to Asbury Park. The owners have been notified to provide suitable covers for the milk vats and to make the side-walls of the receiving room clean. When these requests are complied with, the creamery will probably be licensed.

**ELMER.** (C. H. Oliphant). This creamery was formerly licensed, and is a modern, well built structure. On a recent inspection, however, it was learned that the milk contained in the weigh vat was not properly protected against flies, and the owner was notified to provide suitable covers. A reinspection will take place soon, and if the covers are provided, a license will issue.

**ELMER.** (Isaac H. Reeve). Several inspections of this creamery show that no improvement has been made in the methods of handling milk, and the leaky floors have not been repaired. The owner has been notified to correct these defects, and if, upon a reinspection no improvements have been made, the Board will be asked to proceed against the owner for maintaining a creamery with a license.

**FRANKLIN PARK.** (Samuel Adler). This is a small creamery for the manufacture of cheese. Reinspection will be necessary before a request for a license will be granted.

**HIGHLAND PARK.** (W. W. Ten Eyck). A recent inspection of this creamery showed it to be defective in the drainage system. The owner has promised to connect with the sewer, after which a license will be granted.

**MONROEVILLE.** (Wilson Dairy Company). A license was refused this creamery on account of the congested condition of the milk room, and the owners were notified to change their system of handling milk and to place their creamery in a better sanitary condition. A letter from them, dated October 2d, states that improvements will be begun at once, in order to comply with the requirements of this Board. A reinspection will accordingly be made in the near future.

**NESHANIC.** (Wm. Arkenburg). This creamery having changed hands, no license will be issued to the new owner until a reinspection can be made.

**PLUCKEMIN.** (James Woods). A license was refused this creamery on account of the inadequate facilities for washing cans and utensils. The owner has been notified to change his method, and a reinspection will be necessary before a license can issue.

**RINGOES.** (Wm. Strouse). Repeated inspections of this creamery show that the milk is not protected against flies and dust. A reinspection showing the required improvements will be necessary before a license can be issued.

**THREE MILE RUN.** (A. De Hart Voorhees). A license will be recommended for this creamery at the next meeting of the Board.

**TOWACO.** (Max Wenzel). There are only 200 quarts of milk taken in daily at this creamery, but the report showed that the premises surrounding the creamery were not clean, and that the floors were not tight. The owner has been requested to make the necessary improvements.

**TROY HILLS.** (Harry Backs). This is a small receiving station and it was not licensed because the milk stored there was not considered safe from molestation. A reinspection will be necessary before a recommendation for license will be warranted.

**WEST END.** (Slawson-Decker Co.). This is a large creamery, part of which is occupied by a family in violation of the creamery act. The owners were given until November 1st to comply with the law.

**WEST PORTAL.** (C. W. Van Natta). During the year several inspections were made of this creamery in the hope that improved conditions would warrant the Board in issuing a license to it.

At the time of the last inspection, a large quantity of milk was found in cans, bottling tank and vats, exposed to dust and dirt. Many flies were floating in the milk before and after the so-called pasteurization. The floors were leaky, and the whole premises were unsanitary. The chief reason for the conditions found in this creamery are the faulty construction of the creamery building, and the poor methods used in handling milk. The owner was given a specified time in which to change the conditions, and on October 29th, he informed us by telephone that the Lehigh Valley Railroad Company had agreed to make the following improvements, beginning the same at once:

To lengthen the bottling room 14 feet; widen it 4 feet; raise the ceiling 4 feet, and to put in suspended cement floors and cement pools. The boiler will be located either in an additional building or in a corner of the wash room.

**WOODSTOWN.** (C. French Moore). This creamery has not been licensed, although many improvements have been made during the past year. The drainage system is still very unsatisfactory. The creamery has recently been leased by a Philadelphia firm, who have been notified that changes will have to be made to meet the requirements of the law before a license will issue.

**WOODSTOWN.** (James McIntire). This creamery has not been licensed because, however willing the operators have been in their endeavors to protect the milk against contamination, the location of the creamery at the corner of two streets, where traffic is heaviest in the town, makes it impossible to prevent the dust of the street from entering the creamery rooms, especially at the receiving room door. A cellar adjoining this room was discovered during the year in a very filthy condition. The leakage from the sewer and from the creamery floors had been discharged on the cellar floor, and created a stench which permeated the creamery rooms. The owner was notified of these conditions, and he immediately renovated the rooms throughout, repaired the sewer pipe and disinfected the cellar. A time limit was given this owner in which to abandon this creamery. At the end of the period specified, he asked for more time, in order that he might not be at a financial loss, and the Board has very generously granted him an extension of time, but it will be unwise to permit the creamery to operate through another summer. It is expected that before spring another location will be found, as the building will have to be abandoned for creamery purposes.

## PASTEURIZATION.

The pasteurization of milk has been extensively recommended in the past few years, it being claimed, and correctly so, that the germs of disease are thereby killed and the milk made safe. Thirty-five creameries in this State have pasteurizing machines installed in their buildings, various makes of machines being used for this purpose.

Pasteurization, however, is a process whose true result may be said to be lost unless it is carried on with the proper appliances and an accurate attention to all details. It is questionable whether the rapidity with which the milk passes through these machines renders it in the condition intended by true pasteurization. In the majority of the machines used in this state, the milk is said to be heated to 165° F. from one to three minutes and then rapidly cooled to between 40° F. and 50° F. Many of these machines are equipped with long lines of pipe, which frequently are not thoroughly cleaned, and after the process is completed, the milk is set about in different places, or in vats exposed to the air of the creamery where the employees and others have access to it, and it is often placed in unsterilized containers for transportation.

Milk, to be pasteurized, should be clean and free from all filth both before and after pasteurization. If it will not keep, it is better not to subject it to this process. The commercial pasteurization of milk without restriction puts a premium on dirty milk, and while the disease germs are destroyed, you will have cooked dirt, cooked dung and cooked bacterial products. The process should, therefore, be followed only under the most stringent supervision, and no milk which is not clean should be so treated. Organisms in dirty milk would probably escape unharmed, and be capable of producing intestinal disturbances. The pasteurization of milk has no doubt been of value but a false sense of security may be conveyed by the term if the operation is not properly conducted, or if the milk is improperly handled.

Some of the modern pasteurizing machines are equipped with feed pipes which regulate accurately the quantity of milk flowing to the heating apparatus. Automatic contrivances also regulate the temperature at which milk is required to be treated. Others are not equipped with these important requisites, and consequently, there is no certainty that harmful bacteria have been killed.

The pasteurization of milk should be officially controlled in order to obtain an accurate regulation of temperatures and a proper sterilization of containers and other utensils.

## DIVISION OF CREAMERIES AND DAIRIES. 169

LIST OF CREAMERIES IN NEW JERSEY, SHOWING THE LOCATION BY COUNTIES, NAME OF THE OPERATOR, NUMBER OF PATRONS AND THE QUANTITY OF MILK HANDLED DAILY.

LOCATION.	NAME OF OPERATOR.	NUMBER OF PATRONS.	QUARTS OF MILK HANDLED DAILY.
<b>Burlington Co.</b>			
Columbus.....	E. R. Supplee's Sons.....	38	4,000
Pemberton.....	Montgomery & Smith.....	44	2,800
<b>Camden Co.</b>			
Camden.....	Garden State Dairies Co.....	40	4,000
Camden.....	Wm. E. Cramer.....	5	230
Camden.....	James E. Daly.....	10	1,000
Camden.....	Harry R. Reed Co.....	17	2,500
<b>Cumberland Co.</b>			
Bridgeton.....	Arctic Ice and Milk Co.....	150	5,000
Bridgeton.....	Bridgeton Condensed Milk Co.....	150	5,000
<b>Essex Co.</b>			
Caldwell.....	Henry F. Backus.....	5	50
Newark.....	Seiler Bros.....	*	20,000
<b>Hudson Co.</b>			
Hoboken.....	Keystone Dairy Co.....	140	8,000
Jersey City.....	Howell Condensed Milk Co.....	800	48,000
<b>Hunterdon Co.</b>			
Annandale.....	Marchant Bros.....	20	1,400
Baptistown.....	George H. Scott.....	40	1,860
Barbertown.....	Wm. Strouse.....	30	1,300
Barley Sheaf.....	Anwell Valley Dairy Co.....	17	1,000
Bloomsbury.....	C. W. Van Natta.....	28	1,900
Calton.....	Phillips & Waldron.....	24	2,400
Calton.....	Samuel Tiger.....	3	320
Cherryville.....	C. E. Peterman.....	40	1,400
Clinton.....	James Wyckoff.....	35	3,800
Clover Hill.....	A. C. Durling.....	17	1,200
Everettstown.....	Geo. H. Scott.....	20	1,400
Flemington.....	Seiler Bros.....	30	1,900
Frenchtown.....	Robert Harberson.....	39	2,560
Hampton.....	Marchant Bros.....	46	2,400
Hoffmans.....	Isaac H. Hoffman.....	12	1,000
Idell.....	Wm. Strouse.....	43	1,400
Jutland.....	Geo. N. Robinson.....	30	1,700
Lebanon.....	Geo. Clark & Son.....	32	2,600
Little York.....	S. V. Eckel & Son.....	37	3,000
Locktown.....	Locktown Dairymen's Assoc.....	62	2,560
Milford.....	Henry Hauptfuehrer.....	75	2,900
Mount Pleasant.....	Geo. H. Scott.....	16	700
New Germantown.....	A. C. Durling.....	13	690
Oak Grove.....	C. R. Peterman.....	1	110
Oak Summit.....	Harry Sassaman.....	34	4,000
Patterson.....	Geo. N. Robinson.....	13	320
Pittsburg.....	Empire State Dairy Co.....	49	3,400
Readington.....	Farmers' Exchange Co.....	51	3,020
Reaville.....	Farmers' Exchange Co.....	28	3,250
Ringoes.....	Harberson Dairies Co.....	56	4,050
Ringoes.....	Wm. Strouse.....	44	2,320
Rosemont.....	Wm. Strouse.....	38	5,380
Sergeantsville.....	Wm. Strouse.....	104	4,200
Sunnyside.....	James Wyckoff.....	40	2,400
Three Bridges.....	Anwell Valley Dairy Co.....	57	3,500
West Portal.....	C. W. Van Natta.....	40	2,800
White House.....	A. C. Durling.....	40	2,800
<b>Mercer Co.</b>			
Harbourton.....	Samuel A. Burns.....	35	2,000
Hopewell.....	Hernig & Northrup.....	44	2,500
<b>Middlesex Co.</b>			
Cranbury.....	Holeman Jordan.....	22	800
Franklin Park.....	Samuel Adler.....	4	200
Highland Park.....	W. W. Ten Eyck.....	9	462
New Brunswick.....	New Brunswick Hygienic Milk Co.....	45	3,000
Three Mile Run.....	A. De Hart Voorhees.....	2	260
<b>Monmouth Co.</b>			
Allentown.....	Allentown Dairy Association.....	28	1,900
Cott's Neck.....	Cott's Neck Creamery Co.....	15	750
West End.....	Slawson-Decker Co.....	70	6,000

\*This is a receiving station for the supply of milk received at Bevrans, Chester, Flemington, and other New York State Creameries.

LIST OF CREAMERIES IN NEW JERSEY, SHOWING THE LOCATION BY COUNTIES, NAME OF THE OPERATOR, NUMBER OF PATRONS AND THE QUANTITY OF MILK HANDLED DAILY.—Continued.

LOCATION.	NAME OF OPERATOR.	NUMBER OF PATRONS.	QUARTS OF MILK HANDLED DAILY.
<b>Morris Co.</b>			
Chester.....	Seller Bros.....	19	1,000
Flanders.....	Wm. Clausenlin.....	19	1,200
Flanders.....	Willwood Farm Dairy Co.....	13	1,000
German Valley.....	S. N. Dilts.....	7	500
German Valley.....	J. T. Welch.....	8	500
Middle Valley.....	Geo. Clark & Son.....	26	1,600
Morristown.....	Luther Kountz.....	1	200
Naughtright.....	Du Bois Bros.....	8	340
Towaco.....	Max Wenzel.....	5	200
Troy Hills.....	H. F. Backus.....	18	700
<b>Salem Co.</b>			
Alloway.....	F. A. Shiveler.....	67	5,000
Daretown.....	Ira S. Champion.....	35	4,000
Elmer.....	C. H. Oliphant.....	50	2,400
Elmer.....	Isaac B. Reeve.....	23	2,400
Harmersville.....	J. Q. Davis.....	52	2,500
Monroeville.....	Wilson Dairy Co.....	42	2,200
Salem.....	Abbott's Alderney Dairies.....	60	3,300
Salem.....	Bridgeton Condensed Milk Co.....	100	6,000
Sharptown.....	J. Q. Davis.....	55	4,500
Salem.....	Wm. Richman.....	48	4,000
Woodstown.....	James McIntire.....	40	4,180
Woodstown.....	C. F. Moore.....	50	3,720
<b>Somerset Co.</b>			
Belle Mead.....	Farmers' Exchange Co.....	80	4,180
Bernardsville.....	Heenan Childs.....	6	1,200
Flagtown.....	J. Max.....	20	800
Lamington.....	Joseph Hendershot.....	15	600
Lyons.....	Luther Childs.....	26	1,800
Montgomery.....	Farmers' Exchange Co.....	26	1,350
Neshanic.....	W. Arkenberg.....	12	800
Neshanic.....	Halprin Bros.....	32	2,200
North Branch.....	Geo. W. Field.....	55	4,000
Pluckemin.....	James Woods.....	10	320
Pottersville.....	A. C. Durling.....	32	1,200
Raritan.....	Wm. Arkenberg.....	48	2,400
Skillman.....	J. B. Longshore.....	24	1,300
South Branch.....	Farmers' Exchange Co.....	7	560
<b>Sussex Co.</b>			
Andover.....	Fulboam Dairy Co.....	30	4,200
Augusta.....	T. O. Smith's Sons.....	4	8,000
Baleville.....	Alex. Campbell Milk Co.....	25	2,800
Beemerville.....	Borden's Condensed Milk Co.....	26	6,000
Bevans.....	Seller Bros.....	37	2,800
Branchville.....	Borden's Condensed Milk Co.....	106	13,200
Clove.....	S. C. Hayne.....	23	2,200
Glenwood.....	D. Bailey.....	29	4,400
Hanburg.....	Diamond Dairy Co.....	41	9,600
Huntsville.....	Borden's Condensed Milk Co.....	24	2,070
Lafayette.....	Newark Milk and Cream Co.....	20	3,600
McAfee.....	H. S. Chardavoyne.....	13	1,900
Monroe.....	Newark Milk and Cream Co.....	21	3,400
Mulford.....	Sandford Dairy Co.....	12	2,500
Newton.....	Dairy Products Co.....	38	4,400
Papakating.....	Borden's Condensed Milk Co.....	41	8,000
Price's Crossing.....	Orange Co. Milk Association.....	17	5,200
Quarryville.....	Horton-Lewis Cream Co.....	35	6,240
Roys Crossing.....	Fulboam Dairy Co.....	50	3,800
Sparta.....	George Ihnken.....	19	2,510
Stillwater.....	McDermott Dairy Co.....	38	5,600
Stockholm.....	George Ihnken.....	7	520
Sussex.....	Beakes Dairy Co.....	11	2,000
Sussex.....	Horton-Lewis Cream Co.....	113	19,600
Sussex.....	Dennis Reardon.....	17	3,250
Swartwood.....	George Lodes.....	12	1,170
Tranquility.....	Mutual Milk and Cream Co.....	18	1,800
Vernon.....	Raid Ice Cream Co.....	20	2,270
Warbase.....	Henry Tepperwin.....	27	3,600
Woodruff's Gap.....	H. S. Chardavoyne.....	22	2,300

LIST OF CREAMERIES IN NEW JERSEY, SHOWING THE LOCATION BY COUNTIES, NAME OF THE OPERATOR, NUMBER OF PATRONS AND THE QUANTITY OF MILK HANDLED DAILY.—Continued.

LOCATION.	NAME OF OPERATOR.	NUMBER OF PATRONS.	QUARTS OF MILK HANDLED DAILY.
<b>Warren Co.</b>			
Allamuchy.....	Alex. Campbell Milk Co.....	17	2,100
Blairstown.....	Empire State Dairy Co.....	42	4,000
Bridgeville.....	H. A. Rausch.....	17	1,600
Broadway.....	Wm. Provost.....	21	900
Changewater.....	R. F. Stevens Co.....	16	1,050
Delaware.....	F. W. Jensen.....	33	1,700
Great Meadows.....	Sandford Dairy Co.....	29	2,800
Hackettstown.....	Alex. Campbell Milk Co.....	32	2,200
Hainesburg.....	Ira C. Hunter.....	23	1,500
Hixson.....	C. Vanberwarde.....	18	1,080
Hope.....	Clarence M. Fisher.....	15	1,500
Long Bridge.....	Mutual Milk and Cream Co.....	19	1,700
Markaboro.....	Mutual Milk and Cream Co.....	39	3,700
Roxburg.....	Elmer Worthington.....	20	400
Vails.....	Fulboam Dairy Co.....	46	2,000
	Total.....	5,475	440,422

# Report of the Division of Food and Drugs.

R. B. FITZ-RANDOLPH, Chief.

*To the Board of Health of the State of New Jersey.*

GENTLEMEN :—I have the honor to submit the following report on the Division of Food and Drugs for the year ending October 31, 1909.

The work of this Division consists in the enforcement of the food and drugs act (Chap. 217 of the laws of 1907, its amendments and supplements) and the law relating to the distribution and sale of oleomargarine (Chap. 84 of the laws of 1886, and its amendments and supplements).

For the purpose of making necessary investigations of the quality of foodstuffs the Division employs three inspectors who are constantly engaged in visiting cities and towns throughout the State, collecting samples of food and drugs for analysis and inspecting and reporting on the sanitary condition of establishments where foods are produced, stored or handled. In the laboratory at Trenton two chemists are employed who devote their whole time to the examination of the samples collected by the inspectors. Some analytical work is also done by the chief although his other duties leave little time for laboratory investigations.

It will be apparent at once to any one familiar with the State, that three inspectors cannot satisfactorily cover it. Attention was drawn to the necessity for more inspectors in the report for 1908 but no more have yet been provided. We need at least eight inspectors to do efficient work. At the present time there are many localities which are never visited at all because no men are available to send to them. Other localities are visited so seldom that the effect of the food laws is hardly felt. We have no men available to periodically inspect the food producing establishments of which there are a large number in the State. Some

of these, notably slaughter houses and canning factories, should have constant supervision.

A very large amount of milk is produced in the State which is delivered by the farmers to creameries and is shipped to distant points. These creameries, therefore, are convenient localities for the collection of such samples, and should be frequently visited by inspectors, but, were we to undertake a proper milk inspection at creameries, our inspectors would have time for nothing else and even then could hardly visit them frequently enough.

The Division of Food and Drugs will be seriously hampered during the coming year because of lack of funds. The Legislature reduced the appropriation available for the enforcement of the above mentioned laws from \$20,000 to \$15,000. This reduction brings the appropriation below the point where our present employees can do their most efficient work. The expenses attendant on the collection of samples are made unnecessarily heavy by reason of certain provisions in the food law, intended to safeguard the consumer against mistakes or derelictions of duty on the part of the inspectors. These provisions are not objectionable in principle but they work hardship to the division by rendering the work unnecessarily costly. The law provides that the sample must be taken in the presence of a witness. This makes it necessary for each inspector to constantly employ an assistant whose traveling and hotel expenses must be paid, thus practically doubling the cost of collecting samples for no useful purpose. Another provision of the same act requires that the sample shall be divided into two parts, each part sealed and one delivered to the vendor by the inspector. While this requirement throws all possible safeguards around the vendor, it greatly hampers the inspector by forcing him to declare his identity to the vendor. A reading of the act shows plainly that its intent is to protect the ordinary purchaser. The inspector, therefore, should be permitted to purchase samples in exactly the same manner that the ordinary citizen buys goods.

If, for example, a grocer is selling a mixture of glucose and molasses for molasses, the essence of the offense is, not the sale of the article, but its sale as molasses. No grocer would be foolish enough to make a sale of the kind to a person whom he knew to be an inspector without first informing him that the article was not in fact molasses, but a mixture of molasses and some other substance, while he might have no hesitancy in selling this article to an ordinary customer in response to a demand for molasses

without any such explanation. Large quantities of adulterated molasses are sold in the State to-day as pure molasses, but detection of the offenders is very difficult because of the difficulty in collecting samples due to this provision in the law. A system in operation in Massachusetts and other states is equally efficient in safeguarding the vendor and more satisfactory in other respects. There but one sample is collected which is retained by the inspector. After the chemist has finished the analysis of the sample he retains a portion of it under seal, and this portion the vendor has a right to demand and have analyzed by some other chemist if he so desires. He is therefore not debarred from his right to employ any chemist he may see fit and the inspector is able to do his work under much more favorable conditions.

The division of samples entails considerable expense. Twice as much of an article must be purchased as is really needed for analysis and two containers must be used to place it in instead of one. Most of our samples are placed in bottles, and half of these bottles are, according to the law, given to vendors and lost to us. During the year \$222.95 was expended for the purchase of bottles and corks alone, and this figure merely represents the regular four ounce sample bottles supplied to the inspectors from the laboratory. Besides this the inspectors frequently have to purchase considerable numbers of bottles of other sizes, and boxes and other containers which it is not feasible to supply from the laboratory, so that the total cost of containers will reach nearly double the above figure. Half of the containers are given to the vendors with samples. Those which come to the laboratory are of course washed and used again. It will therefore be seen that the provision requiring the giving of a duplicate sample, besides at times greatly hampering the inspectors, costs this Division over two hundred dollars a year for containers and much more than this sum for extra samples from which we get no benefit whatever. Another item of expense which is very burdensome and which appears to the writer to be entirely unnecessary is the payment into the State Treasury of the costs collected when penalties are imposed. These costs are paid to the courts by our inspectors when the cases are begun, and when convictions are secured they are returned by the courts together with the penalties, to the State Board of Health, and by them turned over to the State Treasurer. There is no provision in the food law requiring these costs to be turned into the Treasury and they should revert to the appropriation for the Division of Food and Drugs. During the year the sum of \$286.85 has been paid by the inspec-

tors as costs. Ninety-five per cent. of this or more will ultimately be returned by the courts to the Board and paid into the Treasury. With an appropriation entirely inadequate to meet our needs there seems to be no good reason why some effort should not be made to save this sum for the use of the Division.

The new food law which became effective on Oct. 1, 1908, has had a year's trial and, on the whole, has proved satisfactory, although there are some defects in it which should be remedied. To some of these defects attention was called in last year's report but most of them still exist. It is very gratifying to note that the Legislature during its last session amended section 3, subdivision 1, by striking out the words "As determined by the test." This phrase would have greatly hampered us by limiting us to the use of methods of analysis laid down in the Pharmacopœia and National Formulary, many of which have already been superseded by better and more accurate ones, and many others have been shown to be unreliable. It was in the highest degree unwise to hamper the chemist by restraining him to a collection of methods of analysis which would not be revised for ten years.

Specific provision should be made in the act for the punishment of substitution without informing the purchaser, whether the articles substituted are labelled or not. Many purchasers do not read the modern skillfully deceptive labels closely enough to gather their real import, and there is no possible objection to legislation which provides that a customer shall receive what he asks and pays for, or, if he is offered something different from that for which he asks, that at the time of delivery, he be fully informed by the vendor that what he is getting is not what he demanded but another article.

The question of the propriety of using preservatives in food is still unsettled but there can be no doubt that the purchaser has a right to choose for himself whether he shall eat preserved food or not. Certain preservatives are known to be injurious and their use should be specifically prohibited. Such are formaldehyde, boric acid and its salts, salicylic acid and its salts, formic acid, hydrofluoric and nitrous acids and their salts. Pending the final determination of the harmfulness or otherwise of benzoic acid and sulphurous acid it may be reasonable to permit their use in limited quantities in the foods in which they are now customarily used, provided their presence and amount be stated on the label. Such legislation would remove all confusion from the minds of manufacturers by letting them know exactly what they could do and would enable the public to eat drugs if they so desired with full knowledge of what they are getting.

The use of the words "Compound," "Substitute" and others of like nature is frequent on the labels of articles which the manufacturer would have the public believe are other than they are. The skillful use of these words in the labelling of imitation and fraudulent products results only too often in the deception of the purchaser, and to the end that plain and truthful labelling should be accomplished, it is very desirable that the use of these words be restricted legally and their meaning accurately defined. The law is not altogether clear on the labelling of imitations and substitutes. The Federal act is similarly vague and the Secretary of Agriculture, the Secretary of the Treasury and the Secretary of Commerce and Labor have attempted to remedy this defect in the Rules and Regulations which the Federal act authorizes them to make. These rules and regulations have been adopted in this State by the State Board of Health, but it is very doubtful if, in the absence of specific legislation, they can be enforced. Such legislation is therefore needed.

Section 3, Subdivision 4, should be so amended as to read "Fourth. If it be mixed, powdered, coated or stained in a manner whereby damage or inferiority is concealed, or if by any means it is made to appear of greater value than it is, or if it is colored or flavored in imitation of the genuine color or flavor of another substance." The section as it stands at present is defective in that it does not specifically prohibit the fraudulent imitation of a genuine product.

It is recommended that a requirement be made providing that the net weight or measure of all foods put up in package form be required on the label and also the grade or class of the product. At the present time much fraud is perpetrated in the sale of certain classes of goods because of insufficient labelling. The word "Tomatoes" on a label does not inform the purchaser whether the contents of the can consists of sound, ripe goods or green, inferior material, diluted with added water, nor does he find out until the can is home and opened.

The sale of renovated butter should be so safeguarded that the fraud now practiced may be stopped. Proper labelling provisions would readily remedy this evil.

The second proviso in Section 5 should be stricken out. It is grossly defective and the time has now come when the goods to which it refers are sold and off the market.

In Section 13 the words "In this State" should be stricken out. There is no reason for making a distinction between shipments within the State and interstate shipments.

Section 14 should be remodeled. At present its scope is not broad enough. It should be made to compel the cleaning of every vessel used as a receptacle for milk before it leaves the possession of the person who used the milk in it, or before it leaves the premises where the milk was used. A freshly emptied milk can is readily cleansed. After it has been allowed to stand until the remaining milk in it has dried or soured it is very difficult to get clean. The same statements apply to milk bottles. Milk placed in dirty cans suffers a serious rise in bacterial content at once and is therefore immediately lowered in quality. The proper cleansing of vessels used in the handling of milk is one of the most important ways of keeping the milk supply of good sanitary quality.

Section 44 which provides that the State Board of Health may file a bill in the Court of Chancery for an injunction restraining further violations of the act should be extended to include its amendments and supplements.

For several years attempts have been made to persuade the legislature to remedy a serious defect in the oleomargarine law which permits a violator after conviction to take an appeal without filing a bond. This results in the taking of appeals simply as a measure of delay and many cases have been lost in the past because, when after three or four years they finally come to trial on appeal, the State could no longer produce the evidence it originally possessed, or the defendant had moved away or gone out of business or escaped in some other manner.

These attempts to remedy a glaring defect have been defeated heretofore by representatives of the oleomargarine interests who are always particularly active in legislative matters. It is to be hoped that another attempt will meet with success.

The oleomargarine act should also be amended with reference to the sale of this article by restaurants and hotels as butter with meals. The act is not altogether clear on this point, although it seems to prohibit the practice. This species of fraud is exceedingly common in this State and should be stopped.

In the annual report of last year the writer called attention to the need for the publication of a bulletin which should issue at stated times and contain information on subjects relating to the sale of food and drugs which are of interest to the consuming public and to persons engaged in supplying them. Unfortunately it has not been possible up to this time to issue such a bulletin but an earnest effort should be made to do so in the near future. A great deal of work has been and is being done in this

State to protect the public from impure and harmful food and drugs and much of it is rendered useless because there is no channel of communication between the State Board of Health and the public. Many states which do not do a tenth of the work that is being done here publish interesting and readable bulletins which are of great benefit to their people. This is a form of advertising which pays and pays well, and we should by all means undertake it.

The proper enforcement of a food law is too vast an undertaking for any one body to attempt. The legislature recognized this by entrusting its enforcement to both the State and local boards of health. Up to the present time the local boards of health have not done their part in the work. A few of them enforce that portion of the law relating to the sale of milk in a more or less satisfactory manner, a few more make feeble and spasmodic attempts to control the milk supply which result in no benefit; but, to the writer's knowledge, no general enforcement of the act has been attempted by anyone except the State Board. This is a grave dereliction of duty on the part of the local boards of health. It is of course not to be expected that small towns will maintain the equipment necessary to enforce the law, but even they may have inspectors who can do much to remedy local conditions, and who may cooperate in the collection of samples with this Division which is always ready to help the local boards to the best of its ability. The writer believes that proper cooperation between the State and local boards is the only method of securing any great improvement in existing conditions. Working agreements are now in force to a limited extent with a few local boards and we desire to get in close touch with every board in the State. Unfortunately one of the barriers against this line of procedure is the smallness of our own resources which frequently renders it impossible to comply with requests for assistance from local boards with the necessary promptness.

The readiest and most obvious method of instituting such cooperation is to have inspectors of local boards collect samples and transmit them to the State Laboratory of Hygiene for analysis. This plan works well *provided the local inspectors are men of intelligence, have the proper training and are placed beyond the reach of local political influence.* Unfortunately there are not many local inspectors who have these qualifications. A food inspector needs considerable special training and a good deal of experience before he can be safely trusted to collect samples properly, and we have at present no facilities for training these men.

At the last session of the Legislature a supplement to the food and drugs act was passed which regulates certain sanitary conditions in all establishments where food intended for sale or distribution is produced, stored or handled. This law (Chap. 201 of the laws of 1909) is so comprehensive in its scope and so far reaching in the results which it will accomplish if properly enforced that it is difficult at this time to accurately prophesy what the result of its passage will be. It has only been in effect a short time and it has been impossible to make much of an attempt at its enforcement. This is an act which is peculiarly adapted for enforcement by local boards of health. Its enforcement requires no laboratory but can be done simply on the results of inspection. Every local board of health in the State should have, if they have not now, one or more inspectors, part of whose duty at least, should be to gather information regarding violations of the provisions of the act. This will be easy. Violations occur in almost every grocery store and meat-market in the State, and little is needed to abate these violations except a notice to the violator. Most of our grocers and butchers are law abiding citizens and only need to be informed of the provisions of the act, to comply willingly and cheerfully with them.

Of course a general survey of the establishments affected by this act by this Division was impossible because of the smallness of our force. It was therefore decided, in the limited time at our disposal, to examine with some care one particular industry. During the past four months 197 inspections have been made in drug stores for the purpose of ascertaining the sanitary conditions surrounding the dispensing of soda water and ice cream. These are articles of food consumed largely by women and children; just that portion of our population which is in greatest need of protection because most susceptible to injurious influence. It was found as a result of these inspections that in 74 of these places no violations of the law could be detected. In 63 of them violations were observed which were of minor importance, and could be readily corrected, in 34 violations of a serious character were encountered which might result in the foods sold in those places becoming dangerous to health, and 26 in which conditions were such that the places were unfit for use for the distribution of food. It is interesting to note in this connection that the worst places were conducted by foreigners.

Numerous inspections of grocery stores and meat-markets have also been made. It appears as a result of these inspections that a serious and energetic campaign must be instituted to pro-

tect our foodstuffs while offered for sale from injury due to exposure to flies. It is now a matter of common knowledge that flies may and frequently do distribute the germs of contagious diseases, which, when they become infected, they carry on the outside of their bodies and especially on their feet. When such an infected fly walks over foods it deposits some of the germs on the foods. Foods which are to be eaten raw, therefore, should never be exposed during the fly season in places where flies can gain access to them, but should be kept in doors and securely screened. Most grocers select the outside of the stores along the sidewalk as a suitable place to display such wares. These sidewalk displays are the most unsanitary feature of the modern grocery store and a determined attempt will be made to stop them. This can be accomplished if local boards of health will do their duty.

The act will also be of great use in controlling the sale of milk in grocery stores. It is well known that the poorest milk on the market from a sanitary standpoint is the milk sold from grocery stores. This is due to two causes. Grocers as a rule buy the cheapest and hence the poorest milk they can get, and they do not take proper care of it. It is not an infrequent thing to see a can of milk in front of a grocery store fully exposed to the blazing sun of a summer's day, and then perhaps the lid removed permitting flies and street dust loaded with intestinal bacteria to gain entrance to it. Such practices are in direct violation of the act and will be stopped.

During the coming year it is our intention to make a careful inspection of all the larger food producing establishments in the State, paying particular attention to the canning factories and slaughter houses. There are numerous conditions in both of these classes of establishments which need changing, and, if changed, will result in a marked improvement in the sanitary quality of the output.

During the summer an investigation was undertaken for the purpose of ascertaining the effect upon milk shipped from various points to Camden and Atlantic City, of the high temperatures to which it was exposed, due to the failure of the railroad companies to ice the cars in which it was transported. An inspector was instructed to take the temperature of milk in cans at the point of shipment and at the destination. The following table summarizes the results of these investigations:



TABLE SHOWING THE EFFECT ON THE TEMPERATURE OF MILK OF TRANSPORTATION IN CANS NOT SUPPLIED WITH ICE.

Date, 1909.	From	To	TEMP. OF MILK AT STARTING POINT.			TEMP. OF MILK AT DESTINATION.			Av. rise of temp.	Time in transit	Temp. of air, start.	Temp. of air, destina- tion.	Temp. of car, start.	Temp. of car, destina- tion.	Amount shipped, quarts.	Number of shippers.	Number of observa- tions.
			Lowest.	Highest.	Average.	Lowest.	Highest.	Average.									
June 25	Johnstown.	Camden.	60	73	69	70	77	74	2 14	70	85	70	82	1,400	11	13	
" 26	Johnstown.	Camden.	58	70	65	70	77	74	4 10	70	85	70	82	1,900	12	23	
" 26	Columbus.	Camden.	51	55	53	56	60	58	4 30	70	85	70	82	4,800	34	47	
July 1	Weldon.	Camden.	55	73	66	69	75	73	1 25	70	85	70	82	1,640	6	37	
" 2	Woodsboro.	Camden.	52	72	67	69	74	72	1 52	70	85	70	82	10,320	12	45	
" 3	Ponaherham.	Camden.	61	72	67	69	75	71	4 40	70	85	70	82	9,320	18	40	
" 3	Birmingham.	Camden.	65	72	69	69	75	71	4 15	80	80	87	82	1,680	10	38	
" 3	Smithville.	Camden.	65	72	68	69	75	73	4 20	80	80	87	82	1,280	7	22	
" 7	Elmer.	Camden.	62	67	64	65	69	67	1 31	70	72	70	73	2,680	5	16	
" 8	Monroeville.	Camden.	62	65	62	62	65	64	2 25	70	72	70	73	580	5	16	
" 9	Wrightstown.	Camden.	58	66	62	62	67	64	2 20	70	72	70	73	6,080	20	106	
" 11	Camden.	Camden.	60	70	65	67	67	65	4 32	80	70	84	80	2,640	19	40	
Aug 14	Acton Station.	Atlantic City.	60	61	61	61	64	65	10 32	70	71	73	75	2,720	2	18	
" 14	Alloway Junction.	Atlantic City.	60	61	61	61	64	65	8 32	70	71	73	75	6,000	5	15	
" 14	Woodstown.	Atlantic City.	59	61	61	61	65	66	6 00	70	71	73	75	6,280	14	35	

An inspection of this table shows, as was to be expected, that when milk in cans is shipped during the hot weather in cans not provided with ice, its temperature increases in transit, the amount of increase depending upon the difference between the initial temperature of the milk and the air in the car, and upon the time elapsing in transit. The increases in temperature noted in these experiments varied from two to ten degrees, depending on the conditions just mentioned. The table also shows that much of the milk shipped from South Jersey, at the time it is delivered to the railroad companies, is altogether too warm. Milk delivered for shipment should never have a temperature higher than 50 degrees F. which can readily be attained even in the hottest weather by the use of appropriate cooling methods and adequate protection of the cans during transit from the farm to the railroad station. There can be no doubt that the quality of the milk shipped into Camden, most of which goes to Philadelphia, is impaired by the lack of proper refrigeration methods both on the part of the producers and the railroad companies. Milk delivered to the railroads by individual producers is invariably warmer than milk from creameries because of the better facilities possessed by the latter for cooling milk before shipment. An investigation is now in progress to determine the effect of the method of transportation above described on the bacterial content of the milk. It would appear, however, that both the farmers and the railroad companies are violating Section 2 of Chapter 231 of the laws of 1909 which provides that "No person shall transport any such food in such a manner that the purity or wholesomeness thereof shall be in anywise impaired." It has been found entirely feasible by the city of New York to compel railroads to ice all milk going into that city during the heated term, and there is no reason why the citizens of Camden and Philadelphia should not be similarly protected.

During the year quite a large number of prosecutions have been found necessary against grocers for the sale of adulterated spices. In a number of these cases it developed that the grocers believed the spices to be pure, having purchased them as such from the wholesaler. Ignorance of the quality of goods is no excuse for the sale of adulterated articles, but the person who was morally guilty for the adulteration was not the person who was punished as should have been the case. Dealers in food and drugs cannot always assure themselves of the purity of the articles they buy but must rely upon the statements and reputation of those from whom they are purchased. The food law provides that a vendor of

adulterated goods may be relieved of prosecution if he has obtained from the person who sold the goods to him a guarantee in proper form stating that the articles comply with the food and drugs act. Retailers should make much greater use of the guarantee than they do. For their own protection all articles which can be covered by a guarantee should be bought under one. This practice would protect the retailer and impose the penalties for the sale of adulterated and misbranded articles where they belong, on the manufacturer who always knows the quality of the articles he produces.

The guarantee clause in our law only applies to sealed packages. It would be manifestly unfair to permit a retailer to cast the responsibility for the sale of adulterated or misbranded articles on a wholesaler if he had opportunity to tamper with them himself.

Much confusion exists in the minds of manufacturers of food and drugs as to the attitude of the Division on the approval of labels. No authority is given the State Board of Health by the food and drugs act to approve labels, and no labels will be approved. Manufacturers who have difficulty in understanding the provisions of the law with respect to labelling should secure competent legal advice.

In order that persons who have violated the law and against whom prosecutions have started may not be deprived of the opportunity afforded them by the law to have their duplicate sample analyzed the custom has been established of sending to all such persons, as soon as the analysis of their sample is completed, a notice informing them that the sample has been found to be adulterated and that the matter has been referred to the Attorney General for prosecution. This notice is almost always sent within a few days after the collection of the sample and the recipient is then informed that a prosecution will ensue, and is enabled to take any steps he may desire to protect his interests. Before these notices were sent defendants frequently complained that so long a time had elapsed between the collection of the sample and the service of summons that they had come to the conclusion that their products complied with the law and had discarded the duplicate sample, thus depriving themselves of any protection which the analysis of the sample by a private chemist might have afforded.

Numerous requests are made by private individuals for analysis of all kinds of food and drugs. This Division is prepared, insofar as time will permit, to investigate any complaint that the law is

being violated, and to take appropriate steps to cause the punishment of the offenders. These investigations sometimes entail the analysis of samples submitted by private individuals. No report of such analysis will be given to any person, nor will any analytical work be undertaken of a private nature. The making of miscellaneous analyses for the purpose of satisfying curiosity, no matter how laudable that may be, is no part of our work and cannot be undertaken.

The following table shows the places in the State in which inspections have been made during the year and the number of times the inspector has visited the locality.

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

Aldene	1	Cranford	3
Allenhurst	5	Cream Ridge	2
Alamutuly	1	Davis Station	2
Alloway	2	Deal	2
Annapdale	1	Delanco	2
Andover	1	Delaware	1
Arlington	1	Dennisville	1
Asbury Park	16	Denville	3
Atco	1	Dorchester	1
Athens	1	Dover	16
Atlantic City	15	Dundee	1
Atlantic Highlands	3	Dunellen	3
Audibon	3	East Orange	14
Augusta	4	East Rutherford	4
Avon	2	Egg Harbor	1
Belleville	3	Elberon	2
Beasking Ridge	1	Elizabeth	39
Bay Head	2	Elmer	4
Bayonne	26	Elwood	1
Belmar	4	Englewood	4
Belvedere	2	Fairhaven	1
Baleville	1	Fairview	1
Bernardsville	3	Fanwood	1
Beverly	3	Florence	1
Bivalve	1	Flemington	2
Blackwood	2	Fords	1
Blairstown	6	Franklin	1
Bloomfield	5	Franklin Furnace	1
Bloomington	1	Franklinville	2
Bloomington	10	Frenchtown	1
Boonton	3	Garwood	1
Bordentown	2	Gibbstown	1
Bound Brook	3	Gladstone	2
Bradley Beach	1	Glassboro	5
Bridgesport	9	Glenridge	1
Bridgeton	8	Gloucester	7
Burlington	9	Green Grove	1
Butler	9	Hackensack	6
Caldwell	119	Hackettstown	5
Camden	3	Haddonfield	3
Cape May	1	Haddon Heights	3
Cape May Court House	1	Haledon	4
Carlstadt	1	Hammondton	2
Cedarville	3	Hampton Junction	1
Chatham	5	Harmersville	1
Chester	2	Harrison	5
Clayton	2	Hartford	1
Clementon	1	Hasbrouck Heights	1
Cliffside	6	Hibernia	1
Clinton	4	Highland	1
Clove	1	Highstown	4
Collingswood	6	Hilton	2
Columbus	5	Hoboken	28
Coolstown	1		

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

Holly Beach	3	Pensauken	8
Hopatcong	1	Perth Amboy	8
Hopewell	1	Phillipsburg	14
Irvington	1	Pine Brook	1
Island Heights	3	Pittman	3
Jamesburg	1	Pittsford	1
Jersey City	62	Plainfield	9
Jutland	2	Pleasantville	2
Kenmy	6	Pompton	4
Kenil.	2	Pompton Lake	3
Keyport	2	Point Pleasant	3
Lafayette	6	Port Norris	2
Lakewood	1	Preakness	1
Lambertville	1	Princeton	1
Landing	2	Quinton	1
Laurel Springs	2	Rahway	6
Lake Hopatcong	1	Red Bank	3
Leesburg	1	Ridgewood	1
Linden	1	Riverdale	1
Lindenwald	1	River Edge	2
Little Falls	1	Riverside	3
Long Branch	8	Riverton	5
Louden	1	Rockaway	8
Loraine	1	Roehling	1
Lower Montville	1	Roselle	19
Lumberton	1	Roselle Park	28
Lyons Farms	5	Salem	15
Madison	11	Seabright	2
Magnolia	1	Sea Isle City	2
Manasquan	1	Seaside Park	1
Mantua	1	Sharon	1
Maplewood	1	Sharpstown	1
Marlton	1	Short Hills	3
Maurice River	1	Singac	1
Mauricetown	1	Smiths Landing	1
May's Landing	1	Somerdale	5
Maize	2	Somers Point	1
Medford	1	Somerville	3
Mendham	1	South Amboy	3
Merchantville	6	South Orange	10
Metuchen	2	Springfield	2
Milburn	5	Spring Lake	5
Milford	4	Stanhope	1
Monroe	4	Stirling	1
Monroeville	2	Stockholm	1
Montclair	3	Stratford	1
Montville	1	Succunna	1
Moorestown	5	Summit	14
Morris Plains	1	Sussex	2
Morristown	36	Swedesboro	2
Mountain View	3	Three Bridges	1
Mount Arlington	1	Toms River	1
Mount Holly	5	Totowa	1
Mount Tabor	5	Trenton	25
Mullica Hill	1	Union	6
Neptune Township	1	Union Hill	1
Neshanic	7	Valis	3
Netcong	1	Verona	5
Newark	74	Vineland	2
New Brunswick	3	Waldwick	2
New Egypt	1	Warrens	2
Newton	6	Washington	4
North Hackensack	2	Wenonah	3
North Haledon	1	West Cape May	1
Nutley	1	West Collingswood	1
Oaklyn	1	West End	1
Oceanic	1	Westfield	3
Ocean City	3	West Hoboken	2
Ocean Grove	6	Westmont	1
Ogdensburg	6	West New York	1
Orange	23	West Orange	9
Orange Valley	4	Westville	1
Owens Station	1	Wharton	3
Palmside Park	1	Whippany	5
Parsippany	2	Whitehouse	3
Passaic	12	Wildwood	1
Paterson	31	Williamstown	3
Paulsboro	1	Windsor	1
Paulsgrove	1	Woodbine	1
Peapack	1	Woodbridge	2
Pedrickstown	1	Woodbury	6
Pemberton	4	Woodruff's Gap	1
Pennsgrove	2	Woodstown	1
Pennville	1	Wrightstown	3

The number of towns visited and the total number of visits made are both surprisingly large when it is considered that only three inspectors are available for the work. During the year these inspectors have displayed extraordinary diligence. Their daily reports show that the average number of hours during which they were engaged in inspection or court work was 10.23 for each working day of the year.

The following table shows the number and kind of samples examined during the years 1906-1907-1908-1909.

TABLE SHOWING THE NUMBER AND KIND OF SAMPLES EXAMINED DURING THE YEARS 1906, 1907, 1908, 1909.

ARTICLES EXAMINED.	1906.		1907.			1908.			1909.			
	Above Standard.	Below Standard.	Total.	Above Standard.	Below Standard.	Total.	Above Standard.	Below Standard.	Total.	Above Standard.	Below Standard.	Total.
Milk and cream	1,856	585	2,441	2,317	521	2,838	2,356	449	2,805	3,561	401	3,962
Foods other than milk	731	293	1,028	592	175	767	2,698	326	3,024	2,660	284	2,944
Drugs	138	267	405	204	367	571	550	169	719	595	67	662
Kerosene oil				63	6	69	31	2	33			
Totals	2,725	1,147	3,872	3,176	1,069	4,245	5,635	946	6,581	6,816	732	7,568

This table shows the rapid rate at which the amount of food and drug work done has been increasing in this State, and also the effect of that work on the prevalence of adulterated articles. Although the number of samples examined this year is much larger than ever before, the number found to be below the legal standard is less, showing that adulterated goods are gradually going off the market.

The following table shows the number of samples collected by inspectors and submitted for analysis during the year, arranged by months:

	Above standard	Below standard	Total	Suits
November	572	42	614	22
December	648	37	685	10
January	674	71	745	16
February	578	46	624	10
March	830	70	900	21
April	563	43	611	21
May	373	28	401	13
June	663	140	803	10
July	525	61	586	34
August	673	68	741	37
September	387	89	476	73
October	330	52	382	15
Totals	6816	752	7568	282

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

	Milk.	Butter.	Food.	Drugs.
Nov.....	841	277	499	134
Dec.....	156	608	771	273
Jan.....	385	477	758	258
Feb.....	375	459	1320	304
Mar.....	671	642	1636	598
April.....	352	399	1118	455
May.....	235	426	1510	408
June.....	709	392	1313	45
July.....	380	179	857	25
Aug.....	430	287	643	34
Sept.....	177	64	219	..
Oct.....	160	424	788	21
Totals.....	4871	4634	11453	4558

The following table shows the number and kind of places visited by the inspectors during the year for the purpose of collecting samples and gathering information regarding sanitary conditions:

	Milk Wagons.	Milk Depots.	Grocery Stores.	Drug Stores.	Milk Cans.
Nov.....	409	105	265	36	2299
Dec.....	119	4	504	42	341
Jan.....	264	36	335	39	...
Feb.....	246	49	446	40	556
Mar.....	359	40	362	59	942
April.....	331	81	322	80	1377
May.....	211	123	451	57	718
June.....	379	110	280	13	669
July.....	373	94	212	7	1380
Aug.....	395	111	277	60	717
Sept.....	213	57	99	9	66
Oct.....	92	39	388	29	705
Totals.....	3391	849	3941	471	9770

During the year much has been accomplished in the enforcement of Section 13 of the food and drugs act which is intended to compel the cleaning of milk cans as soon as used. As has already been pointed out, it is defective in that it does not cover all classes of individuals who handle containers from which milk is used, and it should certainly be corrected as soon as possible. The table shows that 9770 cans have been inspected during the year. A considerable number were found not to have been properly cleansed when delivered for shipment and were therefore so delivered in violation of the law. Notices were sent to the violators in every case informing them that further violations would be referred to the Attorney General. It is very gratifying to be able to state that in almost every case the sending of a notice was fol-

lowed by immediate improvements in the condition of cans and in only one instance has it been necessary to begin prosecution. When the work was begun it was found that a number of milk dealers in Philadelphia who obtained milk in New Jersey were in the habit of returning dirty cans to their producers in this State. It was of course impossible under our act to reach these offenders. The matter was reported to the Department of Health of Philadelphia and that Department has cooperated with us in stopping this practice. This cooperation has been so effective that a dirty can on the Camden platform is now so uncommon as to be an object of curiosity.

Table A gives a detailed statement regarding the foods examined during the year.

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

ARTICLES EXAMINED.	Number above standard	Number below standard	Total number of specimens.
Allspice, ground.....	157	2	159
Buckwheat flour.....	2	..	2
Butter.....	126	114	240
Candy.....	1	..	1
Catsup, tomato.....	2	2	4
Chocolate.....	42	1	43
Chocolate, powdered.....	1	8	9
Cinnamon, ground.....	249	4	253
Cloves, ground.....	68	2	70
Cocoa.....	172	4	176
Cod Fish.....	3	..	3
Coffee, ground.....	15	..	15
Ginger, ground.....	123	..	123
Honey.....	77	9	86
Jam.....	9	1	10
Jelly.....	3	1	4
Lard.....	1	..	1
Lemon Extract.....	29	37	66
Mace, ground.....	75	..	75
Molasses.....	11	..	11
Mustard, ground.....	233	24	257
Oleomargarine.....	28	8	36
Olive Oil.....	2	..	2
Orange Juice.....	2	..	2
Paprika.....	1	..	1
Peanut Butter.....	2	..	2
Pepper, black.....	365	10	375
Pepper, red.....	185	3	188
Pepper, white.....	263	22	285
Pickles.....	..	1	1
Prepared Ham.....	..	1	1
Pork Shoulder.....	1	..	1
Preserves.....	1	..	1
Sardines.....	2	..	2

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

ARTICLES EXAMINED.	Number above standard	Number below standard	Total number of specimens.
Sausage.....	20	....	20
Soda, Lemon.....	2	....	2
“ Raspberry.....	....	1	1
“ Sarsaparilla.....	2	....	2
“ Strawberry.....	....	1	1
Starch, corn.....	16	....	16
“ Pop corn.....	1	....	1
Sugar, maple.....	4	....	4
Syrup, maple.....	22	....	22
Tomato Paste.....	2	....	2
Vanilla Extract.....	27	3	30
Vinegar, cider.....	303	24	327
Vinegar, malt.....	2	....	2
Vinegar, distilled.....	1	....	1
Vinegar Spirits.....	2	....	2
Vinegar, syrup.....	.1	....	.1
Vinegar, white.....	3	....	3
Wine, cocoa.....	2	....	2
Totals.....	2,660	284	3,962

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

ARTICLES EXAMINED	Number above standard	Number below standard	Total number of specimens.
Aether.....	12	....	12
Alcohol.....	82	1	83
Aqua Hamamelidis.....	140	....	140
Linimentum Camporae.....	1	....	1
Liquor Calcis.....	35	26	61
Liquor Magnesii Citratis.....	....	1	1
Oleum Olivae.....	10	....	10
Pofassii Bitartras.....	185	....	185
Sodii Boras.....	80	....	80
Spiritus Camphorae.....	1	....	1
Spiritus Memhae Viridis.....	4	1	5
Tinctura Iodi.....	29	21	50
Tinctura Opii.....	10	15	25
Syrupus Pectoralis N. F.....	1	....	1
Tinctura Zingiberis.....	4	2	6
Totals.....	595	67	662

MILK AND CREAM.—During the year 3,860 samples of milk were examined of which 388 (exactly 10%) were found to vary in some particular from the legal standards.

These may be classified as follows:

Milk containing added water.....	62
Milk containing less than 12.00 total solids.....	315
Milk containing preservatives.....	9

One hundred and two samples of cream were examined, of which ten were found to be below the legal standard with respect to fat, and five to have been adulterated with condensed milk. In the case of milk, the evidence was found to be sufficient on which to base legal action in 131 cases, and in case of cream in 12 cases, and they were accordingly referred to the Attorney General for prosecution.

The situation with respect to market milk in this State is rapidly improving. Producers are taking better care of their milk and middlemen and retailers are resorting to more careful methods. It is also evident that much less actual adulteration is being practiced than in former years. The use of preservatives has almost ceased, only nine samples during the year having been found to contain formaldehyd, the only preservative used, and watering is not so frequent. The diminution in the number of watered samples must be attributed largely to the vigor with which such violators are punished. The person who sells watered milk is liable to a much heavier penalty than one who merely sells milk low in solids, and it is therefore necessary to be able by analytical methods to prove its addition. The method pursued in this laboratory involves the use of the immersion refractometer, and has been fully described in earlier reports. During the year it was deemed advisable to secure additional information regarding the refractometer readings given by low and abnormal milks. An inspector was therefore detailed to visit a locality where low grade milk is produced and instructed to take samples of the milk of such cows and herds as were likely to give milk containing less than 12.00% total solids. The milk from which these samples were taken was all drawn in the presence of the inspector and the sampling was done by him. The samples were then forwarded to the laboratory under seal and immediately analyzed. There can therefore be no question regarding their authenticity. The inspector was fortunate in finding a considerable number of cows the milk of which was below 12.00% solids. The analyses of these samples were performed according to well known methods. The specific gravity was taken at 60° F with a lactometer containing an enclosed thermometer. Both scales on the instrument had been previously carefully tested and found to be correct. The milk solids were determined by drying 5 grms. of milk in a flat platinum dish for three hours on a water bath. The fat was determined by Lefman's modification of the Babcock method. The refractometer reading by the acetic acid method was determined by adding 1 ccm of 25% acetic acid to 50 ccm. of the milk, heating to 70° C in a closed flask for thirty minutes, cooling in ice water until the temperature was below 15° C, filtering and taking the reading of the filtrate at exactly 20° C. The refractometer reading by the copper sulphate method was determined exactly in the manner laid down by Lythgoe.

In the table which follows, the results of the analysis of such of these samples as were found to contain less than 12.00% total solids are given, arranged according to the content of the total solids.

TABLE SHOWING THE COMPOSITION AND REFRACTOMETER READINGS BY THE ACETIC ACID AND COPPER SULPHATE METHODS OF MILK OF KNOWN PURITY TAKEN FROM INDIVIDUAL COWS GIVING MILK BELOW 12.00% TOTAL SOLIDS.

Specific gravity.	Total solids.	Fat.	Solids not fat.	Refractometer acetic acid method.	Refractometer copper sulphate method.	Remarks.
1.0307	11.99	3.90	8.09	40.80		
1.0320	11.99	4.20	8.79	42.35		
1.0290	11.98	4.10	8.88	41.10		
1.0310	11.98	3.65	8.33	40.95		
1.0310	11.98	3.05	8.93	41.20		
1.0320	11.95	3.10	8.80	41.10		
1.0275	11.94	4.20	8.74	39.45		
1.0295	11.94	3.65	8.29	40.10		
1.0315	11.94	3.30	8.64	40.50		
1.0285	11.92	3.90	8.02	40.30	36.45	
1.0326	11.92	3.00	8.92	39.80		Fresh.
1.0294	11.89	3.90	7.99	40.65		
1.0302	11.88	3.30	8.58	42.40	37.85	
1.0295	11.86	3.90	7.96	40.10		
1.0290	11.86	3.80	8.06	40.10		
1.0305	11.86	3.60	8.26	40.00		
1.0305	11.85	3.60	8.26	39.50		
1.0320	11.85	3.10	8.75	41.10		
1.0311	11.83	3.30	8.53	41.00		
1.0326	11.81	2.90	8.91	41.45		
1.0311	11.80	3.10	8.70	42.10		
1.0305	11.79	3.30	8.49	41.00	37.48	
1.0355	11.79	3.30	8.49	41.15	37.45	
1.0349	11.79	2.90	8.89	41.75		Fresh.
1.0305	11.78	3.30	8.48	40.45		
1.0290	11.76	3.90	7.86	40.50		
1.0306	11.76	3.50	8.26	40.60		
1.0306	11.76	3.40	8.36	40.00		
1.0305	11.74	3.30	8.44	41.00	37.42	
1.0277	11.73	3.80	7.93	39.10		
1.0315	11.71	3.25	8.46	41.70		
1.0317	11.70	3.30	8.40	41.10		
1.0320	11.69	2.80	8.89	41.70		
1.0292	11.65	3.70	7.95	40.65		
1.0295	11.63	3.40	8.25	40.40		
1.0311	11.61	3.30	8.30	40.25		
1.0275	11.62	4.00	7.62	39.30		
1.0316	11.58	3.20	8.38	39.80		
1.0320	11.57	3.00	8.57	41.45		
1.0310	11.56	3.25	8.31	41.15		
1.0290	11.55	3.25	8.30	41.00	37.20	
1.0310	11.52	3.80	7.72	39.10	37.68	
1.0300	11.52	3.50	8.02	41.50		
1.0312	11.52	3.05	8.47	41.50		
1.0290	11.51	3.50	8.01	40.40		
1.0310	11.51	3.40	8.10	40.70		
1.0305	11.46	3.10	8.36	40.25		
1.0310	11.46	2.80	8.66	41.85		
1.0290	11.42	3.30	8.12	40.00		
1.0306	11.41	2.80	8.61	40.90		
1.0305	11.39	3.10	8.29	40.60		
1.0280	11.37	3.65	7.72	39.10		
1.0295	11.37	3.30	8.07	40.40		
1.0320	11.36	2.95	8.41	41.45		
1.0315	11.36	2.60	8.76	41.25		
1.0315	11.35	2.80	8.55	40.40		
1.0305	11.33	3.20	8.13	40.60		
1.0290	11.33	3.15	8.08	40.15		
1.0290	11.32	3.90	7.42	39.55	36.60	
1.0297	11.30	3.20	8.12	41.10		
1.0282	11.30	3.45	7.85	39.35		

TABLE SHOWING THE COMPOSITION AND REFRACTOMETER READINGS BY THE ACETIC ACID AND COPPER SULPHATE METHODS OF MILK OF KNOWN PURITY TAKEN FROM INDIVIDUAL COWS GIVING MILK BELOW 12.00% TOTAL SOLIDS.

Specific gravity.	Total solids.	Fat.	Solids not fat.	Refractometer acetic acid method.	Refractometer copper sulphate method.	Remarks.
1.0290	11.28	3.40	7.88	39.25		
1.0295	11.27	3.30	8.07	40.65		
1.0321	11.26	2.80	8.46	41.00		
1.0291	11.25	3.20	8.05	40.20		
1.0297	11.24	2.94	8.34	40.40		
1.0317	11.24	2.60	8.64	41.20		
1.0295	11.20	3.30	7.90	40.30		
1.0300	11.20	2.60	8.60	42.25		
1.0300	11.18	3.00	8.13	40.60		
1.0310	11.18	2.95	8.23	41.00		
1.0280	11.16	3.20	7.96	39.60		
1.0310	11.15	2.75	8.40	40.95		
1.0297	11.14	2.90	8.24	40.50		
1.0316	11.14	2.80	8.34	40.60		
1.0280	11.13	3.45	7.68	39.60	36.00	Fresh.
1.0300	11.13	3.20	7.93	41.20		
1.0305	11.13	2.90	8.23	40.40		
1.0295	11.10	3.00	8.10	39.35		
1.0299	11.07	3.10	7.97	40.30		
1.0312	11.06	2.75	8.31	40.80		
1.0305	11.04	2.70	8.34	41.30	37.40	
1.0305	11.02	2.90	8.12	40.15		
1.0285	11.01	3.10	7.91	39.80	36.00	
1.0280	11.00	3.40	7.60	39.10		
1.0297	10.99	3.80	7.19	39.65		
1.0287	10.96	3.05	7.91	39.30		
1.0295	10.94	2.90	8.04	40.40	37.30	
1.0305	10.92	3.00	7.92	40.40		
1.0290	10.90	3.00	7.90	39.90		
1.0270	10.76	3.40	7.36	39.20		
1.0290	10.71	2.90	8.39	39.15		
1.0282	10.70	2.95	7.75	38.75		
1.0291	10.69	3.20	7.49	40.65		
1.0300	10.60	2.40	8.20	40.80		
1.0310	10.58	2.60	7.98	39.90		
1.0292	10.58	2.50	8.08	39.80		
1.0290	10.54	2.85	7.69	38.05		
1.0300	10.52	2.50	8.02	40.20		
1.0310	10.46	2.45	8.11	40.70		
1.0310	10.44	2.60	7.84	40.55	36.50	
1.0300	10.38	2.55	7.83	39.90		
1.0302	10.37	2.30	8.07	39.50		
1.0277	10.31	2.95	7.36	39.00		
1.0502	10.31	2.60	7.71	39.10		Fresh.
1.0353	10.20	0.85	9.35	42.30		Fresh.
1.0304	9.80	2.20	7.60	39.25		Fresh.

An inspection of the above table shows that many of the samples of milk represented there are properly classed as abnormal, yet in no instance did the refractometer reading by the acetic acid method fall below 39.0° C. It should be borne in mind that the analysis above given represent single samples from individual cows, and these results should not therefore be applied to the ordinary market milk which invariably consists of the mixed milk of a number of cows. The wide variation in composition found in single cow milk tend to disappear when the milk from several individuals is mixed together and therefore the composition here samples fall within much narrower limits.

The following table shows the composition of samples from the mixed milk of the herds from which the individual samples in the previous table were obtained.

Specific gravity.	Total solids.	Fat.	Solids not fat.	Refractometer, acetic acid method.	Refractometer, copper sulphate method.
1.0300	12.55	4.00	8.55	42.10	.....
1.0305	12.48	4.20	8.28	41.75	.....
1.0310	12.37	3.60	8.77	41.60	.....
1.0300	12.21	3.60	8.61	41.60	.....
1.0300	12.12	3.60	8.52	41.75	37.20
1.0310	12.05	3.40	8.65	41.90	.....
1.0310	12.00	3.10	8.90	41.07	.....
1.0308	11.99	3.70	8.29	40.45	.....
1.0310	11.81	3.20	8.61	41.40	.....
1.0310	11.74	3.00	8.74	41.30	.....
*1.0294	11.49	3.40	8.09	40.50	.....
*1.0300	11.26	2.90	8.36	40.05	.....

\*(These two samples are from a herd of Holstein cows owned by a dealer who sells large numbers of such cows to dairymen on butter fat test. His own herd is composed of such cows as have not been sold because of the undesirable quality of the milk they produce. This herd is therefore a selected herd of cows giving poor milk.)

An inspection of the above table will show that in no instance did the herd samples read below 40.00 by the acetic acid method.

Attention was directed in the report of this division for 1908, that a considerable number of milk dealers in South Jersey were selling skimmed milk in containers not properly marked. The claim was made that properly marked bottles could not be obtained. A number of prosecutions were begun against persons violating the law in this particular and convictions secured. After that these dealers seemed to have little or no difficulty in obtaining marked bottles and no violations of this kind have been discovered during the present year.

During the Summer a number of samples of cream were collected from a large wholesaler in Newark which proved on analysis to contain condensed milk, evidently added for the purpose of making a thin cream resemble one much higher in fat. The addition of condensed milk to milk or cream is specifically prohibited by the food and drugs act and prosecutions have been begun against this dealer.

The simplest and quickest method of detecting condensed milk in cream is by the use of the immersion refractometer which will give high readings.

**ALLSPICE:** One hundred and fifty-nine samples were examined, of which two were found to be adulterated, one with ground cocoonut shells and one with a mixture of cocoonut shells and olive stones.

**BUTTER AND OLEOMARGARINE:** Two hundred and seventy-six samples of butter and oleomargarine were examined. Of these 240 were purchased for butter, and 114 of them were found to be oleomargarine sold in violation of law. It is very unfortunate that persons engaged in the sale of oleomargarine should so persistently endeavor to deceive the public by selling it for butter. Oleomargarine when properly made is a healthful and palatable substitute for butter, and forms a welcome addition to the diet of those persons who cannot afford to purchase butter at its present high price. There has been so much fraud and trickery attending the sale of oleomargarine in the past that a prejudice has been created in the mind of the consumer which is directed against the article, instead of against the dishonest vendor, as it should be. If manufacturers, wholesalers and retailers would endeavor to push the sale of this product in a legitimate way, and by legitimate means, instead of persistently endeavoring to hoodwink the public, this prejudice would soon disappear and oleomargarine would find a ready market on its own merits, instead of masquerading as butter.

During the summer the attention of this Division was directed to a practice which appeared to be prevalent among a certain class of hotelkeepers in Atlantic City of serving oleomargarine for butter on the table without informing their guests in any way that the article they were getting was not butter. This is clearly in violation of the law. Evidence was presented to us by a large number of hotelkeepers, and in thirty-nine instances this evidence was sufficient to make it reasonably sure that, if prosecutions were begun, convictions would follow. These cases were accordingly referred to the Attorney General and have since been tried and have resulted in convictions in all but one or two instances. During the investigation developed that the wholesalers who were selling these goods to hotels had carefully studied the situation, and had devised plans for evading the law which made it very difficult for an inspector to obtain evidence of such violation. Legislation is needed to break up this practice of hotelkeepers, and it is to be hoped that it may be secured at the next session of the Legislature.

The sale of oleomargarine colored in imitation of natural butter by means of added color-matter has almost ceased in this State. Oleomargarine manufacturers have, however, by careful selection of the ingredients used in its manufacture, succeeded in producing a product of such high color that it can readily be sold as butter. In the interest of the public, manufacturers should be required to refrain from using materials which will make the finished product resemble butter in color.

**CASHEW:** Four samples were examined during the year, of which two were classed as adulterated, in that they did not bear on the label the date of manufacture as required by Sec. 5 of the Food and Drugs act. This section, however, is so grossly defective, that it was deemed inadvisable to attempt to enforce it. Had such an attempt been made it would certainly have been declared unconstitutional.

**CHOCOLATE:** Forty-three samples of chocolate were examined of which one was found to be adulterated with foreign starch. Nine samples of a product labelled "Chocolate Powder" were also examined, eight of which were declared adulterated and misbranded because of the presence of sugar which was not declared on the label. In this instance the manufacturer, upon learning the attitude of this Division toward his product withdrew his entire stock from the State and relabelled it in compliance with the law. One sample of milk chocolate was found to contain a large proportion of wheat starch. Attempts to collect other samples of this brand were unsuccessful, and it is probable that it is no longer on the market.

**CINNAMON:** Two hundred and fifty-three samples of cinnamon were examined of which four were found to be adulterated. The adulterants were ground cocoonut shells and ground olive stones.

**CLOVES:** One hundred and seventy-six samples were examined, of which three were found to be adulterated with clove stems and one with ground allspice, which had probably been mixed with the cloves by mistake.

**COCO:** Seventy samples were examined, one of which was adulterated with arrowroot starch and sugar, and the other with wheat starch.

**HONEY:** Eighty-six samples of honey were examined, nine of which were found to contain little or no honey, but were composed largely of invert sugar.

**LEMON EXTRACT:** Sixty-six samples of lemon extract were examined, of which thirty-seven were found to vary from the legal standard. Many of these samples were deficient in lemon and most of them were labelled in such a manner as to constitute misbranding, and deceptive statements on their labels.

**MUSTARD:** Two hundred and fifty-seven samples of ground mustard were examined, of which twenty-four were classed as below standard. The adulterants were foreign starches, tumeric, and mustard hulls.

**PEPPER:** Three hundred and seventy-five samples of ground black pepper 285, of white pepper, and 188 of cayenne and paprika were examined. Of these ten samples of black peppers, twenty-two of white, and one of cayenne were found to be adulterated. The adulterants were foreign starches, cocoonut shells and olive stones.

**VANILLA EXTRACT:** Three samples of vanilla extract out of thirty collected were found to be misbranded. This is a good showing for vanilla extract which has been found to be grossly adulterated in the past.

**VINEGAR:** Three hundred and thirty-eight samples of vinegar were examined, of which twenty-four were found to vary from the legal standard. Some of these were simply deficient in acid or solids. Others were skillfully prepared imitations of cider vinegar, compounded expressly for this purpose of deceiving the chemist. There is in this State a considerable sale of goods of this kind and during the coming year an attempt will be made to detect and punish those who sell as cider vinegar a product not made exclusively from cider, but so cleverly doctored that it can only be distinguished from the genuine article by laborious and refined methods of analysis.

#### DRUGS.

**ALCOHOL:** Eighty samples of alcohol were examined for the purpose of ascertaining whether or not diluted alcohol was being sold, or whether denatured alcohol was dispensed, when alcohol was called for. In no instance was denatured alcohol found, and in only one instance was diluted alcohol sold to an inspector.

**LIQUOR MAGNESII CITRATIS:** The one sample examined was found to contain considerably less magnesia than should be present if the mixture is made according to the directions given in the Pharmacopoeia. In view of the difficulty of obtaining Magnesium Carbonate, which will comply with the somewhat too stringent requirements of the Pharmacopoeia, considerable variation in the composition of the drug is to be expected.

**LIQUOR CALCIS:** Sixty-one samples of Liquor Calcis were examined, of which twenty-six were found to contain less Calcium Hydroxide than the Pharmacopoeia requires. This is no excuse for a druggist dispensing lime water deficient in strength. Such an occurrence is always due to carelessness either in making or keeping the preparation. The standard fixed by the Pharmacopoeia is sufficiently low to allow for considerable deterioration in a well made solution before it will go below the requirement.

**TINCTURE OF IODI:** The usual high percentage of inferior samples of this drug were found. Out of the fifty samples examined twenty-one were deficient in iodine or potassium iodine or both. Seven of these contained no potassium iodine whatever. It therefore appears probable that there are still pharmacists in this State who have not yet discovered that the Pharmacopoeia of 1880 has been superseded by a more recent revision, although that revision has been in force about four years.

# Report on State Laboratory of Hygiene.

R. B. FITZ-RANDOLPH, DIRECTOR.

*To the Board of Health of the State of New Jersey.*

GENTLEMEN:—I have the honor to submit the following report on the operation of the State Laboratory of Hygiene for the year ending Oct. 31, 1909.

The work of the laboratory consists in the examination of specimens from suspected cases of communicable diseases, the analysis of foods and drugs and the examination of samples of water and sewage. An account of the work done on food and drugs will be found in the report of the Chief of the Division of Food and Drugs, and of the water and sewage analyses in that of the Chief of the Division of Sewerage and Water Supplies. This report relates to the examination of specimens for diagnosis.

The work of the bacteriological laboratory has followed, in the main, along the lines of former years. It has increased remarkably in amount, however, having been at times so heavy that the laboratory staff have been unable to handle it, and had it not been for the assistance rendered by employees of the Division of Food and Drugs and Division of Sewerage and Water Supplies, it would have been impossible during several months to comply with requests for bacteriological examinations. The large increase in the work of the laboratory was confined chiefly to the examination of specimens from suspected cases of diphtheria and was due to large numbers of specimens sent from the State Village for Epileptics at Skillman for the purpose of controlling an epidemic of diphtheria in that institution. During the months of January, February, March and April more than eleven thousand specimens were examined from this institution alone. During October, outbreaks of diphtheria began in Salem, Elmer, Ocean City and Asbury Park which are continuing at the present time. From each of



these places considerable numbers of specimens were sent from well persons for the purpose of ascertaining whether or not their throats contained diphtheria bacilli. These measures involving the use of laboratory examinations are of great service in restricting the spread of the disease and it is very important that the laboratory be prepared at all times to undertake the examination of large numbers of specimens of this kind. The Skillman epidemic was the means of directing our attention to certain defects in the laboratory which had been recognized before, but which were made particularly prominent at a time when our resources were taxed to their utmost. If we are to do satisfactory work in this direction, facilities must be provided with which to handle many times the usual number of specimens with accuracy and speed. This requirement can only be fulfilled by keeping at all times available a large supply of mailing cases and other articles needed in the performance of these examinations. Our supply of mailing cases was found to be entirely inadequate during the Skillman outbreak and improvised outfits had to be used at considerable inconvenience, loss of time, and, in some cases, loss of accuracy. Owing to the smallness of our appropriation it has been impossible to obtain a sufficient supply of these cases and we are still unable to comply promptly with requests for them because of insufficient stock on hand. These statements with regard to diphtheria outfits apply with equal force to all the other outfits supplied by the laboratory to physicians. Our stock of outfits for collecting specimens from suspected cases of typhoid fever, tuberculosis, malaria and gonorrhoea is much under the safe limit. Sufficient appropriation should be made available during the coming year to enable the laboratory to procure outfits enough to properly carry on its work.

The examination of each specimen sent to the laboratory entails the preparation of the outfit in which it is collected, and the sterilization and cleaning of the outfit after the examination is completed. The large increase in the number of specimens received during the year has increased the amount of preparation and cleaning needed to such a degree that an additional laboratory assistant is urgently required. During the Skillman epidemic a second assistant was employed temporarily of necessity and, at the present time, this work is from three to four weeks behind, resulting in great delay, not only to the members of the laboratory staff who are hindered because of lack of clean apparatus and glassware, but also to physicians who are unable to obtain outfits for sending specimens to the laboratory. This state of affairs is

impairing the efficiency of our work, which to be of value, must be prompt. Physicians throughout the state are using the laboratory more and more and will continue to do so if they can obtain results promptly. Unless they can do this the laboratory is of little service to them. Every effort should be made to render the service as efficient as possible. The laboratory is a potent aid to the Board in the protection of the public health and it will not have reached its maximum usefulness until every physician in the state makes full use of it. It is therefore very important that everything possible be done to persuade physicians to send specimens to it, and the best way to accomplish this is to make the service rendered by it prompt, accurate and complete.

For several years the writer has called attention in his annual reports to the necessity for a room where animals may be kept for experimental purposes, but so far without result. We are still without our animal room which is now more urgently needed than ever. Tests for virulence of diphtheria cultures should be made part of our routine work and would result, especially in the control of epidemics where specimens are taken from well persons, in saving much time, annoyance and money to those unfortunates who carry diphtheria bacilli in their throats. There are numerous other investigations which are only possible when animals are available. Certain important problems concerning the prevalence of tubercle bacilli in market milk sold in this state need to be investigated but we cannot do it until an animal room is provided. Animals are frequently necessary in the testing of specimens from suspected cases of anthrax, glanders, rabies, etc., and great difficulty is experienced in complying with requests which are continually being made for such examinations. If the laboratory is going to keep abreast of the times an animal room must be provided and that soon.

Additional room is needed in which to carry out such investigations as require especial precautions or the long continued use of elaborate apparatus. At the present time the Director has no place where he can work undisturbed and his opportunity for research is therefore considerably curtailed.

During the year numerous requests have been received for the examination of various materials for the purpose of ascertaining whether or not they contain the typhoid bacillus. Such examinations afford information which is frequently of value in the control of epidemics and the laboratory should be prepared to make them. These examinations require much time and, at present, it is necessary to refuse to make many tests of this character because

the time of the laboratory staff is so occupied with routine work that there is no opportunity to make them. If it is desired that we stand ready to make tests of this kind it will be necessary to secure the services of an assistant bacteriologist. With another man available it would not only be possible to do this work, but also undertake a considerable number of bacterial milk analyses which are greatly needed, and for which requests are constantly being received.

The regular work of the laboratory consists in the examination for diagnosis of specimens from suspected cases of diphtheria, tuberculosis, typhoid fever, malaria, gonorrhœa, anthrax, glanders and rabies. For the first five of these diseases, mailing cases are provided free of cost for the purpose of sending specimens to the laboratory, and are kept in stock in a large number of places, mostly drug stores, throughout the state. Reports of the results of the examination of these specimens are sent to the physicians who send them by mail. In addition a telegraphic report will also be sent if the physician requests it. Reports will be made by telephone if the physicians desires and calls the laboratory. The laboratory will assume no responsibility for the correctness of telephonic reports, nor will physicians be called on the telephone for the purpose of reporting to them. Should physicians desire to call the laboratory, reports of the examination of specimens for diphtheria will be ready at 8.30 A. M. and other specimens at 12.00 M.

The laboratory is open for the reception of specimens from 7.45 A. M. until 5.00 P. M. except Saturdays and Sundays. On Saturday it closes at noon and on Sunday is open from 10 A. M. to 12.00 M. Ordinarily only diphtheria and typhoid specimens are examined on Sunday, but we are prepared, in case of emergency, to examine other specimens also.

The last mail received at the laboratory arrives at the post office at 7.30 P. M. on week days and at noon Sundays. Specimens coming in on these mails will be examined the first thing on the following morning. Specimens delivered to the night watchman before 8.00 P. M. will also be examined the next morning.

It is of great importance that postage be fully prepaid at letter rates on the mailing cases sent by physicians to the laboratory. Unless this is done they are subjected to serious delays in the post office for which the laboratory is in no way responsible and which it cannot control. It is also important that physicians in the rural districts instruct their local postmasters that specimens for bacter-

iological examination are prepaid at letter rates and should be forwarded in pouches with letter mail. Mistakes are frequently made in the smaller post offices by placing these cases with third and fourth class matter in sacks, which are not handled as promptly as first class mail.

Examinations of specimens for diphtheria are made twice daily, at 8.00 A. M. and 5.00 P. M. Specimens received at the laboratory at night are examined the following morning. Those received before noon are incubated until 5.00 o'clock and examined. If diphtheria bacilli are found they are at once reported on, otherwise they are returned to the incubator until the following morning when they are again examined. In most specimens which contain the diphtheria bacillus they can be found after five hour incubation and much time is saved the physicians by making examinations twice daily.

Examinations of swabs are made when requested but the results of these examinations are unreliable and reports are given on them with the understanding that the laboratory will not be responsible for errors which may result from this method of examination. Under present conditions requests for virulence can only be complied with in special cases.

The mailing case for diphtheria specimens described in last year's report has been found to be very satisfactory and has been retained. It is to be regretted that the postal regulations compel us to use a heavy and expensive tin can when a paper tube would afford equal security for specimens of this kind and cost much less to manufacture and for postage. The laboratory uses about three thousand of these cans each year and the cost of them is quite an item.

The outfit furnished by the laboratory for the collection of specimens from suspected cases of tuberculosis is the same as that described in the report of 1908. This outfit has proved very satisfactory, but it is possible, because of a contemplated change in the postal regulations, that it will need to be further modified, entailing additional expense for postage on physicians. While it is highly desirable that all possible safeguard be thrown around the transportation of infectious material through the mails, it is unfortunate from our standpoint that the post office authorities insist on such a heavy, bulky and expensive container for specimens of sputum. It seems probable that a much lighter and cheaper case could be designed which would fulfill all the requirements of safety and would therefore be just as satisfactory as the one now prescribed by the regulations. Vials for collecting sputum when

sent out contain enough carbolic acid to disinfect the quantity of the sputum which they will hold. Physicians should always be careful to refrain from removing this carbolic acid, or, if it has leaked out or dried out, should replace it with fresh before sending the cases back to the laboratory. The examination of specimens of sputum is, even under the most favorable circumstances, attended by danger to the examiner, and when specimens are sent in such condition that the sputum has leaked out, the danger of transmitting infection is considerable. While the laboratory has had for a long time a rule providing that no specimen of sputum would be received in containers other than those supplied by the laboratory, nor would any such specimens be examined if leakage from the vial had occurred, this rule has not been enforced in all cases, it having been considered inadvisable to subject the physician to the annoyance of having to collect another specimen. In the future, however, strict compliance with this regulation will be required. There are some physicians in the State who make a practice of sending specimens of sputum through the mails in containers not in conformity with the regulations of the post office department, and the containers selected by them are often of such a character that they break in transit, permitting mail matter to become infected. There is no excuse for this practice which exposes every person who handles such a container or mail matter coming in contact with it to danger of infection, and it will no longer be tolerated. Great opposition was encountered when permission was first sought to transmit these specimens through the mails, and, should the post office authorities become convinced that danger of the spread of contagious diseases might ensue, this permission might be withdrawn. A state laboratory is absolutely dependent on the mails for the transmission of its specimens, and, should these be declared unavailable, our usefulness would be greatly curtailed if not ended altogether. There is no reason, therefore, why we should longer tolerate this disgusting and dangerous practice of a few physicians, and every reason why we should not do so.

The method and outfit for the examination of specimens from suspected cases of typhoid fever has suffered no alteration during the year. There are some physicians in the State who entirely misunderstand the purpose of these examinations. The Widal reaction gives information which is useful for diagnosis only. It may persist months or even years after a patient has recovered, and its disappearance has no relation to the time when the patient ceases to be infectious. It is folly, therefore, to do as one physi-

cian in the state has recently done, attempt to maintain veritable quarantine restrictions until the reaction disappears. The only method of ascertaining when a typhoid patient ceases to be infectious is to make examinations of his fæces and urine for the purpose of identifying the typhoid bacillus. Some few tests of this sort have been undertaken during the past year, but our facilities are so limited that not many of them could be carried to completion. It is hoped that in the near future we may be so situated that we can make routine tests of faeces, urine and water for the purpose of determining the presence or absence of the typhoid bacillus, whenever requested.

Specimens from suspected cases of typhoid fever are, like the diphtheria specimens, examined twice daily. It is difficult to see how our service with respect to these examinations could be improved except by having an additional bacteriologist on duty at night. This would make it possible to report some specimens somewhat more promptly, but the condition of our appropriation will not warrant the employment of such a man at the present time.

The examinations made for the purpose of detecting the malarial parasite do not require comment further than to state that it is very seldom that the Plasmodium Malariae is found. In only six instances was it detected during the past year. It is possible, however, that it may have been overlooked in some of the specimens received. Physicians still persist in sending smears so badly prepared as to be quite unsuitable for examination and occasional mistakes are inevitable in the examination of specimens of this kind.

Attention should again be called to the fact that the surest and quickest way to ascertain whether or not an animal is suffering from rabies is to confine it securely and wait for the characteristic symptoms to manifest themselves. An animal really suffering from this disease will die within eight or nine days after the onset of the symptoms and, should any doubt exist in the minds of the persons having it under observation, the head may be sent to the laboratory. Under these circumstances, if the animal was rabid, Negri bodies can always be found in considerable numbers and a report promptly made. If an animal is killed in the early stages of the disease, the Negri bodies may be so few in number and so localized in particular portions of the brain that they are missed by the examiner and it is then necessary to resort to animal inoculations involving a delay of from two to three weeks before a report can be made. Much time will usually be saved and more

accurate information secured if the animal supposed to be rabid is permitted to die a natural death.

The following tables shows the work done during the year in some detail. Table C is a summary of the examinations made since the laboratory was established in 1896.

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

	1896 and 1897.	1898.	1899.	1900.	1901.	1902.	1903.
Diphtheria.....	627	600	577	974	1,864	1,487	2,090
Tuberculosis.....	232	516	786	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	65	132
Totals.....	914	1,313	1,682	2,350	3,955	4,080	5,559

	1904.	1905.	1906.	1907.	1908.	1909.
Diphtheria.....	2,949	2,896	3,277	3,348	6,090	14,688
Tuberculosis.....	2,344	2,691	2,943	3,402	3,637	4,208
Typhoid fever.....	1,272	1,263	1,556	1,975	2,543	2,261
Malaria.....	98	109	126	149	178	197
Miscellaneous.....	67	84	126	119	170	240
Totals.....	6,730	7,048	8,033	8,993	12,618	21,594

\*The number of these specimens has not been recorded.  
†Thirteen months.

A study of this table shows that during the last two years diphtheria examinations have increased very much. This is not due to an increase in the number of diphtheria cases in the state, but to the increased use which is being made of the facilities offered by the laboratory in the control of epidemics. This increase is highly gratifying to the laboratory staff, although somewhat embarrassing because of our limited equipment, and it is to be hoped that it will continue.

Examinations of specimens other than diphtheria have all grown steadily, showing the increasing use that physicians are making of the laboratory.

The miscellaneous examinations made during the last year may be classified as follows:

Table D showing examinations classed as miscellaneous.

	Positive.	Negative.	Total.
Gonorrhoea.....	69	112	181
Rabies.....	18	10	28
B. typhosus, water.....	0	2	2
B. typhosus, urine and faeces..	0	6	6
Milk, bacterial count.....	.	.	5

	Positive.	Negative.	Total.
Treponema pallidum.....	1	3	4
Glanders.....	0	2	2
B. tuberculosis, urine and faeces	3	5	8
Anthrax.....	1	0	1
Influenza.....	0	1	1
B. coli communis.....	1	0	1
Pus, various bacteria.....	.	.	1

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An inspection of the above table will show how closely it has been necessary to confine the work of the laboratory to routine. It has been impossible to comply with many requests for examinations of various sorts imply because no time was available to do the necessary work. Many of these requests were for examinations of a character properly coming within the scope of our work and it is a source of great regret to us that we have been obliged to refuse them. It is greatly to be desired that the legislature will make adequate provisions for work of this character in the future.

TABLE E SHOWING THE NUMBER OF SPECIMENS EXAMINED DURING THE YEAR, ARRANGED BY MONTHS.

MONTH.	DIPHTHERIA.		TUBERCULOSIS.		TYPHOID FEVER.		MALARIA.		MISCELLANEOUS.		Totals.
	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	
November, 1908...	205	153	231	44	145	21	12	12	13	5	830
December, 1908...	279	156	307	37	134	25	12	13	3	3	966
January, 1909...	662	5,656	326	45	119	16	9	10	10	6,843	
February, 1909...	195	4,833	325	53	127	18	10	17	3	5,581	
March, 1909...	245	439	370	56	122	9	6	1	26	2	1,276
April, 1909...	168	824	399	50	162	17	13	1	19	2	1,055
May, 1909...	131	94	333	54	151	13	21	3	8	1	809
June, 1909...	129	70	318	43	165	22	19	1	26	1	793
July, 1909...	111	41	282	39	159	20	25	1	13	2	693
August, 1909...	119	42	257	44	231	31	21	1	26	1	772
September, 1909...	133	59	292	32	435	41	28	1	19	2	812
October, 1909...	319	223	263	38	234	44	18	1	24	4	1,164
Totals.....	2,696	11,992	3,673	535	1,984	277	189	8	214	26	21,594
Grand Totals..	14,683		4,208		2,261		197		240		21,594

Table E shows the number and kind of specimens examined by months. This table shows the seasonable variation in diphtheria, although the figures are somewhat obscured by the large number of specimens received from Skillman from January to April. It also shows the seasonal variation in typhoid fever. The number of specimens examined for malaria is too few to draw conclusions from. Malaria is now a very uncommon disease in this state.





TABLE F SHOWING THE NUMBER OF SPECIMENS EXAMINED DURING THE YEAR  
ARRANGED BY CITIES AND TOWNS.

TOWNS.	DIPH- THERIA.		TUBERCU- LOSIS.		TYPHOID FEVER.		MALARIA.		MISCELLA- NEOUS.		Totals.
	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	
Penns Grove.	3		1						1	1	6
Pennsville.			1								1
Pensauken.	1										1
Perth Amboy.	2		51	6	26	4	5				113
Phillipsburg.	1		11	2				1	1		96
Pitman.			4								14
Plainfield.	64	29	83	9	53	10	7		3		265
Pleasantville.			6	4	5	5					6
Point Pleasant.	2		9		18		4	1			29
Pompton Lakes.			17	5	3						14
Port Norris.	48	17	17	5	3	1	1		3		20
Princeton.	7		9		3						20
Rahway.	43	2	25	3	39	9	2		13	2	107
Ramsey.	10	4	6		7				5		134
Red Bank.	3		7	1	3		3				20
Richwood.			1								17
Ridgefield Park.			1								2
Ridgewood.	16	4	6	2	9						42
Ringoes.			19	4	8	2		1			34
Riverside.	3		2	4	2						7
Park Ridge.			2	4	2						7
Riverton.	5	1	3	4	5	12	1				12
Rockaway.	15		14	3	4				1		29
Rocklidge.	23	3	7	1	20	4			3		39
Roselle.	5	4	4		3	2					38
Roselle Park.											18
Rutherford.	13	7	17	1	6		3				1
Salem.	104	33	15	5	12	5	2		3		47
Sayreville.					2						179
Scotch Plains.											2
Sea Bright.									1		1
Sea Isle City.					2		1				10
Sergeantsville.			1						1		2
Skillman.	432	10,792	4		12						2
Somerville.	23	13	42	7	11	2	5		1		11,230
South Amboy.	1		1		2		1				104
South Orange.	2	1	37	5	15	3	1				5
South River.	1		4		3						64
Spring Lake.			3		4						8
Stanhope.			1		4		2				7
Stewartville.			1		1						3
Stillwater.	1				1						1
Stirling.											1
Stockton.											2
Succasunna.	1										1
Summit.	15	4	39	7	28						4
Sussex.	3	4									96
Swedesboro.	1		1								8
Tenafly.	2		2		1						4
Titusville.					1	1					7
Toms River.	15	8	5		1				1		3
Trenton.	136	67	446	86	418	61	18	1	68	12	29
Troy Hills.											1,314
Union.											1
Union Hill.											2
Upper Montclair.											5
Ventnor.											1
Verona.	4		13	2	3	1					1
Vincetown.	1										23
Town of Union.	1										1
Vineland.	15	2	109	14	41	5			1		6
Wanage.					2						2
Washington.	1		16	3	5	1					23

TABLE F SHOWING THE NUMBER OF SPECIMENS EXAMINED DURING THE YEAR  
ARRANGED BY CITIES AND TOWNS.

TOWNS.	DIPH- THERIA.		TUBERCU- LOSIS.		TYPHOID FEVER.		MALARIA.		MISCELLA- NEOUS.		Totals.
	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	
Weehawken.	2										6
Westfield.	21	19	27	3	35	6	2		1		113
West Hoboken.	4	1	37	1							43
West Long Branch.	2										2
West New York.											3
West Orange.											5
West Roselle.	2				1		1				1
Westville.											14
Westwood.	1	1	6	3	3				1		13
Whippany.	1		2	2	3						6
Wilburtha.											1
Wildwood.	3	1	1								6
Williamstown.	4	2	6		6	1			1		19
Woodbine.	45	4	17	5	3						35
Woodbridge.	18	13	21	1	5	1			6		84
Woodbury.	3	2	6	2					1		60
Woodstown.											2
Wyckoff.											1
Yardville.	1										1
Blank.	5		5						2		12
Totals.	2,696	11,992	3,873	535	1,984	277	189	8	214	26	21,694

# Report of the Division of Sewerage and Water Supplies.

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H. M. HERBERT, M. Am. Soc. C. E., Chief.

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## *The Board of Health of the State of New Jersey:*

GENTLEMEN:—I have the honor to submit the following report of the work of the Division of Sewerage and Water Supplies for the year ending October 31, 1909.

During the year considerable progress has been made in eliminating pollution of the waters of this State, but this is a work of great magnitude and will require both time and patience before it is accomplished.

The public sewerage systems are well known and easily located, but the minor sources of pollution such as drains from factories, creameries, canneries and private residences are oftentimes difficult to find, and each little brook and spring-run has to be traced to its source. Last year certain defects were found in the laws concerning the control of pollution of streams and the purity of the public water supplies, and to remedy this, the Legislature was asked to pass some amendments and additional laws, which was done by an almost unanimous vote. The people generally have awakened to a realization of the dangers arising from a contaminated water supply and demand that they be reasonably protected in this matter.

At a hearing on these bills held by the Senate Committee, one of the senators aptly expressed the situation when he said "Some of us drink milk sometimes and it should be safe-guarded, but all of us drink water at all times and we want it safe and pure beyond question." With such sentiments prevailing the "Pure Water Bill" (chapter 253 Laws of 1909) became a law under which much power and great responsibility is placed in the hands of this Board. Although this act has been in force only since April 21, 1909, the effect of the law has been extremely gratifying.



Heretofore, the State Board of Health has only had advisory powers as regards the installation and operation of water plants, but under the present act the Board has complete authority to act on these matters. No company may now install a water plant without the approval of the Board, and any changes may be ordered in the operation of an existing plant which the Board may deem necessary for the improvement of that particular supply.

In order that the Board may be well-informed as to the condition of each public water-supply, the law makes it imperative that the Board of Health have analyzed a sample of each public supply at least four times each year. This gives a series of reports on each plant which are extremely valuable both to the Board and to the various companies. It was at first thought that every company should pay a stated fee for each analysis, but this act was not passed, and without any added appropriation for this specific work, the Board was forced to carry out the provisions of the act upon its already too small appropriation.

In order to lessen the expense incurred in carrying out the provisions of this law, arrangements were made with the majority of the water companies whereby they might act as agents of this Board, collect the samples of water when necessary, and pay the expressage on containers. In return for this act of co-operation, each company is given the analysis of the samples collected and in this way the company acquires at almost no expense to themselves, information which would cost, if obtained through private firms, at least one hundred dollars (\$100.) each year. With very few exceptions, the various water companies have gladly co-operated with the Board of Health in this work, and it is hoped that during the coming year it will be possible to serve all the water companies in the State with analyses of their water.

With regard to the supervision of water plants, it is manifestly proper that jurisdiction in this work should be given to the State Board of Health. Pure water plays such an important part in the public health that all precaution should be taken to have public water supplies safe for use. The installation of a filtration plant does not necessarily mean that pure water is to be delivered through it, for a filter will not run itself, and in order to produce good results it is necessary to keep a careful watch over the workings of the plant. An untrained man can produce very poor water with a good set of filters, but if he be thoroughly informed as to the requirements of his work, he can soon produce the best possible results. It is intended under the act quoted that such

information shall be given with regard to the working of purification plants as shall lead to the better operation of all plants and keep the standard of their efficiency high. It is to be deplored, however, that more funds and men are not available for the carrying out in full of all the provisions of the law.

The amount of work carried on during the year under this act has been all that could be accomplished under existing conditions, and it is to be hoped that during the coming year such arrangements may be made as will result in the carrying out of all the provisions of this act to their fullest extent.

#### SEWERS AND SEWAGE DISPOSAL.

There are in the State sixty-three (63) public and semi-public sewage purification plants of various designs which are now in operation, with fourteen (14) additional plants under construction and nearing completion. Most of these plants are doing good work, as reference to the detailed report on sewage disposal plants will show, but some need more careful supervision and at least two of them must be enlarged during the coming year. The work of even an inferior plant can be very materially improved by exercising ordinary care and intelligence in the supervision of the work. Considerable improvement in this line has been made during the last year owing to advice and instructions given the attendants, and it is the intention of this Division to continue this educational work. Composite samples should be collected from all the plants at least once a month, but owing to the inadequate force, it is found impossible to do so.

Purification works are being installed on various sewerage systems which are already in operation, and the Board has wisely refused to approve plans for new sewerage systems unless disposal plants are provided for therein. It is no vain boast that this State is far in advance of all others in this work of cleaning up its streams, the Passaic river, for which this Board is not responsible, being the exception.

During the year, eleven (11) disposal plants have been installed or are nearing completion on existing sewerage systems. Several entirely new sewerage systems provided with disposal plants have been and are being constructed. The following is a list of the municipalities which are under orders to cease to pollute the waters of this State prior to the dates given. The time limit in some of these cases has already expired and these have been referred to the Attorney General with instructions to begin suit against them under Chapter 72 of the Laws of 1900:

Atlantic City—main outlet—prior to February 1, 1912.

Atlantic City—Dover avenue outlet—prior to Feb. 1, 1910, plans approved.

Atlantic Highlands—prior to June 1, 1909, referred to the attorney general.

Belmar—prior to June 1, 1909, referred to attorney general.

Bound Brook—prior to July 1, 1911.

Bridgeton—prior to July 1, 1910, plans submitted.

Camden—prior to September 1, 1913.

Cape May—prior to June 1, 1909.

Cranford—prior to November 1, 1911.

Gloucester—prior to September 1, 1913.

Long Branch—prior to May 1, 1908.

Longport—prior to June 1, 1912.

Mount Holly—prior to January 1, 1911.

New Brunswick—prior to July 1, 1911.

Rahway—prior to October 1, 1911.

Raritan—prior to July 1, 1911.

Red Bank—prior to May 1, 1909.

Riverton—prior to September 1, 1913.

Rumson—prior to May 1, 1908.

Salem—prior to September 1, 1913.

Sea Bright—prior to July 1, 1908—referred to attorney general.

Sea Girt—prior to May 1, 1910.

Somerville—prior to July 1, 1911.

Trenton—prior to January 1, 1911.

Ventnor—prior to October 1, 1910.

Some of the above municipalities have submitted plans which were approved, and arrangements are now being made to proceed with the work of installation. Others seem to have been inactive and are apparently courting litigation. The City of Trenton this year appointed a special committee to visit a number of sewage disposal plants in adjoining states, which committee submitted an exhaustive report of the results of their investigations, with the following recommendations:

"Your committee therefore recommends that expert investigation be made as to the practicability of purifying Trenton sewage by the methods suggested below:

1. Screening.
2. Clarification by either sedimentation or the septic process.
3. Purification of such clarified effluent by the use of the sprinkling filter with means of disinfection of sprinkling filter effluent if deemed necessary.

Following is a list of some of the matters to be covered by the investigation suggested as they occur to your committee. It will perhaps serve to throw light upon the magnitude and nature of the study preliminary to the installation of the proposed plant:

1. Population to be provided for by plant.
2. The amount, bacterial and chemical characteristics of Trenton sewage.

3. The amount and composition of trade-wastes and their effect upon the sewage.
4. Amount of ground water infiltration and its elimination.
5. Changes to be made for the diversion of storm-water from the sanitary sewage.
6. Investigation of the possible effect of water meters throughout the city as a means of reducing the sewage flow.
7. Capacity, location and kind of pumps to be used.
8. Location of plant.
9. Experimentation for the determination of the most economical and effective arrangement of screens, tanks and sprinkling filters.
10. Disposition of sludge and subsequent treatment and disposition of sprinkling filter effluent.
11. Design of plant so that units may be added with growth of population."

The above are good recommendations, but it may be readily seen that thus far little or no actual work has been done in the study of local conditions and the preparation of plans although only fourteen (14) months remain in which to install same.

#### CREAMERY WASTES.

There are 140 creameries in this State, a number of which are located on low and rather wet ground near streams which location is unsuitable for properly taking care of the wash water and wastes. These are discharged into the nearest water way, and if this proves to be a small stream, the odor and appearance becomes very objectionable especially in warm weather. Under any conditions these wastes are considered as constituting dangerous pollutions, unless they have been properly purified. Generally the profits in this business are small, and should proprietors be compelled to pump the waste water to a higher elevation for land treatment, or to build contact or filter beds, it would prove an expense which few could stand. Under these circumstances, the Board instructed this Division to conduct some experiments in the laboratory to ascertain the most economical method of treating these wastes. After careful investigation the following plan was recommended:

1. Slack a bushel of good well-burnt quick lime (not air-slacked) in a barrel, and keep this paste covered to exclude air.

2. Take a sufficient quantity of this paste (depending upon the thickness or milkiness of the waste water) and mix in a pail of water.

3. Add this to the waste water and thoroughly mix by stirring.

4. Allow this to settle over night and run off the clear water into the drain.

5. Remove the sludge and cart off to the fields.

#### NOTES:

If enough lime is used the above process ought to give a good separation of the solids and liquids. The liquid should not turn bad and the sludge should be good for land treatment. The sedimentation can be performed in tanks or barrels open or closed and the lime may be added directly into the washing sinks just before being emptied. All wash waters and floor scrubbing should be so treated.

The amount of lime can easily be determined by a few trials of the material in question, about 1 per cent. being ample for a very heavy creamery wash-water tried in the laboratory.

The sludge may be carried off wet or drained and handled dry. Various details may be devised and arranged to suit individual conditions.

This report was approved by the Board and a circular describing the method is furnished to any interested party applying for same. The cost of this treatment is only a few cents per day for an ordinary creamery.

#### STREAM POLLUTION.

Considerable progress has been made during the year in the elimination of the sources of pollution of the waters of the State. The municipalities are rapidly installing disposal plants and the individual or minor pollutions are being removed as expeditiously as possible under the existing laws. The field inspectors have inspected 5,125 miles of water front and report 1501 cases of pollution. Upon reinspection of part of the above territory it was found that 338 parties had complied with the notice which was served upon them to cease polluting, while 371 located on the following waters had either refused to comply or else paid no attention to the notice.

168	cases on the	Delaware River
12	" " "	Elizabeth "
1	" " "	Metedeconk "
2	" " "	Rahway "
34	" " "	Raritan "
2	" " "	Rockaway "
1	" " "	Shark "
61	" " "	Shrewsbury "
1	" " "	Cohansey Creek
28	" " "	Newton "
52	" " "	Overpeck "

1	cases on the	Rancocas River
1	" " "	Raccoon "
4	" " "	Wesley Lake
1	" " "	Great Egg Harbor
2	" " "	Inside Thoroughfare.

Total, 371

These cases have all been referred to the Attorney General and will be prosecuted as soon as the necessary papers can be prepared and confirmatory evidence obtained. Of the remaining 792 cases either the time given them has not yet expired or else they are awaiting reinspection.

It has been found by experience that it is necessary to make frequent and thorough inspections of the streams and especially those constituting surface water supplies. Persons with blunted moral sensibilities insist upon using the water courses as a cheap and convenient method of sewage disposal without regard for the lives, health or comfort of their neighbors. Some of the cases should receive criminal prosecution.

Inspections have been made upon the following streams: Delaware, Raritan, Rahway, Elizabeth, Shark, Shrewsbury, Passaic, Wanaque, Whippany, Pohatcong, Musconetcong, Hackensack, Manasquan, Metedeconk, Millstone, Navesink, Paulins, Pequest, Ramapo, Rockaway and Maurice; on the following brooks and creeks, Alloways creek, Assanpink creek, Beaver brook, Cohansey creek, Coopers creek, Crosswicks creek, Green brook, Canoe brook, Haines creek, Hop brook, Yellow brook, Pensauken creek, Rancocas creek and Salem creek; Lakes, Hopatcong, Deal, Sunset, Wesley, Duck Pond and Wreck Pond.

Good work has been done on some of the rivers from which shell fish are taken and which were rather severely criticised in our last report. It is a pleasure to note that practically all sewers, drains and sources of what the Board considers dangerous pollutions have been removed from Shark and Manasquan rivers, and clams and oysters may with safety be again taken from these streams. But the greatest change for the better occurred on Maurice River, which owing to the unsanitary condition which existed in the vicinity of the oyster floats had on different occasions been adversely criticised by this Board, but as the existing laws gave the Board no jurisdiction in the matter, slight attention was paid to what was said. Messrs. Fitz Randolph and Fowler made a thorough inspection in this vicinity and submitted the following "report of inspection of the oyster grounds of Maurice River and Bivalve made Saturday, March 27, 1909":

Maurice River is a point from which shipments of oysters are made by means of the Pennsylvania Railroads. The shipping buildings are composed of two sections, the one part being comparatively new and the other part being the remains of old buildings which have been in existence for some length of time.

An inspection of the new part above referred to failed to reveal the presence of any water-closets. In the old buildings closets are still in existence, although each one appears to be securely locked, with no evidence of recent use, and in addition a placard on the door stating that "This building is closed." For the accommodation for people of this side of the river a small building has been erected, some two hundred feet from the station and constructed in such a manner that no pollution from it can occur. There are two or three private dwellings on this side of the river, which have closets attached in such a fashion that it seems improbable for any pollution to occur from them.

Bivalve is situated across the river, and from this point shipments of oysters are made by means of the Central Railroad of New Jersey. A careful inspection was made of the oyster-sheds on this side as well as the majority of the private dwellings which are in existence at this point.

In the oyster shipping houses, water-closets were found in each shed to which entrance was obtainable. These closets are situated in such a manner that at high tide substances from their must of necessity find their way into the river and therefore into the floats where the oysters are fattened. From the general condition of the private dwellings which are in existence at this point it seems evident that no attempt at cleaning up has been made since a report was last given upon this section of the state. Private closets are in existence upon various small runs which find their way into the river proper and also situated upon the marsh land in a way a fashion that pollution from them must necessarily occur. In various instances the closets are directly over the stream and in others so situated upon the banks that material from them will find its way directly into the stream. The general condition of all the buildings leads one to believe that cleanliness in this section is an unknown factor in the lives of the inhabitants.

A series of photographs taken on Saturday accompanies this report, a short statement with each photograph showing just what conditions are to be found at the present time in this section of the oyster production of the state.

At a recent inspection made in Bivalve, relative to the sanitary conditions of the town with special reference to pollution of Maurice River and its tributaries a great change in conditions was noted. In the oyster shipping houses the closets reported as existing on March 27, 1909, have been securely locked, and in place of them the railroad company has built several small privies on the land across the tracks opposite the shipping house. These privies are built with tight cement vaults.

The private pollution here has been removed by equipping the privies with tubs or tight boxes, the contents of which are taken away and buried. Some of the privies not in general use have been removed entirely, especially those which were directly over the small ditch leading to the river.

The local health authorities seem to be thoroughly awakened to the necessity for the prevention of oyster pollution, and their attitude is such that undoubtedly a strict watch will be kept over the sanitary conditions of the town in the future. The oyster shippers readily realize the value of good sanitary surroundings as an advertisement for their product and are glad to see the changes which have taken place. The general sentiment of the people seems to be strongly in favor of keeping up the work thus started, and your inspector believes that the oysters coming from Maurice River this year may be eaten with no fear of their having been grown in water polluted with human excrement or house drainage.

Regarding the pollution of the Delaware River, several of the minor cases have been abated, but none of the municipalities discharging raw sewage therein, except Roebbling, have submitted plans for or are taking any decided action with a view to installing disposal plants. No doubt this inactivity is due in a great measure to the uncertainty regarding the final outcome of the suit against the town of Phillipsburg. All of the towns and cities were originally given ample time in which to arrange for and install plants, and as they have seen fit to ignore this fact they should receive scant courtesy from the courts, when their time

limits have expired. As the contributory population of the municipalities increases each year, so does the amount of sewage increase proportionately. As a consequence, the water supplies whose source is the Delaware river, are each year getting a stronger solution of sewage, which unless the water is filtered or treated is served to consumers with all of its pollution intact.

The city of Burlington has wisely decided to install a water filtration plant, plans for which were submitted to, and approved by this Board in September last. The city of Trenton has been agitating this same question for a number of years. We find that in November, 1900, Mr. Allen Hazen, an engineer of the highest repute, made a report on the "Pollution and Filtration of the Delaware River Water Supply," in which he proposed five different methods, the most expensive of which he estimated as costing \$827,000. Since then other committees have investigated, and reported upon this vital subject, but no steps have been taken to remedy the evil. In the meantime, typhoid fever and other intestinal diseases continue to prevail throughout the city. Confining ourselves to typhoid fever only, it is interesting to compare the number of deaths from this cause alone which were reported from Trenton, with the number reported from four other cities throughout the state, all of the latter having pure or filtered water. The population here given is from the 1905 census, and the number of deaths taken from the Bureau of Vital Statistics for the year ending October 31, 1908, the last report published.

City of Trenton population .....	84,200
Number of deaths .....	75
City of Camden, population .....	83,400
Number of deaths .....	23
Number of deaths .....	111,590
City of Paterson, population .....	14
Number of deaths .....	232,700
City of Jersey City, population .....	36
Number of deaths .....	283,300
City of Newark, population .....	73
Number of deaths .....	

These figures indicate that it is the duty of this Board to proceed under authority conferred upon them by Chapter 253 of the Laws of 1909, to insist upon the city providing the inhabitants with a pure and wholesome water.

Viewing this situation from a business standpoint alone, the purification of the water supply would seem to be a paying proposition. Assuming the cost of a filtration plant to be \$1,000,000, the interest, operation and depreciation would not exceed \$67,000. The financial loss caused by death from typhoid fever according to George C. Whipple (see Typhoid Fever page 278),

an authority on the subject, is from \$6,000 to \$10,000. We have taken the last figure.

The cost of each case of sickness reported to this Board (and all the cases are not reported) is assumed to be \$300. This is a low estimate for the loss of earnings, cost of medical attendance, nursing and medicines. It should also be borne in mind that the majority of these cases are between the ages of twenty and forty years, the most valuable years of a man's life.

During the period above stated, there were 329 cases of typhoid reported together with 75 deaths. It is not claimed that these are all attributable to the impure water supply. It has been found that in other cities throughout the State which have either adopted filtration systems or else changed their source of supply from polluted to unpolluted water, that the typhoid death rate has been reduced about two-thirds, consequently, it would be only fair to class 33 per cent. of the above cases as "residual typhoid," originating from other causes than polluted water. This leaves \$225,800 chargeable to the water supply last year, or a sufficient sum to pay all fixed charges on a filtration plant and a very handsome dividend besides. Owing to the small amount of precipitation during the past year, there have been fewer cases reported from Trenton, only 222 cases and 33 deaths. The Delaware river between Trenton and Phillipsburg and Easton, 51 miles, is made up of a number of successive pools or lakes formed by natural and artificial dams. When the water in the river is very low, as had been the case during the past summer and autumn, the flow through these pools is very slow and sluggish and, consequently, the solid matter from the sewers and other sources above settles to the bottom carrying down with them large quantities of bacteria there to remain until stirred up by a fresher when they are swept down the stream and fed to the unfortunate people, fishes and oysters.

During the low water period, part of the bacteria is carried down the stream but owing to the slowness of the current and the unfavorable surroundings they are in a weak and attenuated condition when they reach the water consumers and are more easily destroyed by the human body.

#### LABORATORY WORK.

The Laboratory work of this Division has increased at a wonderful rate during the year, and were it not for the lack of space, an increase of 50 per cent. more could have been made. The equipment of the Laboratory is up-to-date in every particular,

some of the apparatus having been especially imported, duplicates of which are in existence in only a few laboratories in the country.

It is rather disheartening, however, to be surrounded with good apparatus for work and yet be so crowded for room that each piece must be stored away after use to give place to something else. It is easily seen that much time which could be used for actual work is lost in the setting up and putting away of apparatus which should be left in place for instant use. One needs only to visit the Laboratory to understand the truth of this statement.

Another room should be fitted up as a laboratory in addition to the one now in use. Such a room would permit of the working on special problems of purification at any time. At present, this is impossible except by working on Sundays or nights when the regular routine work is out of the way.

Not only should the working space be increased, but also addition should be made to the working force. Another man could be kept busy, at all times in the Laboratory, while at least two should be available who would give part of their time to laboratory work, part to the inspection and collection of samples of sewage and water filtration plants, and part to special examinations and inspections.

Chapter 253 of the Laws of 1909, gives the supervision of all water plants to this Board, and in order to carry out the provisions of this act fully, it will be necessary for one man to spend a week at a time on a plant, making tests on the ground and instructing the regular operators of the works, how they may obtain the best results from their equipment.

It is entirely probable that many experiments will have to be done in the near future relating to methods of purification of various kinds. Some of this has been done during the past year, but with the always increasing problem of stream purification and the complexity of manufacturing wastes, it will soon be necessary to make special study of waste purification at all times in order to devise reasonable and efficient methods.

It is to be hoped that a greater interest will be shown in the Laboratory work by outside individuals during the coming year, so that the people of the State may know that the maximum amount of work possible under present conditions is being done.

It is only by coming in close touch with the people that we may hope to be aided in our efforts to obtain better accommodations for the work.

It is interesting to note the amount and intrinsic value of the work done in the laboratory during the passing year, which was as follows:

Number of public water supplies analyzed.....	651
Number of samples private well waters analyzed.....	323
Number of samples dairy well waters analyzed.....	511
Number of samples creamery well water analyzed.....	80
Number of water supplies state institutions analyzed.....	31
Number of samples of sewage analyzed.....	217
Total,	1847

As each of these samples were analyzed both chemically and bacteriologically, the total number of analyses actually made was 3,694. The customary charge for this class of work is \$10.00 per analysis plus cost of collection which would make the value of this work \$36,940.00.

#### LEGAL CASES.

The number of cases in which it was necessary to bring proceedings for injunction has already been mentioned at the beginning of this report.

Six permanent injunctions are now in force, and the effect of these has been widespread.

It is not the intention of the Board to refrain from bringing legal action against offenders, and it is only due to the inability of the attorney general's department to handle all the cases of this Division that no more injunctions have been sought. It is to be hoped that this condition of affairs will be remedied during the coming year. As a matter of fact, the Division should be able to have the entire time of one legal adviser in order that action might be more rapid than is now the case.

In regard to the case against the City of Phillipsburg, in which on June 8, 1908, the attorney general was asked to procure an injunction restraining that City from sewerage into the river, a two-days hearing has already been given. Further hearing is set down for January 26, 27 and 28, 1910, when more evidence will be submitted by both sides.

In relation to the matter of the City of Phillipsburg dumping garbage on the banks of the Delaware river, the evidence was submitted to Vice-Chancellor Walker on June 24, 1909, and a decision may be early expected. Suit was originally brought in this case on December 16, 1908, under Chapter 41, of the Laws of 1899, and on January 29, 1909, an adverse decision was rendered by the Vice-Chancellor owing to the fact that a proviso

in the law did not admit of granting an injunction in a case where a municipality had a sewerage system installed at the time of the passage of the act. This defect was remedied by an amendment to the above law, which was approved on April 17, 1909.

Suits have also been started against West Hoboken, Jersey City, Atlantic Highlands and Sea Bright, and hearings may be held early in the coming year. Several other cases are in the attorney general's hands for proceedings, but these will probably not be pushed until the Phillipsburg case is finished.

Injunctions are sought against individuals only after they have been warned that the time given them by law has expired, and several pollutions have been at once abated upon receipt of this warning notice.

#### NEEDS OF THE DIVISION.

We have about reached the limit of work which can be done in the space allotted to us for laboratory work. With our present force the output could be increased 50 per cent. if we had sufficient room.

Three more laboratory assistants could be advantageously used as is fully set forth under "LABORATORY WORK."

At least three instances have been found during the year in which the plans which were approved by this Board had been materially changed during construction, and the disposal plants were not built in accordance with the approved plans. It is often a difficult matter to discover these changes after the work is completed and if the plant does not work satisfactorily, this Board is criticised for having approved them. To obviate these conditions, we should have at least two assistant engineers who could often inspect all work of construction and when necessary, take such stream measurements and gaugings as might be required.

The force of stream inspectors should be increased to six.

The Appropriation Committee last winter reduced our appropriation from \$15,500 to \$12,000. The sum is insufficient to pay the salaries and expenses of the present employees, not taking into consideration the laboratory and office supplies, postage, etc. If, for any reason, the office of chief should become vacant, and one should be employed to whom a reasonable salary would be paid, a large part of this most important work of the department would have to be abandoned.

It is sincerely hoped that a sufficient supplemental appropriation can be obtained this winter to properly carry on this increasing work.

## SHALLOW WELLS IN NEW JERSEY.

Arthur G. Fowler, Assistant Chief.

During the year 1909, 834 shallow wells have been examined. Of this number 290 have been found to be "polluted," 190 reported as "suspicious," 190 could be marked as probably "safe," and only 164 reported as good and above any suspicion. These figures are interesting in various ways. First, since the samples submitted have come from all over the state and since the reports are in keeping with the tabulations of last year, it would seem reasonable to believe that the figures may be taken as showing the average condition of dug wells in this State. Second, it shows the dependence of many people on shallow wells for their domestic water supply, and third, how dangerous this dependence is.

It is interesting to note the position of some of the wells in question, and learn from this just why the particular wells cannot be good. For example, A dug well 30' deep located just outside the kitchen door gave this result, Color 0, odor offensive, Turbidity 0, Free Ammonia, .008, By permanganate in solution .038; Nitrites .010. Nitrates 10.40, Chlorine 57.00, B. coli communis present in 1cc.

The ground surrounding this well was completely saturated with waste water and slops thrown from the kitchen, while a large garbage pile nearby added its quota of pollution. The well was not tight at the top, and dirt and filth of all kinds could find easy access to the water through crevices between the rough stones of which the sides of the well were constructed. Water from this well was obtained by means of an old bucket on a rusty chain, and if in filling a receptacle, any water spilled, it found its way at once back into the well through the many cracks and holes in the board curb.

In contrast to this another may be taken in the same vicinity. Here, however, the surroundings of the well are entirely different. We find no slops thrown about the well curb, drainage from the house sink is carried through a tight pipe far away from any chance of pollution of the drinking water. Instead of a loose, leaky cover, a tight cement curb has been constructed and the water itself is drawn by means of a pump, the drainage from which is not allowed to run directly back into the well. It can be readily seen that conditions like these must have a tendency at least to keep the well water more safe for use than the first mentioned. The analysis of this water gave the following:

Color	0	Free Ammonia	.000	Chlorine	4.00
Odor	0	By permanganate		B. coli communis,	Absent.
Turbidity	0	in solution	.016		
		Nitrites	.000		
		Nitrates	1.60		

One of the most glaring evidences of well pollution may be cited. In this case the well, twelve feet deep, was built first, but soon after, a dry stoned cesspool was placed only eight feet away, the cesspool being of the same depth as the well. A windmill was installed to provide water for the modern conveniences in the house, and the drainage from toilets, bath tubs and sinks carried to the cesspool. It was not long before the family began to notice a bad taste and odor in the well water, and an examination readily showed that the cesspool waste was finding its way through direct channels into the well. It seems almost impossible to believe that such a state of affairs could exist in this enlightened age, but although this case is perhaps one of the worst, there are many others on record with conditions almost if not equally as bad.

We do not mean to convey the impression that all dug or shallow wells in this state are bad. There are many wells which are above any suspicion, but this is due entirely to the fact that such wells are properly located; care is taken to prevent surface drainage entering the well, cesspools are not located nearby nor are any privies placed so that a rain may wash the accumulated filth in the direction of the water supply.

We submit with this report, by courtesy of the Virginia Health Department, a series of cut showing proper and improper well construction.

Figure 1, shows faulty construction. The side walls are not tight and the cracks in the top offer an easy access for filth of all kinds.

Figure 2, proves that in limestone sections it is difficult to tell anything about the source of water found on digging a well. Similar conditions exist in this state.

Figure 3, is self explanatory. It shows the popular idea of the means of pollution of a well. Often the soil can strain or filter out most of the impurity, but where the soil is grossly polluted, as in a city, wells are often polluted in this way.

Figure 4, pictures the model construction of a well, showing side walls in a clay stratum with a closely fitted top on a concrete curb. Such a well will be safe and sanitary under ordinary conditions.

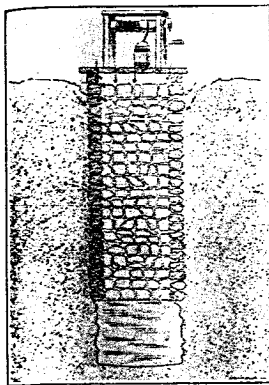


FIG. I.

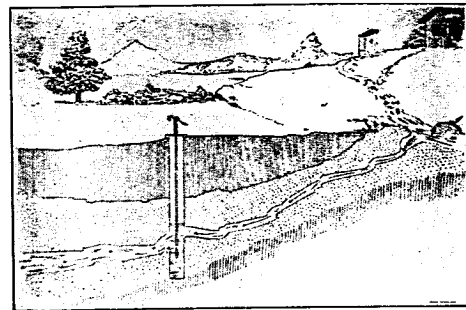


FIG. II.

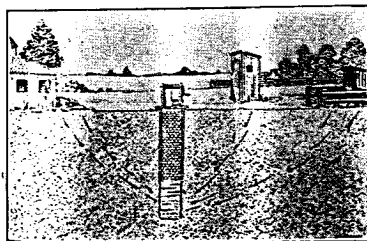


FIG. III.

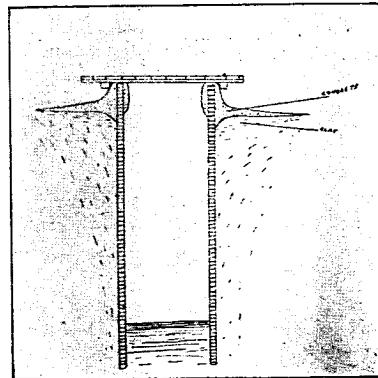


FIG. IV.

With regard to the surroundings of a shallow well, any source of contamination should be removed as far as possible. Cesspools should never be sunk near a well which is used for drinking purposes. Discarded wells should never be utilized as cesspools. All waste water from the pump should be carried some distance away.

It is often desirable to have an analysis made of well water, and for that purpose a laboratory is maintained by the State Board of Health. Samples of water will be analyzed upon the request of local Boards of Health or physicians, but only when the samples are shipped in containers supplied by the laboratory. Such containers will be sent upon request and analysis of the samples made. The only expense is the payment of expressage in both directions on the container.

Samples sent in containers other than those supplied by the laboratory, will not be examined, therefore if an examination of water is desired, make application to the Division of Sewerage and Water Supplies of the State Board of Health for a sterile container.

Since a chemical and bacteriological examination is made of each sample, reports cannot be given sooner than ten days after the receipt of the sample except in special cases such as typhoid outbreaks.

#### DETAILED REPORT OF SEWERAGE DISPOSAL PLANTS.

F. E. Daniels, Chemist and Bacteriologist.

I beg leave to submit herewith a brief resume of the work done during the past year in connection with the various sewage disposal plants throughout the State.

In general, the work has been carried out exactly as outlined last year except as the plants became more numerous and other important duties came up, the visits to the plants became less frequent.

There are now in operation, or completed and ready to start, 73 plants which need inspection more or less frequent to keep them in order. In addition to these, there are 15 others in all stages of construction. This increase during the past year shows wonderful advancement in the cause of sewage purification.

The important plants should be visited and samples taken therefrom at least once a month, while the rest should have an occasional visit. A glance at the table of analyses will show the dates upon which the samples were taken, although many plants have been inspected at other times.

In regard to the analyses, let me say that the analytical methods employed are the same as last year and are standard. When the words "composite sample" appear, they indicate that the plant attendant has been kind enough to take small samples daily for about a month and store them in the large bottles furnished by us. These bottles have also in them some chloroform left by me on my former visit. By this method, I am enabled to get a better idea of the average run. On these composites the following analyses are made: viz.—turbidity, sediment, solids, chlorine, nitrogen, and oxygen consumed. The tests for oxygen dissolved and nitrescibility are made on catch samples taken at the time of visit. The bacterial work up to the point of incubation is also done in the field and on catch samples. The traveling case designed last year has proved to be quite handy and satisfactory, the work done in the field comparing very favorably with similar work done under laboratory conditions. When the words "composite sample" are wanting and only "catch sample" appear, then all the analyses of that line were made on the catch sample.

Another important matter of record has been begun; viz.—the filing of photographs of the various sewage plants. Already we have in a large album, pictures showing construction, general appearance and other features of interest taken at 42 different plants, and more will be added from time to time. This collection will also prove valuable for the production of lantern slides for use at official lectures on the subject of "Sewage Disposal in New Jersey."

Herewith follows a brief description of the important individual plants, a map showing locations, a tabular summary and a table of the chemical and bacterial analyses for the past year.

**ALLENHURST**.—The disposal plant for Allenhurst consists of a septic tank located under Ocean Road at the corner of Elberon avenue. A vent pipe leads to each curb, otherwise it would be difficult to even locate the tank.

The effluent is carried out to sea through a long outfall pipe. This plant was put in operation April 22, 1908, and seems to be doing good work. ....

**ASBURY PARK**.—This plant consists of a septic tank and pumps and is connected with the old outfalls which discharge 1,200 feet from shore.



These works are located on Ocean avenue near Eighth avenue, about 11-2 miles from the nearest railroad siding over good and level streets. The site is close to the ocean, but lies entirely behind the line of an old bulkhead which heretofore has successfully resisted sea invasion. Well built jetties minimize the danger of destructive change in the shore line. The normal range of tide is about 5.3 feet. The ground level on the disposal site lies 12 to 13 feet above mean tide (datum). The lowest excavation over 93 per cent. of the area covered by the works is 0.35 above the mean high tide; and the lowest excavation in the whole plant (under the pump sumps) is 5.67 feet above mean tide. Normal ground-water elevations range from 2.55 to 4.5 feet, and the highest ground-water reading, after severe storm and abnormal tides, was 5.95 feet above mean tide.

Certain sewers were intercepted and connecting links laid so that the entire outflow of the inlet in the manhole built at Ocean avenue and Eighth avenue. From this a new 20-inch vitrified sewer, laid for part of its course in concrete, carries the flow to a screen-chamber, where T-bar screens detain the coarser solids. The rakings from the screens are deposited on a perforated drip-floor, where brickbats, stlcks and similar large and irreducible substances are picked out for removal. The soft sludge is then squeezed, through an opening in the floor, into either one of two spiral screw-conveyors, both driven by a single small vertical electric motor, and this conveyor then delivers it to the sewage tank. Sluice gates, in the inlet well of the screen-chamber, control the delivery of sewage to the pumps or its direct passage, by gravity, to the ocean outlets. An emergency overflow, over the by-pass sluice, relieves the sewers should all units of the pumping plant fail simultaneously. In this same inlet chamber are the gates provided for the drainage of the sewage tanks in winter.

The strained sewage flows from the screen-chamber into an adjoining pump-well, and is lifted thence by submerged vertical centrifugal pumps. Three of these are installed now,—one 8-inch and two 6-inch, each driven by an independent direct connected vertical electric motor. A fourth pump-hole is to be built and all other preparations made for the installation, later of another 8-inch pump and motor. All four of these pumps will deliver into a single 12-inch horizontal header, which will discharge, by three valve-controlled outlets, into either sewage tank No. 1, or sewage tank No. 2, or directly to the sea outlet. The pump-well has two floors, the lower covering the sewage sump and affording access to the piping, gate-valves, check-valves, etc., under the street level, carrying the motors, valve-standards and switchboard.

The pumps are automatically controlled by adjustable floats. One 6-inch pump runs if there is any sewage above the pump-sumps; the second 6-inch pump will start if the sewage rises two feet; and the 8-inch pump will cut in should the sewage accumulate to the depth of four feet. The switch-board is built so that any float can control any pump at the will of the operator and so that any pump may be started or stopped by hand. It is wired for two independent sources of power and so arranged that the failure of the regular current will automatically cut in the emergency current.

The sewage tanks, two in number, one with 40 per cent. and the other with 60 per cent. of their combined capacity, are built under the roadway and east of the bulk of Ocean avenue. The floor, walls and roof are reinforced. The sewage enters at the eastern end and the effluent escapes at the western end, overflowing a weir-wall, extending the entire width of the tank, and falling into a collecting channel, whence an 18-inch effluent pipe leads it to the sea-outlet.

A new bulkhead was built to protect the work, and such repairs and renewals made in the sewer and required. Roadway and sidewalk paving and curbing were restored and the ground surrounding the pump-house graded, top-soiled and grassed.

**ASYLA.**—At Asyla, in the Township of Gloucester, in Camden county, the Camden Board of Chosen Freeholders has constructed a sewage disposal plant, serving the insane asylum and almshouse belonging to the county.

The inmates and attendants in these institutions number about 500, and the daily consumption of water is said to be 60,000 gallons. As all this water is supposed to pass through the sewers, the quantity of sewage may be roughly estimated at 60,000 gallons per day, which may be greatly increased in wet weather because of the roof-spouts of the buildings.

The disposal plant stands close beside and discharges into a small stream, which empties a quarter of a mile below into the South Branch of Timber creek. About a mile below at Blackwood there is a dam. About three miles below the dam, the South Branch and North Branch unite and form Big Timber creek which empties into the Delaware river, six and a half miles away, about a mile below Gloucester. Tide-water sets back to the Blackwood dam. The water from Blackwood pond is still used for domestic supplies and ice is also cut therefrom.

The disposal works consist of a two-compartment screening chamber, a double septic tank, four primary filters, four secondary filters and one filter bed to receive contents of septic tank in case it becomes necessary to empty or clean the septic tank.

The plant has been in operation about 5 years and is fed by the sewage and roof water from the two institutions through an 8-inch terra cotta sewer about 200 yards long.

The screening chambers are somewhat V-shaped with sewer entrance at the smaller end and two iron bar screens at the larger ends. These screens have 1½" openings.

Great quantities of paper and other solid matters, as rags, clothing, bedding, feces, etc., are stopped by these screens and are raked out and piled on the ground nearby.

The screening chamber lead directly into the masonry septic tank, 60x-22x6½ roofed over and divided into two compartments by a longitudinal partition. Twenty feet from the outlet end is a cross multi-perforate partition dividing both sections into two portions one twice the size of the other. The small sections are filled with large cobblestones, while the larger ones contain only sewage.

The septum then leads into a circular flush tank provided with a 3-inch siphon which does not work, consequently a steady (instead of an intermittent) flow goes to the next chamber where it divides into two portions, each one going directly to a distributor. The distributors consist of 3 double 3" cast-iron crosses, the side arms of which empty into 3 parallel rows of 4" channel irons. The distributor crosses are located in the center and feet of a bed on either side. The channel irons lead out over the entire length of each bed and are supposed to overflow evenly, thus producing three long lines of wetted area down the beds. At present, such is not the case, because of leaks and low places all the sewage enters the beds in a few holes making a total wetted area of about 15 to 20 square feet.

The filters are simple excavations, boarded up at the sides and contain porous materials about 3 feet deep. The top surface is of cinders. The secondary filters are of similar construction, but at a lower grade, and receive the effluent from the primary filters through two dosing siphon tanks.

The distributors on the secondary filters are like the primary ones and the condition is just as bad, or worse, as to evenness of distribution, about 5 to 10 feet square were wet, while the rest of the underdrains emptied into the stream and appears quite good-looking although not entirely free from odor. No sewage fungi were visible.

The bed to receive septic sludge is a square one, excavated in the marsh and filled with porous materials and covered with a layer of coarse sand. It has underdrains and vertical air pipes, but no outlets to drains.

The outlet of the underdrains empty into a ditch, and in the past year some improvements have been made, viz.: a new gable-roof was built over the septic tank and the by-pass leading from the screen-chamber to the stream was removed.

The other bad features still continue to exist as they have for a long time.

**AVON.**—The septic tank for Avon, located at Lincoln and First avenues, is 20 feet x 15 feet internal measurements, and 7 feet deep to the flow line.

It is divided by an 8-inch wall into two compartments of 10x20 and 5x20 respectively.

The construction is of brick and arched over. The effluent is discharged into the ocean about 500 feet from low-water mark.

**BRADLEY BEACH.**—The approved plans for the Bradley Beach tank called for a brick structure 90 feetx30 feet, and 5 feet deep to the flow line, divided into 2 compartments, and to have a capacity of 100,000 gallons.

The Borough of Bradley Beach authorized changes in the construction of this tank which were not approved by the State Board of Health. The costs, however, allowed the work to be completed which resulted in a tank not so deep as was first approved and thereby having less capacity. The final hearing has not yet been had.

**BROWN'S MILLS-IN-THE-PINES.**—Brown's Mills-in-the-Pines is a small village in Pemberton Township, in the county of Burlington. It is located on the north branch of the Rancocas creek, 21 miles in a direct line from the mouth of the creek.

The village is a winter resort, having a population of about 75 in summer and 200 in winter.

The only sewer is a six-inch terra cotta pipe about 2,000 feet long, leading from the hotel and a few cottages. This originally discharged directly into the creek, but about 200 feet of the line have been taken up and a tank dug in the sand, so that now the discharge goes into the tank and from which the overflow seeps away through the sand. The seepage together with ground water appears in the bottom of the open ditch of the old sewer about 100 feet from the tank. The water in the ditch then flows

down and finds its way into the creek. This effluent has some odor, but does not seem very foul. On the other hand, the disposal area is dangerously near the stream and I recommend it be moved at once. Mr. Riley, the superintendent, desires to do this because of the present unsightliness, and of its close proximity to a road. He has every facility for doing this, both in an excellent site farther back on the hill, and in the necessary labor for the work.

He was conferred with in regard to the changes and sewer extensions to provide for further needs, but was advised to submit sketches and designs to the office for approval before beginning work.

**BURLINGTON.**—The City of Burlington is located at the mouth of Assisuncunk creek, on the Delaware river, in Burlington county. Its population is about 8000.

In 1901 and 1902, a sewerage system and disposal plant were constructed by the Burlington Sewerage Company. The system consists of 9.6 miles of terra cotta sewers ranging in size from 8 to 24 inches. There are about 910 house connections. The sewage is chiefly domestic, but a small quantity of manufacturing waste enters the sewers, consisting for the most part of aniline liquor. Owing to the low level of the ground, considerable ground water leaks into the sewers and, in some places, the pipes lie in ground water and quicksand. Since the repairs have been made in some of the lines, the amount of ground water entering has been materially reduced.

The daily dry-weather flow is estimated to be about 500,000 to 800,000 gallons. The disposal plant is located just south of the city along the railroad tracks. The sewage is conducted to the plant in a long flat 24-inch trunk sewer which empties into a sump-well 9.1-4 feet in diameter and 11 feet deep. From this it is pumped by two 5-inch centrifugal pumps to a circular reservoir located just above the filter-beds upon which the sewage flows by gravity.

Under new conditions the sewage is not allowed to collect in the well and trunk sewer for any length of time, nor is it allowed to back up toward the town, but is kept pumped down, one or the other of the pumps being run continuously, or at least as long as there is any sewage to pump. The records show that the pumps average over 22 hours per day.

The circular tank 44.5 feet in diameter and 20 feet deep was formerly used as a septic tank, but, at present, owing to the rapid flow through, not very much septic action goes on. There is no scum on the top and very little ebullition of gas is manifest. The outlets lead into a broad, flat, wooden trough extending across a circular well 13 feet in diameter and 7 feet deep. The sewage flows over the sides and through holes in the bottom of the trough and falls about 3 feet to the surface of the liquid in the well. From this well it is distributed to the 4 beds by 4 iron pipes.

The beds cover an area of about 6 to 8 acres, and are separated by embankments. Owing to the slope of the ground, they are somewhat terraced and the sewer terrace is underdrained with 8" horse-shoe tile drains. These drains empty directly into a ditch which in turn runs to the large surface run coming from the town. This is subsequently pumped into the Delaware river by the city at their pumping plant.

The sewage brought to the beds is discharged through tees into a ditch at the head of the beds. From this ditch it flows out laterally through a wide row of coarse broken stone. This stone is occasionally forked over and is not very dirty. Considerable trouble has been experienced in the past by having the sewage flow over the surface instead of through the ground, and also many animal burrows existed.

Recently a good deal of work has been done and is still going on. The embankments were raised, grass and weeds are kept under better control, holes filled up, stone cleaned, more care is being taken of the distribution, new cross dykes with coarse stone have been laid, burrowing animals are being destroyed. Owing to the steep slope of the field, it was found that to remove the sod meant serious washes when the first rain came; so it was decided to fill up holes and let the sod remain.

On the other hand, the sewage on the beds comes dangerously near the ditch and, in some cases, the sewage was found actually breaking through. This, however, is being watched, and it is hoped will cease altogether just as soon as the men get the upper portions of the beds in better condition. More care is now being bestowed upon this plant and Mr. Ubil, the superintendent, has been instructed in making putrescibility tests, and is thus enabled to keep a closer watch on the effluents of the individual beds. Whenever a bed shows signs of going bad, it is rested sooner than usual. The embankments have been greatly improved, but the working of the beds is seriously hampered by the enormous growth of grass and weeds, together with the imperviousness of the ground due to its not being plowed or stirred up.

#### THOMAS DEVLIN MANUFACTURING COMPANY—BURLINGTON.

The works of the Thomas Devlin Manufacturing Company are located directly west of the Town of Burlington, New Jersey, and on the banks of the Delaware river.

A plant has been constructed by this company for the disposal of the sewage and waste water from their works. The plant has been located about 500 feet west of the buildings, and consists of a septic tank, sprinkling filter, settling basin and sand filter.

The works are in operation ten to twelve hours each day, the sewage running only during that time. The amount handled per hour from toilets, lavatories, etc., is about 3,000 gallons, while about 500 gallons additional is received from washing tanks, tapping machine wastes, etc. In this latter quantity there is about 1-2 of 1 per cent., by volume, of muriatic acid. The present flow of sewage is thus about 35,000 gallons per 10-hour day. In order, however, to provide for the growth of the works, the disposal plant has been designed for handling 50,000 gallons per 10-hour day.

The main sewage lines, formerly discharging into the river, have been reconnected to a new main discharging into a receiving well. The connections from the roof drains have not been disturbed, and this water continues to discharge into the river. The receiving well is circular, constructed of brick with concrete bottom. This well is located a short distance from the septic tank, and is connected to the filter by a submerged type of centrifugal pump, having a capacity of 90 gallons per minute and direct connected to a 3 H. P. electric motor provided with automatic float control; the motor starting and stopping at predetermined levels of the contents of the well. This pump lifts the sewage from the well and discharges it into the upper end of the septic tank.

The disposal plant is located about 125 feet west of the receiving well; and its various units are at such elevations that the flow of sewage through it is entirely by gravity.

The septic tank is constructed of reinforced concrete and is divided longitudinally into two compartments; with baffles at inlet and scum boards at outlet ends. The tank is designed to interrupt the flow of sewage for a period of eight hours. Each compartment has a circular connection for cleaning; and the inlets and outlets are so constructed that either or both compartments can be used at will.

The discharge from the septic tank flows into a "Miller" automatic air-lock syphon, which in turn discharges at intervals to the sprinkling filter.

The walls and bottom of this filter are constructed of reinforced concrete; the filtering material being broken stone. Four branch pipes run from the main inlet to the filter for the purpose of distributing the sewage evenly over the entire bed. At even distances along these branch pipes are attached 20 inverted "Taylor" sprinkling nozzles. When the discharge from the siphon commences, the head of sewage is greatest, and the diameter of the ring of spray from the nozzles is a maximum; the spray ring decreasing in diameter as the head in the siphon falls. The nozzles are so located on the distributing pipes that the rings of spray are tangent for the maximum head in the siphon. The piping connections are made so that 1/2 or all of the filter may be used as desired. A series of flushing pipes for cleansing the filter are located under the filtering material, and are operated by water pressure from a pump in the works.

The effluent from the filter runs into a settling basin, constructed of concrete, where it is detained for two hours, allowing any flaky matter to settle out.

The overflow from this basin discharges into the sand filter. The distribution of the sewage over the bed of this filter is accomplished by means of "U"-shaped terra cotta drains laid on the surface of the sand. Under the filter sand is a 6-inch layer of broken stone in which are located a series of open joint terra cotta drains which collect the filtered sewage and discharge it, through a common pipe, to the river. The sand filter is divided into two sections arranged in series. A siphon is provided in each section, the blow-off from the septic tank and from the settling basin are connected.

**CALDWELL.**—At Caldwell, a system of sewage disposal by sub-surface irrigation was installed by Essex county about fourteen years ago to care for the sewage from the county penitentiary.

The population is about 200. The daily consumption of water is said to be between 30,000 and 40,000 gallons, practically all of which goes into the sewers. The sewers are 6-inch and 8-inch terra cotta pipes about 300 feet long and laid at a very steep grade. The inlet is not trapped, but the liquid escapes into a flushtank by a trapped pipe outlet drawing from a point a little more than 2 feet from the floor.

The settling tank is cleaned out about once every three months, several cartloads of scum and settled solids being removed and buried. Chlorine lime is used periodically in the sinks and closets, and other disinfectants are used in the scrubbing waters. About 200 pounds of

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chloride of lime is thus used monthly and, as a result, there is very little, if any, septic action in the settling tank.

The flush-tank is similar to the settling tank except the sides are vertical. This tank holds about 1,750 gallons and discharges by siphon during the day once in about 2½ hours. The flow from the flush-tank leads to a discharge chamber from which run 3 lines of 4-inch terra cotta pipe. These three lines extend down the slope of the hill towards the road and every four feet, 3-inch lateral branches extend outward for about 100 feet or more and are 18" below the surface of the ground. The sewage is allowed to run into one of these systems until it fills up, which takes from 10 to 20 days. The flow is then diverted to the next system and so on in rotation. There are 4 beds having a total acreage of about 8 acres. The soil, especially at the lower end of the field, is sand and gravel with some loam, and absorbs the water easily. No underdrains are necessary and no effluent has ever made its appearance on the surface.

**COLLINGSWOOD.**—The Borough of Collingswood, including West Collingswood and the Town of Collingswood, is a suburban residence district in Camden county, four miles from Atlantic City. In 1901, they constructed a system of separate sewers and a sewage disposal plant. In 1908, the total population was 3,850, and the area of the borough is 1,257 acres. There are 12 miles of sanitary sewers. The size of the sewers varies from 6" to 18".

Nearly all of the area covered by the town lies on a watershed which drains into Newton creek, an estuary rather than a stream, traversing meadow lands and marsh, and emptying in the Delaware river at Gloucester. The creek is dammed below Collingswood. The outfall main was carried past the dam along the bank of the creek to West Collingswood about a mile from Collingswood itself. Here the creek has an average tidal fluctuation of about 5.8 feet.

The disposal plant, located close to Newton avenue in West Collingswood, consists of a circular septic tank surrounding a circular pump-well, 4 primary stone contact filters and 4 secondary wave beds made of coke and stone, mixed. The two concentric circular wells are 21 feet, 2 inches and 40 feet, 6 inches in diameter and 22 feet deep. The working depth to and level of the invert of the inlet sewer is 5 feet. The outer and inner walls are connected by a single radial septum wall. The outer compartment forms the septic tank around which the sewage flows and enters the inner well or pump-sump, through openings in the inner wall near the septum.

The pumps (centrifugal in type) are located on a platform over the 126 tanks, and discharge the septic sewage into a long settling basin 126 feet by 6 feet by 4½ feet deep, extending along the upper wall of the 4 new primary contact beds. The stone beds are 60 feet by 40 feet and are filled with broken stone 2 feet, 10 inches deep, with a layer of fine stone on top 2" deep. Distribution is effected by branching perforated wooden troughs. The underdrains empty upon the old wave beds and the flow is controlled by sluice gates operated by hand.

Pumping is now carried on night and day. Plans are on file for new septic tanks.

**DEAL.**—The Deal Beach septic tank is 60 feet x 24 feet x 4 feet deep to the flow line. It is constructed of brick with concrete bottom and divided into two equal compartments by a longitudinal wall. Each compartment is roofed over by a brick arch and the whole structure covered with sand to the grade of the street. The effluent is discharged into the ocean.

**DELFOORD.**—The Borough of Delford is situated in Bergen County, on both sides of the Hackensack river. The population of the borough is about 1,000. At New Milford, the Hackensack river is dammed by the water company which has its plant located at that point.

Practically all of the inhabited territory of the Borough is sewered. The sewers range from 8 to 20 inches in diameter, and are of the ordinary vitrified terra cotta pipe and aggregate about 6¼ miles in length. Some ground water enters the system, but storm water is excluded except at the extreme end of some of the sewers. House connections about 100 to 150 are made to supply a flush. House connections about 100.

The sewer flow is not known and as both the inlet to and the outlet from the septic tank are covered, it is difficult to make a close examination and get an accurate estimate.

The disposal plant consists of a septic tank only. This tank is located on the west bank of the Hackensack river some distance below the dam. It is built of concrete and covered by a wooden roof freely ventilated. The internal dimensions are 38¼ feet x 18 feet 8 inches, and the average depth is about 7 feet.

In addition to the above, a portion of the sewerage system instead of being connected with the septic tank empties directly into the river through its own outlet.

**ESSEX FIELDS.**—Essex Falls is located in Essex county about a mile southwest of Caldwell. It is purely residential in character and has a population of about 300.

A system of separate sewers and sewage disposal was installed about 15 years ago, but in 1905, the disposal plant was remodeled. There are about 1½ miles of sewers consisting of terra cotta pipe from 6 to 10 inches in diameter. Storm water is excluded but ground water enters the system considerably, especially in wet weather.

The disposal plant is located in a valley just north of the settlement and discharges its effluent into a stream tributary to the Passaic river, a public water supply. At present, the plant consists of a septic tank (composed of the old grease-tank and flush-tank), 2 contact beds and 2 secondary sand and gravel filters, and a reserve sand and gravel bed used when the contact beds are out of commission.

The old grease-tank, now part of the digestion tank, is a circular pit 15 feet in diameter and 10 feet deep. Into this the main sewer empties and here most of the heavy grease is retained. The sewage is blanketed with a thick, soft scum. The old flush-tank, also used for septic purposes, is a rectangular chamber, roofed with flagging. Its inner dimensions are 24x16-5½. The siphon which formerly emptied the tank has not been removed (it is still used when the tank is being cleaned) but a new overflow has been provided, and through this the sewage flows slowly and continuously. The 2 tanks are used continuously in series. The outlet pipe from the digestion tank leads to a distributing chamber, adjoining the 2 contact beds. In its course it receives the sewage from a single house. The solids contributed by this connection go straight to the filters without detention; but their bulk is very small. The sewage is fed alternately to the contact beds by automatic air-lock distributors.

Each of the contact beds is a masonry tank 36 feet 8 inches long, 30 feet 6 inches wide and 3 feet 8 inches deep, filled with broken stone. Each bed is fed from the distributor by a 6-inch pipe, which empties into a wooden trough 12½ feet long. This spills upon the surface of the filter into 2 furrows, which run on the lines of the diagonals, and intersect at the centre of the beds. These furrows are lined and banked with ashes. Each bed is underdrained by a diagonal main tile, with laterals 6 feet apart. At the head of each underdrain, a 1-inch pipe is carried vertically to and above the surface for ventilation. In these the rise and fall of the liquid can be measured.

The underdrains of the contact filters deliver to a valve chamber, from which run 2 outlets, one to each half of the lower gravel filter (the upper one lies too high to be reached by the contact bed effluent) and is divided into two halves, each half being used alternately. In addition to the feed inlets noted, it has another coming from the high level line feeding the upper gravel bed. Four lines of four inch underdrains, about 22 feet apart, collect the gravel bed effluent and deliver it, by separate outlets, to a small ditch, from which the flow goes to the brook.

The upper gravel bed has an area of 1,500 square feet. The filling of both the upper and lower beds is mixed gravel, sand and stones, 5 feet deep. The upper bed is used as a reserve filter to receive the septic effluent whenever it is necessary to rest and dry out the contact beds, which occurs occasionally. When it becomes necessary to empty the septic tank, the sludge is also run out on the upper gravel bed to dry. The beds are washed and grassed slopes. On these the grass is kept cut. The beds are frequently scraped and harrowed and, occasionally, fresh ashes are put on the barriers on the contact beds. Otherwise, the plants need little attention.

**FLEMINGTON.**—Flemington is a village in the Township of Raritan, in Hunterdon county. Its population is about 2,500.

In 1898, the village constructed a sewerage system and disposal plant. There are about 4 miles of sewers with about 400 house connections, including about 240 cellar drains. The sewers range from 8 inches to 15 inches in size, and consist of terra cotta pipe in deep and of iron pipe in shallow and wet places.

The average daily flow is about 150,000 gallons, which is greatly increased in wet weather.

The sewage disposal plant consists of a screening chamber, a settling tank and 4 land filtration beds extending over an area of 4½ acres. The screening chamber is 8 feet x 6 feet and 5½ feet deep.

The settling tank is 40 feet square and 5 feet deep and the siphon chamber is 5 feet x 6 feet and 5½ feet deep. The main pipe discharging into the screening chamber is 15 inches in diameter, and opposite this is a screen composed of rectangular iron bars 2-3" thick with 3-4" spaces between, and inclined at an angle of about 25° away from the mouth of the discharge pipe. This screen has an area of from 24 square feet to 40 square feet, according to the height of the sewage. A second screen composed of round iron bars with 5-8" openings is set vertically in the side wall and covers the aperture leading into the settling tank.

The screenings are removed, treated with lime and carted away to the fields. The settling tank is emptied automatically by the discharging of the siphon which varies from 6 to 8 times a day according to weather conditions.

The tank is cleaned about 6 times a year by letting the sludge dry sufficiently to be shoveled out, during which time the sewage flow is by-passed directly to the beds.

The soil of the beds consists mainly of disintegrated red shale, the upper portions being kept clear of weeds and grass, while the lower areas are covered with straw.

Whatever solid materials escape the screens and settling tank are arrested on the cleared portions of the beds and when dried are scraped up and carted away.

The liquid portion of the sewage soaks into the ground and the effluent is carried off by the 48 underdrains leading to the creek. The plant is kept in good condition and the effluent is good.

The plant receives daily attention together with periodic general overhauls. By changing the flow from one bed to the next, gives each bed a period of rest between working periods.

The effluent is discharged into a tributary of the Raritan river which constitutes a public water supply.

**FREEHOLD.**—The Town of Freehold lies in Monmouth county on the crest of the low ridge that separates the watersheds of the Delaware river and the coast. The streams are consequently small and unimportant. In the summer, their beds are almost dry.

In constructing the sewerage works, the town authorities recognized clearly that the condition of the natural water-courses compelled careful and efficient treatment of the sewage. The sewers, built on the separate principle, in 1893, cover all of the town that can be drained by gravity toward the north and east.

The total population of the town is about 4,000, of which there are about 3,000 people in the sewer district. The daily water consumption at present is between 300,000 and 400,000 gallons.

There are about 7 miles of terra cotta sewers, ranging from 6 to 15 inches in size and having about 550 house connections, including dwellings, hotels, churches and one rug factory. From this factory the sewers receive a certain quantity of trade waste, mostly dye liquor. About 50 new connections are made with the sewers yearly. The estimated daily dry weather flow of sewage is, perhaps, 200,000 gallons. During wet weather this may be increased 25 per cent. on account of ground water and a few connected cellar drains. The sewage is, for the most part, domestic in character, colored variously with dye liquors.

The main sewer leads to the disposal works located just outside the town to the northeast. Here the town purchased 16 acres of land, rather low and well flanked by two small streams which unite at the lower end of the tract, pass through Blue Ball Pond and empty into the Manasquan river. Part of the land was peaty, with a surface layer of bog iron ore. The rest is green marl sand and a mixture—fairly porous—of clay and gravel. The level of the ground water averaged only 2 feet below the surface. To secure suitable drainage, the bed of the outlet stream was lowered for a distance of 1,000 feet beyond the limits of the town purchase, permitting the underdrainage of the land at a depth of 4 feet.

Of the total area about 2-3 has been prepared for use. One-half of this is used for a year while the other is cultivated in corn. The following year the tracts are reversed. These beds are underdrained with 3"x4" tile laid 25 feet apart. The part under irrigation is kept bare of vegetation by being plowed and harrowed once a month. This also prevents in a great measure sink holes and animal burrows. At the time of inspection, 3 beds were in use and one was in corn. Of the 3 in use this year, one is used for a week and then another, and so on in rotation. The sewage is conducted to each bed in open terra cotta channel pipes leading from the flush-tank. The so-called flush-tank is really a storage and equalizing reservoir, 50 feet x 50 feet x 4½ feet. The main sewer empties into a small chamber at one corner of the tank in which a 4 foot x 4 foot iron screen is lowered. The sewage flowing through this screen goes directly into the tank. Every Saturday, the screen is hoisted out and about a wheelbarrow load of screenings is removed. Once a week, also, the tank is cleaned, the cleanings removed and composted. The effluent appears very clear and bright and the stream is free of any fungus growth.

The whole plant is quite presentable, and well-kept. This is one of the best kept plants in the State.

**GLEN GARDNER.**—At Glen Gardner, in Hunterdon county, is located the New Jersey Sanatorium for Tuberculous Diseases. The institution is pleasantly situated on the southern exposure of a mountain, at an elevation of some 900 feet and overlooking the valley of the North Branch of the Raritan river. The outlook is very delightful.

The sanatorium was opened October 25, 1907, and has a capacity of 104 patients; there are 100 patients and about 30 officers and attendants.

The sewage disposal plant consists of a circular liquefying chamber, 2 circular trickling filters, a settling tank and 3 cinder filter beds. The liquefying tank is 16 feet 10 inches in diameter and 6.1-2 feet deep from the low-line. There are three 6-inch baffle walls extending partly across the tank and the outside wall is 12 inches thick, built of brick and plastered with Portland cement.

The flow from this tank passes into a circular flush-tank 8.1-2 feet in diameter, from which it is emptied intermittently by siphon. The siphon empties into a dividing chamber and from this the discharge passes into one or the other of the 2 trickling filters. The trickling filters are circular, 20½ feet in diameter and 8 feet deep at the center. The floor slopes 8 inches. The filters are surrounded by a 16-inch dry stone wall in which are several abutting openings. Distribution is effected by a system of galvanized iron pipes 2 feet 2 inches above the stone. There are 7 outlets in this system from which a falling stream of sewage emerges and strikes a flat sputtering plat under each outlet. The distribution is not as good as it might be, i. e., the surface of the stone is not very evenly wetted. The stone filtering material is crushed rock, one inch macadam, supported by a layer of cobble stones.

The trickling filter effluent runs into a settling basin 15 feet x 7 feet x 3 feet deep. The effluent from the basin is diverted to one of the 3 cinder beds. These are practically one long bed 33 feet x 21 feet x 4 feet deep. The 4" tile underdrains empty at each of the 2 lower corners.

The effluent flows over a field and is usually absorbed.

**HADDONFIELD.**—The Borough of Haddonfield, in Camden county, is situated on a branch of Cooper's creek. The estimated population is 4,000. There are about 12 miles of sewers constructed of 8 to 15 inch terra cotta pipe, serving about 550 house connections. The sewage flow is from 200,000 to 220,000 gallons per day, and is wholly domestic.

The disposal plant consists of a septic tank, and 5 filtration beds of sand. The septic tank is of brick 31 feet x 48 feet in plan and 8 feet deep, covered over with a wooden roof. The tank is divided into 4 compartments each 12x31 feet.

The filter beds cover about one acre and are composed of nearby sand, with 3" tile underdrains. These underdrains empty by 3 outlets directly into the south branch of Cooper's creek. The beds are cleaned or scraped whenever it is deemed necessary and the thin scrapings are thrown out on the bank and soon dry up and are scattered by the weather. The beds are never plowed for fear of striking the underdrains; but occasionally they are gone over with a cultivator. About 3 years ago, the underdrains of one of the beds got stopped and had to be taken up and relaid.

The sewage is distributed over each bed by means of long shallow trough with lateral outlets. The stream from the septic tank seems to run continuously to the beds (though there is said to be a siphon, but at the time of the inspection it was impossible to obtain the key to the box). This is regulated by the attendant. He lets it on to one or more beds first, and then the length he thinks necessary, then shifts it over on to other beds. The dose varies according to the flow, and reaches a depth of about 6 or 8 inches. Notwithstanding each bed is supposed to get a three days' rest, such does not seem to be the case. At the time of this inspection all 5 beds were covered quite deep, so that it was impossible to see the condition of the filtering material. It was said that the sewage remained in sight from 24 to 36 hours. There are 2 by-passes, one between the sewer outlet and the septic tank, and the other between the septic tank and filter beds. Sometimes at night the flow is by-passed to relieve the beds.

During the past year the by-pass had been open for months at a time.

**INTERLAKEN.**—Interlaken is a small village occupying part of the Township of Ocean, in the county of Monmouth, and lying next northwest of Asbury Park. The community is at present quite small, there being only about a dozen houses, and it was said, only 3 or 4 are now connected with the sewers. The sewage is conducted to a tank or well near the Interlaken station. This is an annual septic tank built eccentrically around the sump-well. The diameter of both together is about 16 feet and that of the sump-well is about 8 feet. The septic tank varies in width from 30 inches to about 4 feet.

The pumping machinery over the sump-well is driven by an electric motor, the switch being operated by a rope attached to a float. When the level of the sewage reaches a certain point, the float is raised and the motor starts and the sewage pumped through a 6" force-main across Deal lake and into Loch Arbour sewers. When the level of the sewage falls to a certain point, the motor stops and the well again gradually fills.

Before reaching the ocean, the sewage must pass through the Loch Arbour septic tank along with the Loch Arbour sewage.

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**JAMESBURG.**—The sewage disposal plant at Jamesburg is used for the disposal of sewage from the State Reform School. It is located in the Township of Monroe, Middlesex county, in the watershed of Metchaponic creek, a tributary of South river, which empties into the Raritan river.

The institution is about 3 miles from the Town of Jamesburg and has about 600 inmates and attendants. The water consumption is said to be about 60,000 gallons per day. As most of this water enters the sewers, the dry weather daily flow of the sewage is approximately 60,000 gallons which is probably increased 20 per cent. in wet weather.

The sewage is institutional in character with a lot of laundry water every day. Some disinfectants are used in the buildings, the bulk of which is about 100 pounds of chloride of lime per month. The main sewer leads from the buildings to the disposal plant about 1-4 of a mile away. Here it empties into a semi-circular gate chamber, from which the flow is diverted by a swinging iron gate to either one of the 2 flush-tanks. The stream entering the tanks falls upon a screen which removes the larger solids. These are raked out and thrown on the side to make a mess until sufficient quantity accumulates to make it imperative to clean up.

Each tank is 22 feet x 14 feet with an effective depth of 3 feet. Each is discharged by an automatic siphon and each is provided with a separate drain pipe for cleaning out. These discharge pipes lead by means of terra cotta channel pipes to the filter beds. One tank is used for several weeks and then the flow is turned into the other one and the sludge allowed to dry in the first tank. This sludge is then thrown out on the side and later removed.

The 12" channel pipes run alongside the southern and western edge of the disposal field and deliver at intervals of about 30 feet through 14 branch channels. Iron stop gates are used to divert the flow.

The filtration field covers about 2 acres and is composed of a sort of sandy clay with some cinders and ashes mixed in. The field contains practically 8 beds or terraces—one higher and one lower set of 4 each. The whole field is underdrained by 4" horseshoe drain tiles and discharged by 16 outlets into a ditch. These drains appear to be about 3 feet deep.

During the present year, more attention has been given this plant and with every little improvement there is a noticeable effect upon the effluent for the better.

The beds have been plowed and loosened up and better attention is paid to change of flow upon the beds. In fact, the plant is in much better shape than it was a year ago.

There are a few improvements which still are necessary for success in this plant. These have been pointed out to the management and it is hoped they will be made in the near future.

**LAKEHURST.**—Lakehurst, a little village formerly called Manchester, in the Township of Manchester, in Ocean county, lies 7 miles south of Lake-wood, in the heart of New Jersey's pine belt. The ocean formerly covered its site, and the sea floor of white sand stretches unbroken for miles in all directions. The soil drains very freely, yet the land lies so low that ground water is close to the surface. Cranberry bogs and cedar swamps abound. The streams traversing the section are deeply dyed with cedar roots.

Some years ago, Pine Tree Inn, the only hotel in Lakehurst, constructed a system of sewers and a sewage disposal plant, primarily for its needs and those of its subsidiary cottages; but the franchise granted by the local government gave to the villagers the right of connecting with the system upon payment of an annual rental of \$10 for each house of moderate size. Only 3 houses outside of the group of hotel buildings have connected. The sewer main, about 5,400 feet long, is of 10-inch vitrified pipe. Manholes are built at all street intersections, usually 500 or 600 feet apart.

The hotel sewage flows to a brick sludge-pit, and flush-tank, located on the hotel grounds practically at the head of the sewer system. The sludge-pit, built inside the flush-tank, is a rectangular chamber 6 1/2 feet long, 6 feet wide and 4 feet deep below the "full" line. The sewage enters it through a untrapped inlet pipe, and passes from it into the flush-chamber through a trapped outlet pipe whose intake is one foot above the bottom of the pit and which overflows when the water is 2-1-2 feet deep. This pit is cleaned out twice each year.

The flush-tank (including the sludge-pit) is 20 feet square. Its discharging depth is 2 feet 8 inches. It is emptied by a 6-inch siphon delivering into a 10-inch pipe.

The hotel is open about 7 months in each year (October 10th to May 20th). When it is running at full capacity, the flush-tank discharges at intervals of 18 to 20 hours, indicating a maximum daily flow of about 10,000 gallons. The detention of the solids in the sludge-pit and the storage of the liquids in the flush-tank undoubtedly works some septic change; but the connections entering the main below the tank send crude sewage to the disposal beds.

The old beds were entirely inadequate and were condemned. The new

beds are still in process of construction and it is hoped they will be in operation sometime this season.

The 2 new beds are to be of sand 75 feet x 75 feet in size.

**LAWRENCEVILLE.**—Lawrenceville is a village in the Township of Lawrence, in Mercer county. It is located on a branch of Assanpink creek. The only sewer is located at the Lawrenceville Preparatory School. The school and the houses connected with it are supplied with water from driven wells on the premises. The daily water consumption is about 50,000 gallons.

The sewer consists of a 6-inch cast-iron pipe about 500 yards long, leading into a vault of 24 inches of underground brick vaults or chambers. Each system has 3 galleries so the flow has to extend the entire length of the 3 in series. The systems are alternated once a month and the sludge is removed once a year. The effluent from the vaults flows into a well about 20 feet in diameter and 9 feet deep. From this well it is pumped to a distance of about 1-4 of a mile to a large irrigation field. On this field it gradually soaks away, run-off being prevented by cross ditches. The flow is about 35,000 gallons per day during school year, and idle during the summer months.

The conditions are crude but seemingly satisfactory owing to the septic action in the vaults and the large area of available land. No final effluent is visible.

The galleries described above are practically "septic tanks" and these, we believe, are the first septic tanks installed in New Jersey. The system was designed by the late J. J. R. Cross, M. Am. Soc. C. E., and installed in 1885 and has been in continuous operation ever since.

**LOCH ARBOUR.**—Loch Arbour is a small residential section between Al-lenhurst and Asbury Park. There are only a few sanitary sewers in fact, only on two streets. These sewers conduct the sewage to a new septic tank located on the beach close beside the U. S. Life Saving Station. The tank is completely covered with the beach sand. It has been working since June 10, 1908.

Considerable trouble has been had in keeping the outlet open on account of the sand being washed over the end. During the early part of the summer it was found impossible to open the pipe, so it had to be abandoned and a new one was ordered.

At a late date in the autumn, the new 1,000 foot pipe was still lying on the beach ready to be launched out to sea.

**MANASQUAN.**—The Borough of Manasquan is located in Monmouth county, on the shore of the Atlantic Ocean, just north of Manasquan Inlet. Its population is estimated at about 1,800.

The sewerage system was constructed in 1904, and there are about 5 or 6 miles of sewers. There are 120 house connections, 20 of which were added during the past 12 months. Of these house connections, many serve only for roof drains and sink drains, there being few inside water-closets. One so-called factory, ice and cold storage plant is connected.

The system is flushed from hydrants and the roof drains. It is impossible to get a fair estimate of the daily sewage flow. The outfall main leads to an underground septic tank 50x20 about 1,800 feet from the shore and the effluent from this tank is discharged into the ocean about 200 feet from the shore-line. A few houses are connected between the septic tank and the ocean. Backing up by the tide is prevented by a tidal gate and the tank is baffled and divided into 3 chambers. No odors or nuisance were manifest and the effluent was in a very good condition.

At the extremity of the discharge pipe is a Leihbach anchor.

**MERCHANTVILLE.**—The Merchantville plant is completed, but on account of ground water in the sewers, it has not yet been put in operation. A full description of this plant has been published before, a brief outline of which is as follows:

The plan for the system were approved April 30, 1906. The outfall sewer empties into a septic tank 45 feet long x 39 feet wide at the entrance and 58 feet wide at the opposite end. The sewage passes through it to a dosing tank 40x17 feet from which sequence siphons discharge upon the primary filters.

These primary filters are 4 in number, 100 feet x 13 feet and extend along the upper side of the secondary sand filters.

The primaries are filled with 3 feet of coke and stone and have wooden trough distributors on top.

These filters discharge their effluent through siphon chambers into the wooden trough distributors of the 3 secondaries. These secondaries are approximately 90 feet x 50 feet and are filled with sand 3 feet deep. The effluent empties into a branch of Cooper's creek.

**MILLVILLE.**—The sewage disposal plant for the City of Millville consists of 4 sedimentation tanks, an aeration well and tank, 4 contact beds, an effluent detention and disinfection basin and a sludge bed. The sedimentation tanks are each 76 1/2 feet x 15 feet x 6 feet, and empty directly into an 8" vertical pipe which stands within a 12" vertical pipe driven down into the

earth about 136 feet. This constitutes the aeration well, the septic sewage passing down through the inner pipe and up the outer one. The inner one is provided with a funnel to receive the flow from the sedimentation tanks, while the outer one overflows directly into a tank 30 feet 6 inches x 13 feet 6 inches x 3 feet. The overflow from this tank goes directly to the Aer-fect 6 inches x 3 feet. The overflow from this tank goes directly to the Aer-fect lead control in the control house located at the corner of the 4 contact beds.

These beds are 50x65 and contain broken stone, and the underdrains lead to a submerged weir in the detention basin. Behind this weir it is proposed to add copper sulphate in crystals for the purpose of disinfecting the effluent. As soon as the tide ebbs sufficiently, the tide-valves forcing the effluent.

The sludge basin is 49 feet 6 inches x 23 feet 6 inches, and contains under-ops, letting out the effluent. The sludge basin is 49 feet 6 inches x 23 feet 6 inches, and contains under-ops, letting out the effluent. The sludge basin is 49 feet 6 inches x 23 feet 6 inches, and contains under-ops, letting out the effluent. The sludge basin is 49 feet 6 inches x 23 feet 6 inches, and contains under-ops, letting out the effluent.

**MOORESTOWN.**—Moorestown is a village in the Township of Chester, in Burlington county. The population of the sewer district is by estimation to be 3000, of which 1,300 are patrons of the sewers. According to the report of 1906, the system of sewers was installed in 1901. There are now 2½ miles of 15" sewer mains and about 8 miles of 8" lateral sewers. The 2½ miles of 15" sewer mains and about 8 miles of 8" lateral sewers. The material of the sewers is cast-iron. There are 400 house connections and about 15 new ones are added yearly. There being no factories, the sewage is purely domestic in character. The only effluent for storm water is one down-spout on a schoolhouse at the beginning of a special line of pipe, which is not provided with a flush-tank; but on account of the vents at the house connections, ground-water enters the system to some extent. The flow in the 15" main is from about 1-2 full in dry weather to about 2-3 full in wet.

The daily water consumption is about 400,000 gallons. The sewer consists of a 15" main, two miles long, leading to the disposal plant which is located about 1-2 mile from Lenola Branch of the Pennsylvania Railroad, and on the banks of the Delaware river. Pensauken creek, 6 miles above its junction with the Delaware river.

The disposal plant consists of a sedimentation chamber, a septic tank divided into 4 compartments running in series and 4 contact beds. The sedimentation chamber is 10 feet square and 10 feet deep. At the time of inspection, this had a thin scum on the top. This is cleared out every three or four weeks, and the chamber is thoroughly cleaned out once every year.

The septic tank is an uncovered brick chamber 60 feet long x 23 feet wide and is divided into 4 compartments, so arranged that 2, 3 or 4 may be used at a time. The sewage passes from one compartment to another by means of submerged weirs, 16" below the top of the walls. The last compartment is used partly as a dosing tank, the upper 4 feet being discharged by the siphons onto the contact beds, the scum being removed.

This tank is disturbed as little as possible, the scum being removed, perhaps, twice a year. The materials from this tank, as well as from the sedimentation chamber, are put into a bucket hanging on an overhead track. The bucket is then run to a pen outside the enclosure and dumped. The dumped material is made into a compost and utilized.

The contact beds are 4 in number, each about 80 feet x 40 feet. In each bed there is a foot of gravel, over which has been placed 3 feet of slag in 3 of the beds and 3 feet of cinders in the other one. The beds are embedded with brick, the bottom being the natural soil grade. The distribution is accomplished by a system of open-jointed sewer-pipe imbedded to its horizontal axis in the filtering material. The discharge is controlled by a valve. Each bed is thoroughly underdrained by a system of open-jointed vitrified sewer pipe in and below the gravel course which forms the lower layer of the beds. The effluent from each bed is led to a chamber 50 feet distant from the contact beds in which a chamber are placed the 4 valves controlling the flow from the beds. A 15" pipe conducts the effluent from this chamber to the bank of the stream.

The attendant visits the plant twice a day to change the gates and regulate the flow, there being no automatic apparatus. The beds are dosed in rotation, the flow upon beds is intermittent depending upon the discharge of the siphons in the flush tank. The flow from the beds is held back and controlled by shear valves in the chamber between the beds and the creek.

**MORRIS PLAINS.**—The State Institution known as the New Jersey State Hospital at Morris Plains, is located in Morris county about 1½ miles from the Morris Plains railroad station. This is quite a large asylum for the insane and the buildings are designed for a capacity of 1,500 inmates. In

1908, there were 1,952 inmates and 453 on the pay roll. These, with the families of the various officers, make a total of about 2,450 people on the grounds.

The daily water consumption estimated by the amount pumped is, on the average, about 550,000 gallons. Most of this water finds its way to the sewers together with some storm water. Laundry work goes on every day and the sewage is typical institutional sewage and contains much paper, rags and other debris.

Two sewers, called respectively the north sewer and the south sewer, lead from the wings toward the east and unite near a large circular open flush-tank which has a capacity of about 80,000 gallons.

During the day, the flow from the north sewer, which is somewhat less than half the entire amount, is conducted through a screen tank 7x25 feet, and containing wooden slats ¼" apart. These slats hold back the coarse materials which are drawn off about every 6 weeks into another tank 7x45x5 feet. When dried out, this mass is composted with lime and disposed of. These two tanks are tightly covered and there is no nuisance. The screened sewage flows out in open dirt channels and from them spreads out over a large sloping hillside. Care is taken that new portions of the field are used at intervals so that the sewage does not go far from the trenches on the surface.

At night, the flow from the north sewer unites with that of the south sewer and the combined amount is taken care of by the disposal plant. In the south line there is a circular catch-trap. From this, screenings and materials "caught" are removed into a chamber and composted. Near the big flush-tank just below the junction of the south and north lines, there are 2 screen chambers. These are about 12 feet in diameter and 8 feet deep. The flow enters the side and passes out a center pipe over which stands the screen. This is a circular cage of ¾" mesh wire netting, 6 feet high and 2½ feet in diameter. The surface scum of screenings and grease, etc., is skimmed off every day and composted. The whole chamber is cleaned out twice a year. From the screen chambers the flow passes to the "settling gallery." This consists of 3 underground tunnels 5 feet wide, 4 feet deep and 100 feet long. The flow enters one, passes through and returns by both the others in parallel. The first gallery has a scum a foot thick while on the other 2, the scum is from 4" to ½" thick. Considerable septic action seems to go on in these tunnels. Manholes are placed at regular intervals.

This "gallery" is cleaned out twice a year, by drawing off the sludge into a pit and composting it. About a dozen cartloads are removed.

On leaving the "gallery" the flow passes out through another screen made of fine wire netting and then into a flush-tank. As before mentioned, this is an open circular tank and holds about 80,000 gallons and is emptied by a siphon from 3 to 5 times in 24 hours. The sewage on leaving the tank must pass still another semi-circular screen of wooden slats. It then flows out to a distributing chamber located at the intersection of the boundary divisions of beds 3, 4 and 5.

The beds cover about 4 or 5 acres and are 7 in number. Nos. 1 and 2 are underdrained and composed of gravel, soil and ashes, 6 feet deep. Nos. 3 and 4 are natural soil and contain a good deal of clay. No. 5 contains less clay, more gravel and some cobble-stones, and Nos. 6 and 7 contain more gravel and some ashes.

The supply pipe brings the dose upward to an opening in the center of the bed from which it flows out over the ground. Each bed has an embankment around it. The flow from No. 2 bed goes on to No. 1, and it is held until let out by the attendant the next day. Nos. 2 and 1 are alternated with No. 7 and receive only night sewage. The other beds take care of the day flow in rotation, i. e., Nos. 5 and 7. As the dose soaks away from the beds, except Nos. 2 and 1, through the natural ground, no effluent is visible, except that which the attendant lets out from bed No. 1. This runs down a ditch into a pond and finally into the Delaware river. It runs down a little ditch into a pond and harrowed every week or two.

This plant was designed by Professor Charles McMillan, M. Am. Soc. C. E., of Princeton, and built in 1886. The galleries mentioned being septic tanks which have been in continuous use ever since the plant was constructed.

**MORRISTOWN.**—The following is a report on the present condition of the Morristown sewerage system, kindly furnished by Williams, Proctor & Fotts, Engineers:

The following facts show briefly the progress made to date. Actual work was begun on the plant on March 15, 1909. 21,000 yards of dirt work was begun on the plant on March 15, 1909. The contractor, have been moved out of the estimated amount of 36,000. The contractor, on November 1, 1909, had been paid \$37,422.30. The bid price was \$98,000.31, showing that about 40 per cent. of the work has been completed. Extending the roof of the sedimentation tanks and the walls and troughs connected with the controlling machinery, which is not yet in place, the

concrete work has been practically completed. One of the sand beds has been filled and the sludge bed is partially filled. The work of filling the contact beds has just begun.

The sewers through the town and the trunk line to the plant have been completed, and a few house connections have been made to the curb. The work has not yet been accepted on account of the fact that some of the lines have not yet been properly cleaned. Bids will be received on this work December 2, 1909 and it is expected that the work will be completed a month later.

At the time of your last report, the question of the right of the Town to build the plant in Hanover Township was in the Court of Appeals. Since then that Court has upheld the decision of the Supreme Court, and the Town of Morristown was notified on February 27, 1909, that they could build the plant.

**NEWARK CITY HOME.**—The Newark City Home for truant boys is located in Essex county,  $\frac{1}{2}$  mile from Overbrook and about the same distance from Verona. The total population is 175.

Two years ago a sort of disposal system was attached to their sewer. The main sewer is a 10" pipe flowing in dry weather about one-tenth full. This pipe conducts the sewage down the hill towards the Peckman river about 1-4 mile and empties it into a small settling chamber. This chamber also contains a sort of screen, and is cleaned out about 2 or 3 times a year. The solids are carted away. From this chamber 2 pipes extend in opposite directions to a series of other small chambers. On the lower side of each of these chambers is an opening leading into a "blind ditch" and with gravel extending down as the meadow. There are 20 of these ditches, and they flow from the entire meadow. The ground is low and wet and the effluent which finally soaks out through the ground and gravel collects in an open ditch at the foot of the field. This ditch contains much fungus growth and bad-smelling black sediment. The whole soil is unsuitable and probably the greatest purification the effluent receives is dilution with ground water.

The effluent finally empties into the Peckman river, a tributary to the Passaic.

**NEW LISBON.**—The Freeholders of Burlington county maintain 2 institutions at New Lisbon, a hospital for the insane and an almshouse. Each has its own superintendent and staff. The population of the hospital is about 200, while that of the almshouse is about 125. The water consumption is estimated at about 30,000 gallons per day. At the hospital the laundry is connected with the sewer and the flow is practically about 20,000 gallons per day.

The old disposal plant has been condemned and ordered rebuilt, but up to the present time, November, 1909, work has not yet been begun.

At the almshouse, however, a system of absorption tile has been installed. This system consists of a round septic tank 8 feet in diameter and 7 feet deep, emptying into a dosing chamber of about the same dimensions. Aerlock sequence siphons discharge alternately the contents of this chamber into the absorption beds. Each of these consist of 5 rows of 4" tile 200 feet long, laid on broken stone in trenches from 4 to 5 $\frac{1}{2}$  feet deep.

**NEWTON.**—The Town of Newton is located in the watershed of Paulin's Kill, in Sussex county. Its population is estimated at about 5000. In 1905 and 1906, the town constructed a sewerage system and 2 disposal plants. The town is situated on the top of a ridge, draining off towards the west. The town was constructed for each of the drainage areas. To connect the two would necessitate the cutting of a ridge 40 feet high. The plants are about 5,600 feet apart. They are called respectively, the Clinton street plant and the Sparta street plant.

Seven and one-third miles of sewers are constructed, five-twelfths of which drain to the Sparta street plant and seven-twelfths to the Clinton street plant. The sewers are of various sizes, ranging in size from 15 to 18 inches. At all dead ends of the sewers, flush-tanks were constructed. There are at present about 211 house connections and more are rapidly being added. The majority of these are on the Clinton street system and only about 25 are on the Sparta street system.

The 2 disposal plants are similar in design and operation but are different in size. Each plant consists of a small sedimentation chamber, a septic tank, a dosing chamber, 5 sand filters and a sludge bed.

At the Clinton street plant, which is designed to receive the sewage flow of 297,000 gallons per day, the septic tank is composed of 2 equal compartments 83 feet x 20 feet, and the dosing chamber is 40 feet square. The 5 sand filters are each 200 feet x 30, the distributing trough varying in width from 24 inches to 8 inches. The underdrains are 2 and 3 inches in size with 4-inch branches laid 16 feet apart. The outlet pipe is 10 inches in diameter.

At the Sparta street plant, designed to receive a flow of 127,500 gallons per day, the septic tank is 64 feet x 22 x 7 feet 9 inches with a working

depth of 5 feet 9 inches. A 6-inch drain pipe leads from the tank to the sludge bed 56 feet square. The tank is baffled and designed to retain the sewage 8 hours. The flow passes out of the tank over an adjustable weir into the dosing chamber.

The automatic air-locked siphon has been removed from the Clinton street plant and at present the new machinery operated by a large float automatically controls and regulates the dose upon the beds in succession. The device is very ingenious though simple. Each bed gets a dose about once in 20 hours, the dosing chamber discharging about once every four hours.

The air-lock system is still in the Sparta street plant, but does not seem to give satisfaction and will probably be taken out.

The filtering material is good, clean, sharp sand and the effluents are excellent. The plants receive good attention, beds are put in order frequently, and the attendant takes great pride in the appearance and successful working of the system.

**OCEAN GROVE.**—The following articles was prepared by Mr. Clyde Potts, C. E., for "The Engineering Record."

#### Ocean Grove Sewage Disposal Plant.

Early in 1908, the New Jersey State Board of Health notified the various summer resorts on the New Jersey coast to cease emptying crude sewage into the waters of the State under the jurisdiction of the State Board of Health.

The common method of disposing of the sewage along the coast was what is known as disposal by dilution. The sewage in nearly every instance was piped to sea through iron pipe laid on the bed of the ocean and extending out from 1,000 to 1,500 feet from shore. In consequence, the bathing along the coast was not at all times as it should be, as an easterly wind was apt to return objectionable matter to the beaches. The order of the State Board of Health did not require the treatment of the sewage along any specific lines nor did it give an index as to what treatment would meet with the approval of the State Board.

The writer was employed by Ocean Grove, to prepare plans and present the same to the State Board of Health for its approval. It was assumed that the protection of the bathing beaches from an aesthetic point of view was all that could reasonably be required at the present time. Plans were prepared accordingly.

The bathing season at Ocean Grove is limited practically to the months of June, July, August and September. The bulk of the summer population is also there during that period. The problem then was more particularly one of keeping the beaches free from objectionable matter during these months.

Before the installation of sewage tanks, Ocean Grove had disposed of its sewage through a 12-inch wrought iron pipe extending 1,800 feet beyond high water, and through tanks separating the tanks separating the sewage during the four months of the year above mentioned, and disposing of the liquefied effluent through the outfall already in existence would give satisfactory results. This effluent would discharge into deep water several hundred feet beyond the end of the fishing pier and some hundred feet from the bathing ground, so that the possibility of its return would be remote. The effluent would already have been broken down in the liquefying tanks and mixed, as it would be, with a large volume of salt water, any harm from its return in this liquefied and diluted state would be problematic. Owing to the shortness of the summer season, the question of operating the tanks as septic tanks received little consideration.

The sewers of Ocean Grove converge in two lines to the outfall at Embury avenue. These 2 sewers are known as the Broadway sewer and the Embury avenue sewer. The Broadway sewer carries about 1-7 of the sewage of the Grove, and the Embury avenue sewer about 6-7. The Broadway sewer discharges into the outfall 13-1/10 feet below the boardwalk, while the Embury avenue sewer discharges into the outfall only 9-4/10 feet below the boardwalk. It was early decided to avoid pumping if possible. The liquefying tanks were to be built into the outfall and the sewage allowed to flow in and flow out by gravity. The problem arose as to the advisability of building a tank for each of the sewers or to build one tank large enough to treat the sewage of both and so set it down to the level required by the Broadway sewer. This would call for building the Embury avenue tank in which 6/7 of the sewage would be treated nearly 4 feet lower than the occasion required. It was decided to build the tanks in 2 sections, one part of the Broadway sewage and one for the Embury avenue sewage. The latter to be generally 3-7/10 feet higher than the former, and 6 times as large. The tanks were built alongside the boardwalk and between it and Ocean avenue. The lowest point of the Broadway tank was 22 feet below the boardwalk or about 6 feet below low tide. The lowest point of the Embury avenue tank





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disposal works consist of a screening chamber, 4 septic tanks, 8 primary contact filters and 8 secondary contact filters. The screen chamber retains rags, paper and some larger solid materials. These are scraped from the screens every floor of the house over the chamber. Twice or three times a week these are removed. The sewage passes from this structure along a main for a distance of a few hundred feet to the septic tanks.

The septic tanks are four in number. Two are 100x50 feet, built in 1902, and two are 200x50 feet, built in 1905. These tanks are roofed over and have a working depth of 6 feet. They are arranged so that they can be used in parallel or in series at the time of septic action. From these the clarified liquid passes out over an aerating weir to a collecting channel and from thence to the two gate-houses, located in the center of each set of primary contact beds.

There are 8 primary and 8 secondary contact filter beds. These are arranged in sets of 4 each with the gate-house at the center of the set. The grade of the secondaries is about 5 1/2 feet lower than that of the primaries. Each bed is a rectangular tank, walled and floored with concrete, 92x106 feet in area and 5 feet deep. On the floor of each bed, 14 lines of 4-inch horse-shoe drain-tile were laid converging to its own gate-chamber, located one in the center of each set of filters. Over and between these tiles was placed a 6-inch layer of coarse broken stone for drainage; upon this rested the main body of filtering material (3/4 to 1 1/2 inch size) 3 1/2 feet deep; and covering all was a 2-inch thick layer of coarse broken stone. In the upper foot of filling were laid distributing lines of vitrified pipe 12 to 3 inches in diameter. No automatic distribution of the sewage was attempted. Inlet and outlet gates are controlled by hand. The present secondary beds have a layer of finer material upon them than the stone of the primaries.

**POINT PLEASANT.**—Point Pleasant is a borough situated in Brick Township in Ocean county. It is strictly a residential community with quite a floating summer population. The population varies from about 1,500 in winter to 5,000 in summer.

There are about 4 miles of sewers laid, composed of terra cotta pipe from 6 to 12 inches in diameter, with about 90 house connections.

The sewage is domestic in character and is led to a disposal tank located on the beach near the ocean.

This "tidal tank" is composed of 2 chambers each 35 feet long x 5 feet wide and 10 feet deep, inside measure. When necessary, another similar chamber can be added alongside, thus increasing the capacity. Suitable baffles have been provided and the gates are so arranged that one compartment is used in winter and both in summer.

Back flow of high tides is prevented by a flap-valve and the outlet from this tank extends 600 feet into the ocean.

The system was put in operation November 2, 1908, and at the time of inspection, March 17, 1909, seemed to be working well.

Only one compartment was then in commission, but as soon as the summer population comes in, then the other will be put in also.

**PRINCETON.**—The Borough of Princeton is located in Mercer county, on Stony Brook, a tributary of the Raritan river. Its population is about 6000. The Borough owns the sewerage system. Nearly 1/2 of the total volume of sewage is contributed by university students, staff and attaches. The Borough is sewered on the separate system. The pipes are unusually small (5-inch and 6-inch) and automatically flushed. It is interesting to note that the sewers are never gorged and that stoppages are extremely rare.

There are about 600 house connections and 15 to 20 new ones added yearly. The water consumption is about 300,000 gallons daily in summer and about 400,000 gallons daily when the University is in session.

The estimated daily dry weather flow of sewage is about 200,000 gallons which is increased to a considerable extent in wet weather.

The Borough is divided into 3 sewer districts. One system running east and north, through the residential and commercial section—that portion lying north of Nassau street. The south side of Nassau street, including the University buildings, is drained to the south by the "College system." The "West System" covers a small residential part of the Borough. Each system has its own means of disposal.

The sewage of the "Northeast System" contributed by about 2,500 people, is carried by a main sewer for about 1/2 miles, to the northeast of the town to the "Northeast" field. Here it empties into a concrete sedimentation tank 70 feet x 15 feet x 7 feet with 4 compartments and a concrete roof.

The new beds are 4 in number, in addition to the extra sludge bed which is beside them. They are each 50 feet x 50 feet and 4 feet deep. They are constructed of layers of rock, cinders and sand, and underdrained with 4"

terra cotta open-joint drain tile. The beds are separated and bounded by high embankments, although the cross-partitions do not extend up as high as the longitudinal or outside embankments. The sewage is distributed by means of a V-shaped wooden trough, made of 1" boards, running diagonally out across each bed. The beds are used in rotation and get a dose (according to the flow of sewage) of from 4 inches to 14 inches depth. This dose remains in sight from 6 to 10 hours and each bed gets a rest of from 4 to 8 days' duration. The effluent empties into a small stream which unites with 4 others and flows into Carnegie Lake.

The old field of 3 acres is still held in reserve, and a by-pass exists by which the entire sewage flow can be turned out on the field. At present, a heavy crop of oats is growing on the field.

The "College" or "South" field, receiving the sewage from about 2,500 people, contains 15 acres of rather sandy soil, high and sloping southerly to the edge of the upper part of Carnegie Lake. About 1/2 of the area is in actual use and is covered with an immense crop of hay. This grass is cut three times a year and the irrigation ditches are cleaned out twice a year. An 8" sewer main brings the sewage to within 400 feet of the field. The flow is conveyed from this point to the distribution ditches in a new V-shaped wooden trough. The irrigation ditches zigzag over the field and the flow is changed daily by taking a shovelful of earth from the mouth of one ditch and stopping the flow in the other ditch with it—thus turning the course of flow.

The upper portion of the field is underdrained with 4" round clay drain tiles which empty on to the lower portion of the field which is not underdrained. Into this ground the water gradually soaks away. A line of cinders is supposed to protect the lake from any accidental over-wash, but the attendant informed me the sewage has been out of the field once—about three years ago.

The "West" field receiving the sewage from about 200 people, covers 8 acres. The field is high, sloping and rather porous. The sewage is delivered from a flush-tank holding 5,850 gallons which discharges about 4 times a day. There are 4 outlets, each discharging into irrigation ditches. One outlet is used at a time for about a month or two, and then another one is substituted therefor.

The flow in this field is changed twice a week. The field is not underdrained and the sewage soaks away on the upper third of the field. There was formerly a bank at the foot of the field along the brook, but this has nearly all disappeared with the widening of the stream. Once about three years ago, sewage escaped from this field also.

**RED BANK.**—The Town of Red Bank is located in Monmouth county, on the Navesink or North Shrewsbury river. The flow of the river is principally tidal, it being part of the Shrewsbury basin. It is over 1/2 a mile wide at Red Bank, and very shallow, the greater part of the river being only a few feet deep at low tide. Above Red Bank there are a few small fresh water streams running into the river. The population is about 7,000.

In 1902, the town constructed a sewerage system and disposal plant. The daily discharge is estimated at about 250,000 gallons to 300,000 gallons.

Considerable ground water enters the system and while all storm water is supposedly excluded, such is not the case. During the night, the flow is practically the clearest ground water. In the morning, the flow becomes gray and the sewage becomes very strong. There is much variation on different days of the week.

After a shower the flow immediately increases and after a hard shower the whole plant sometimes becomes flooded with sewage.

This is due to some roof-drains being connected and to bad surface grading which causes storm water to pond in some streets and run into the sanitary sewers through manhole covers.

The disposal plant consists of 2 grit-chambers, a septic tank and 2 circular tanks which were originally upward stone filters.

The grit-chambers receive the sewage directly from the main and are each 5 feet x 8 feet x 3 1/2 feet deep. They serve to detain sand, paper and fecal matter. They are cleaned out about once or twice a year.

The septic tank is circular, and about 43 feet in diameter, the depth ranging from 9 feet 10 inches at its edge to 5 feet 9 inches at the center. It has a capacity of about 95,000 gallons. It was constructed from an old gas tank well.

The old filter tanks are each 12 feet in diameter and 10 feet deep. After the removal of the stone filtering material, baffle boards were put across each and they served as disinfecting chambers during the disinfecting experiments of 1908 and 1907. They were then used in series. Now they receive the flow from its septic tank in parallel and serve only to settle out some suspended solids from the septic sewage. The effluent from these tanks unites in a manhole outside from which it is conducted through a 15" outfall out into the river about 300 feet from the shore.

4-inch drain pipes, controlled by valves, run from the septic tank and

from each of the filter tanks to a drainage manhole, and a 4-inch vitrified drain leads from this manhole to the river bank, and empties through the bulkhead.

The grit-chambers are covered by a neat wooden house, the septic tank by a conical spinose roof and the filter by another wooden house. The grit-chambers when in need of cleaning, give off considerable odor at times when the flow is low and the solids are exposed. The septic tank is well protected by a heavy screen and has never been cleaned out. Sometimes there is some odor from the septic sewage as it passes, exposed through the filter tanks. During the disinfection experiments, the only odor there was, came from the grit-chambers.

Some complaints come from the Italian settlement, which is located beside the plant, but they claimed that in the summer of 1907, there was no annoyance at all.

The sewage is typical domestic sewage, greatly diluted at times.

**RIDGEWOOD.**—The Town of Ridgewood is situated in Bergen county, on the Saddle river, about 5 miles northeast of Paterson.

Its estimated population is about 5,000 and its character is purely residential. The area covered lies on 2 watersheds, the eastern draining to the Hobokus creek and Saddle river and the western to a small stream which empties into the Passaic river near Paterson.

The works constructed serve only the eastern side. A movement is now on foot to sewer the western side, pump the sewage over the ridge, and connect on to the eastern system. Storm water and ground water are prevented as much as possible from entering the system. Drains under the sewer lines and cast-iron pipes in the wet localities exist.

The size of the sewers ranges from 8 inches to 36 inches. The daily sewage flow is not known but the sewered side of the town uses about 150,000 gallons of water per day.

During the summer of 1907, several improvements to the disposal system were made. A new septic tank was built near the filter-beds. The bottoms of the primary beds were repaired and made water-tight with concrete, new underdrains were laid and the secondary beds were reduced to a single layer of coarse crushed stone. The disposal plant as it now exists comprises a septic tank, 4 primary contact filters and 4 secondary stone wave beds. It was supposed that high freshets would compel the use of pumps, and 2 pumps were installed to pump the effluent in times of high water, but these have never been used.

The old septic tank has been abandoned, and the new one was started October, 1907. This new tank is 35 feet x 25 feet x 9 feet and is divided into 3 compartments.

Two of the primary contact beds are 60x120 feet and two are 52x120 feet. They have concrete floors, brick walls, contain 21" of coke and 2" of stone and are underdrained with 8" horse-shoe agricultural tile, laid 18" apart.

The beds are controlled by an automatic airlock feed system and the distribution is by means of troughs with concrete bottoms and wooden sides.

It is now proposed to thoroughly overhaul and improve this plant on account of the very unsatisfactory effluent discharged.

#### Disposal Plant of A. H. Riggs.

**SHARK RIVER.**—The accompanying illustration shows what can be done for a very little trouble and expense in the way of providing for the disposal of sewage under apparently difficult conditions.

This plant consists of a small septic tank, a siphon chamber and sand bed. It is built of concrete covered with flag-stones, and gives satisfaction. The owner is quite pleased with his job and the whole outfit cost considerably less than one hundred dollars (\$100).

As can be seen, the location is on a little island in Shark river, between Belmar and Avon.

**SOHO.**—The Essex County Isolation Hospital for Contagious Diseases is located in Belleville Township near the Soho Park railroad station.

The institution was erected in 1905, but has only been opened about a year.

The sewage is disposed of by lines of absorption tiles laid in a low place of ground and is apparently quite satisfactory.

**SPRING LAKE.**—There are 3 septic tanks under the supervision of the Spring Lake authorities; viz.—Spring Lake, North Spring Lake and Como.

The Spring Lake tank is 62 feet x 18 feet x 5 feet and is divided into 3 equal compartments by longitudinal walls. This tank is located at the foot of Pennsylvania avenue.

The North Spring Lake tank is located at the foot of Brighton avenue, and is 39 feet x 18 feet x 5 feet, divided into 3 equal compartments by longitudinal walls.

The Como tank is located at the foot of Pitney avenue and is 21 feet x 12 feet 8 inches, divided into 2 compartments of about 1/3 and 2/3 capacity.

All of these tanks have deep sea outlets to convey the digested sewage well out from the beaches.

**STONE HARBOR.**—The disposal plant for Stone Harbor is practically completed but owing to the absence of residents at the present time of the year, the plant has no sewage to operate on.

This is the first chloride of lime disinfecting plant to be built in the State of New Jersey. The plant is essentially a detritus tank 6½x28 feet, a disinfecting chamber 9 feet x 18 feet 9 inches and a building, located over the detritus tank, which contains the wooden tanks for preparing and administering the solution of chloride of lime.

In the building, the 2 cedar tanks hold 280 gallons each, and one is mounted upon staging so that the clear supernatant disinfecting liquor is drawn off into the lower tank and from which a small pipe leads to a small orifice next to the beach to discharge the effluent through a lead pipe directly into the detritus tank at the entrance of the sewer. In the outfall near the outlet is an automatic tide valve which allows the tank to empty on ebb tide.

#### Plant of the I. O. O. F. Home.

**TRENTON.**—The accompanying photograph shows the sand beds installed on Pennington avenue, Trenton, to relieve the sewage from the I. O. O. F. Home, located near the center of the city.

These beds are 3 in number and together cover an area of 66 feet x 125 feet. They contain a stratum of sand 3½ feet deep under which is a 6" layer of gravel.

The sewage is raised from a sump by an automatic electric pumping apparatus and distributed directly upon the sand beds in rotation.

The effluent is discharged into an open ditch beside the roadway.

**VINELAND.**—Vineland is a borough about one mile square, situated in the northern part of the Delaware county on the Tarklin branch of the Maurice river. Its population is said to be about 5,000 people. A system of sewers and sand filters was installed in 1901.

There are about 9 miles of sewers constructed of terra cotta pipe.

There are 950 house connections, including dwelling-houses, stores, and 3 or 4 factories (shoe and grape juice). About 10 to 20 new connections are made each year as building increases.

The estimated flow of sewage is about 400,000 to 500,000 gallons per day in dry weather. No storm drains are connected with the sewers and ground water is supposed to be absolutely kept out; but, as is often the case under these conditions, the flow in wet weather is probably greatly increased. The sewage is domestic in character.

The disposal area covers about 6 acres and is divided into 11 beds, although 2 sand are really sub-divided, making a sum total of 15. These beds are all underdrained, except the first 3, 2 of which are used as settling tanks and one for a reservoir.

The sewage received through an 18" main, is first let into one of the settling basins, and after 5 to 14 hours, it is let into the other one where it remains for about the same length of time. The depth of the liquid is about 15".

From the second basin, the sewage is let onto the other beds in series, ending up on the "sand filters." The underdrains run continuously owing to both slow sewage filtration and to considerable ground water.

All empty directly into the Tarklin branch through seven outlets.

During the past year, considerable work has been done on this plant. Beds have been rebuilt with better sand and the general appearance has been greatly improved.

Mr. Newcomb, who has general supervision, reports that the effluent has recently shown great improvement. It is hoped that his good results will soon be duplicated in our own laboratory.

The effluent from this plant is discharged into a public water supply.

**WATER WITCH.**—The septic tank for Water Witch is 43 feet long x 8 feet wide and 6 feet deep to the flow line.

It is located under the grade of Water Witch Drive about 600 feet above the tidal estuary into which the outlet empties.

Provision has been made for future extension of the tank when it becomes necessary.

It is proposed to install sand beds to receive the septic effluent when the same are required.

**WENONAH.**—The Borough of Wenonah, in Gloucester county, is located on Mantua creek, about 7 miles from the Delaware river. Its population is 600.

There are no public sewers in Wenonah but 2 private systems consisting of about 4,800 feet each have been installed. These are constructed of 6"

and 8" terra cotta pipe, and are quite free from ground water.

The Mantua avenue system has about 30 house connections and the Princeton avenue system has 8. There has been a yearly increase in house connections of about 10.

The Mantua avenue system empties into a septic tank 16 feet x 16 feet, the overflow from which passes along a terra cotta channel pipe in the bottom of a "coke bed," 16 feet x 25 feet, having sloping sides. Some time ago, the coke was removed from this bed and never replaced. This is just as well for all the good it will do there.

The effluent after leaving this, passes into a 6x6 flush-tank, containing a Miller automatic siphon. The discharge from the flush-tank passes out on to a 25x20 "stone bed." The plans call for a 12" layer of sand surmounted by a 6" layer of broken stone; but the attendant informs me that the bed is "sand with some broken stone and gravel mixed in to make it more porous" (?).

The effluent from this bed flows on to an 18" sand bed 25 feet x 40 feet, and from this on to another 18" sand bed 25 feet x 40 feet. No provision was made for rests other than the intervals between doses and on account of the materials in the beds and lack of attention, all the beds clog up and the sewage flows both over the top of the walls and out of underdrains in a condition wholly unpurified.

The attendant tells me that occasionally men go on the beds clad in rubber hip boots and with spading forks loosen up the sand and stone and let the water through. It is then ready for more sewage and is never dry from one year to another.

This plant has been in operation since about April, 1908. I would recommend that the first bed be emptied and filled with stone or other suitable material carefully cared to one size, and that provision be made to alternate the contact effluent on the gravel beds in order to give each a chance to dry out between periods of use. If this fails, the other beds should be constructed alongside and both primary and secondary beds be alternated. It ought not to cost much to put this plant in good condition, but it will not run itself and will always need proper attention.

The Princeton avenue system empties into a circular septic tank 16 feet in diameter from which the overflow passes through a coke bed and the outlet from this discharges directly into a branch of Mantua creek.

**WESTFIELD**—Westfield, a town of about 6000 inhabitants, is situated in Union county, in the Rahway river watershed. In 1895, the city constructed its system of sewers and disposal works. The present sewerage system consists of about 15 miles of sewers ranging from 8 to 24 inches in size and constructed of terra cotta pipe in the dry, and cast-iron pipe in the wet places. Storm water is not supposed to enter the system at all, but at times considerable ground water increases the flow of sewage very much—probably about 50%. The daily dry weather flow is roughly estimated at about 400,000 gallons. The sewage is domestic in character, there being no factory wastes. There are at present 974 House connections, and about 80 or 90 are added yearly.

The outfall sewer leads to the disposal farm, situated about 2 miles south of the town. This tract contains 108 acres of which about 12 acres are available for sewage disposal. The soil is a sort of sandy loam with some gravel and some parts are nearly all sand.

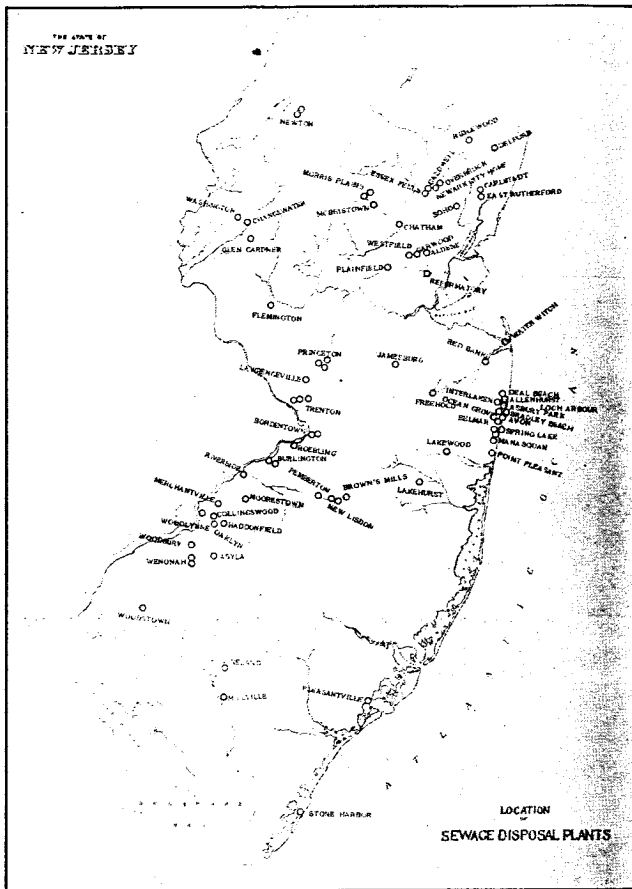
The plant consists of a double screening chamber, 3 sludge beds, 5 filter beds and 4 irrigation tracts. The screening chamber is used in parallel except during the cleaning process when one alone takes care of the flow. Each compartment is 5x8 feet in plan. The sewage entering near the bottom rises through screens of 5/8" rods spaced one inch in the clear, and overflows through an 18" pipe to the filters. An 8-inch pipe controlled by valves, taps both chambers at the bottom and carries the screenings to the sludge beds. Of these, there are 3, each 47x30 filled with gravel. The screen chamber is drained out three times a week.

Of the filter beds, 4 are about 1/4 of an acre in size, made of sand and sandy loam with some gravel mixed in and provided with underdrains, and one of one acre in size without underdrains. The depth of the beds is from 4 to 5 feet and the underdrains are 4" circular agricultural tile leading to an 8" side drain.

These beds seem now to be receiving better attention than the former reports would indicate. They receive a deep plowing in spring and fall and are gone over with a spring-tooth harrow every 6 weeks. The beds are used in rotation, giving each a day's flow at a time. When this subsides and the surface dries, the top layer is raked off, and as soon as a few dosings make it necessary, the harrow is put on. In this way the bed is kept porous and free from weeds and grass.

The irrigation area is divided into 4 tracts and one small 3-cornered piece.

The effluent runs into a small stream which is caught by a large iron



Map of New Jersey showing location of principal sewage disposal plant in operation and under construction.

In operation..... 63  
Under construction..... 14

main and conducted about 2 miles and emptied below the intake of the Rahway water-works.

There have been improvements made in the plant during the past year. By the application of lime to the screenings on the sludge beds, the nuisance arising from odors has been avoided.

Considerable work has also been done towards the increase of bed area and putting the filter beds in good condition.

WOODBURY.—The only system of sewage disposal possessed by the Town of Woodbury is a large covered concrete detention tank located at the sewer outlet.

This tank retains the sewage flow until high water, when the sewage is discharged with the outgoing tide.

WOODSTOWN.—The Borough of Woodstown lies on both sides of Salem creek, in Salem county. The population of the village is about 1,500.

A local corporation, the Woodstown Sewer Company, owns the sewers and runs the disposal plant.

The sewers are about 2 miles in length and vary in size from 6" to 8". They are of the usual terra cotta pipe. Formerly a great amount of roof water entered all the lines, but lately, a good deal has been excluded although there still remains enough to cause an immense increase in the sewage flow during wet weather. There are about 100 house connections with a yearly increase of 3 or 4. The outfall 10" main leads to the disposal plant located on a tributary of Salem creek. This plant consists of a septic tank, holding 12,600 gallons, a flush-tank with a capacity of 1,750 gallons and 2 filter beds each having an area of 3,400 square feet. The septic tank is covered with a concrete roof. The flush-tank is discharged by a siphon and the flow goes to one of the beds by means of 2 lines of terra cotta channel pipes. The beds are composed of sand and gravel, 4 feet deep and underdrained by 4-inch drain tiles 15 feet apart. The dose is changed from one bed to the other twice a week and each bed is harrowed every 2 or 3 weeks.

TABULAR SUMMARY OF THE PRINCIPAL SEWAGE DISPOSAL PLANTS OF THE STATE OF NEW JERSEY.

PLACE.	SERVICE.	SYSTEM.	APPROX. COST.	ENGINEER.
Aldene.	Factory.	Septic Tank, Contact Filter.	\$4,000.00	G. K. Hooper
Albion.	Municipality.	Septic Tank.	27,272.72	G. E. Hill.
Ayer.	Municipality & Asylum.	Screens, Septic Tank, Primary and Secondary Contact.		G. E. Hill.
Aven.	Municipality.	Septic Tank.		J. H. Emilen.
*Barn.	Municipality.	Septic Tank.	\$68,306.70	W. W. Young.
Bradley Beach.	Municipality.	Septic Tank, Primary and Secondary Contact, Sand Filtration.		N. Hart Rogers.
Brown's Mills.	Hotel and Cottages.	Septic Tank, and Ground Sepsis.		
Burlington.	Municipality.	Pump Well, Settling Tank, Land Filtration.		
Burlington.	Factory.	Septic Tank, Sprinkling Filters, Sand Filtration.		Chas. A. Blatchley.
Caldwell.	Municipality.	Septic Tank, The Absorption.		Wise & Watson.
*Carlsbad.	Municipality.	Septic Tank, Intermittent Sand Filtration.	\$16,000.00	Williams, Proctor & Potts.
Chambers.	Municipality.	Septic Tank, Sand Filtration.		G. E. Hill.
Collingswood.	Municipality.	Septic Tank, Primary Contact.	\$3,800.00	G. E. Hill.
Deal Beach.	Municipality.	Septic Tank.		E. E. Throckmorton.
Delair.	Municipality.	Septic Tank.		W. E. Van Bunker.
East Rutherford.	Municipality.	Septic Tank, Primary Contact, Sand Filtration.	6,000.00	Pugh & Hubbard.
Essex 2 Sts.	Municipality.	Screens, Flush Tank, Land Filtration.		Waring, Chapman & Farquhar.
Flemington.	Municipality.	Screens, Flush Tank, Land Filtration.		Waring, Chapman & Farquhar.
Freehold.	Municipality.	Septic Tank, Sand Filtration.	\$8,185.65	Charles McMillan.
Glax Good.	Municipality.	Septic Tank, Sprinkling Filters, Under Filtration.		Alexander Potter.
Haddonfield.	Municipality.	Septic Tank, Sand Filtration.		G. E. Hill.
Hillside Island.	Store and residence.	Septic Tank, Sand Filtration.	\$3,700.00	G. E. Hill.
Irvington.	State Home for Boys.	Septic Tank, Land Filtration.		Boyd McLean.
Jamestown.	Hotel and Cottages.	Septic Tank, Sand Filtration.		J. J. R. Cross.
*Lakewood.	Municipality.	Septic Tank, Sand Filtration.		Alexander Potter.
Laurelville.	School.	Septic Tank, Broad Irrigation.	\$2,650.00	G. E. Hill.
Lawrenceville.	Municipality.	Septic Tank.	19,840.00	Pugh & Hubbard.
Manassan.	Municipality.	Septic Tank, Primary Contact, Sand Filtration.	26,877.00	G. E. Hill.
Manville.	Municipality.	Septic Tank, Aeration Well, Primary Contact, Disinfection.		Wm. H. Boardman.
Millville.	Municipality.	Septic Tank, Primary Contact.		Alexander Potter.
Moorestown.	Asylum.	1. Screens, Broad Irrigation.	\$100,000.00	Williams, Proctor & Potts.
Morris Plains.	Municipality.	2. Screens, Septic Tank, Sand Beds.		
*Morristown.	Municipality.	Septic Tank, Primary and Secondary Contact, Sand Filtration.		

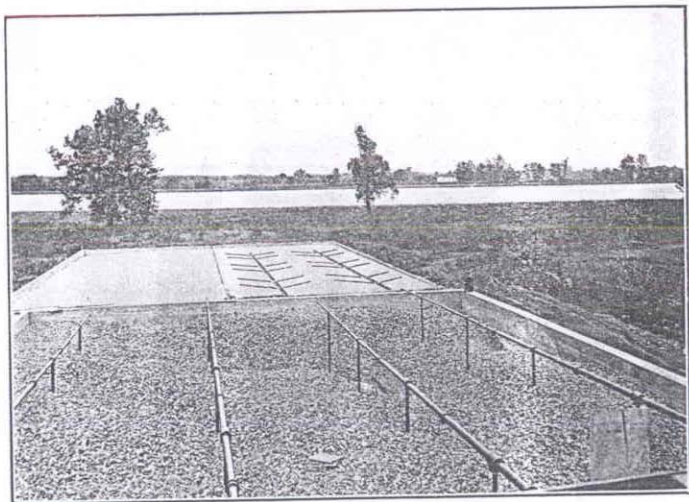
TABULAR SUMMARY OF THE PRINCIPAL SEWAGE DISPOSAL PLANTS OF THE STATE OF NEW JERSEY—Continued.

PLACE.	SERVICE.	SYSTEM.	APPROX. COST.	ENGINEER.
New Lisbon.	Almshouse.	Septic Tank, The Absorption.		Earl Thompson.
New Lisbon.	Asylum.	Septic Tank, Primary Contact.	\$20,000.00	Earl Thompson.
Newton I.	Municipality.	Septic Tank, Sand Beds.	10,000.00	Williams, Proctor & Potts.
Newton II.	Municipality.	Septic Tank, Sand Beds.		Earl Thompson.
Ocean Grove.	Municipality.	Two Septic Tanks.	20,400.00	Williams, Proctor & Potts.
Overbrook.	Asylum.	Septic Tank, Primary Contact, Sand Filtration.		James Owen.
Pennington.	Municipality.	Settling Pool, Broad Irrigation.		Joseph O. Osgood.
Pleasantville.	Hotel, Faculty.	Septic Tank, Primary Contact Beds.		Pugh & Hubbard.
Point Pleasant.	Municipality.	Septic Tank.	\$3,800.00	Pugh & Hubbard.
Princeton I.	Municipality.	Septic Tank, Sand Filtration.		W. A. McKenzie.
Princeton II.	Municipality.	Disinfection.		E. B. Phelps.
*Rahway.	State Reformatory.	Grit Chamber, Septic Tank.	\$20,687.77	T. H. Grant.
Red Bank.	Municipality.	Septic Tank, Primary Contact, Sand Filtration.	26,388.00	Wm. H. Boardman.
Ridgewood.	Municipality.	Septic Tank, Primary Contact, Sand Filtration.		G. E. Hill.
*Riverside.	Municipality.	Septic Tank, The Absorption.	\$9,810.00	Pugh & Hubbard.
Soho.	Hospital.	Three Septic Tanks.	\$600.00	E. B. Phelps.
Spring Lake.	Municipality.	Disinfection.		Sanitary Sewage Purification Co.
Stonington.	Factory, Shop.	Septic Tank.		Williams, Proctor & Potts.
Trenton.	F. O. F. Home.	Septic Tank.		Williams, Proctor & Potts.
Trenton.	Newark City Home.	Sub-surface Irrigation.		
Verona.	Municipality.	Settling Basin, Sand Filtration.	\$18,000.00	Alexander Potter.
Washington.	Municipality.	Septic Tank, Primary Contact, Sand Filtration.	\$1,500.00	Williams, Proctor & Potts.
Water Watch.	Municipality.	Septic Tank, Sand Beds.		Essex Sewage Purification Co.
Wenonah I.	Municipality.	Septic Tank, Sand Beds.		Wm. C. Cattell.
Wenonah II.	Municipality.	Septic Tank.		Wm. C. Cattell.
Westfield.	Municipality.	Screens, Land Filtration.		Alexander Potter.
Woodbury.	Municipality.	Detention Tidal Tank.		Williams, Proctor & Potts.
*Woodville.	Municipality.	Disinfection.	\$2,722.00	G. E. Hill.
Woodstown.	Municipality.	Septic Tank, Sand Beds.		

\*The plants marked with an \* are in process of construction and the cost is estimated.



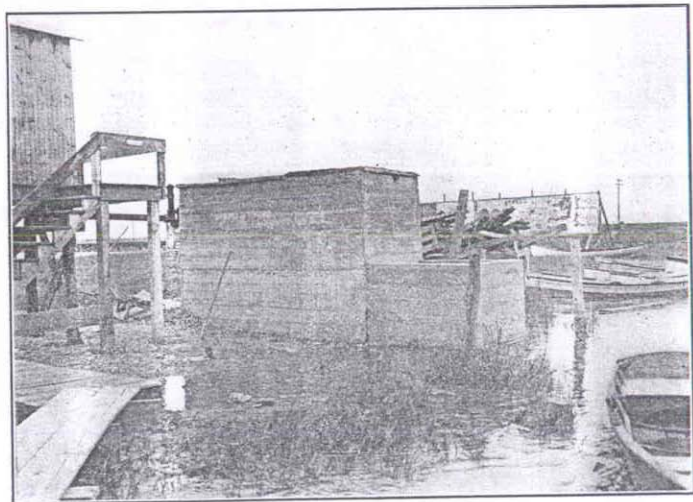
Burlington. Thomas Devlin Manufacturing Company. Septic Tank.



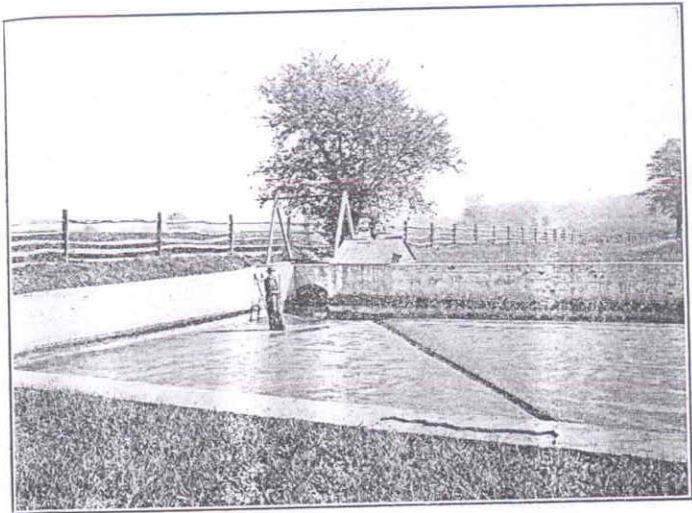
Burlington. Thomas Devlin Manufacturing Company. Sprinkling Filter and Sand Beds.



Collingswood. Septic Tank and Contact Beds.



Shark River. Hilliard's Island. Private disposal plant for store and residence of A. H. Riggs.



Freehold. Settling Tank on Saturday.

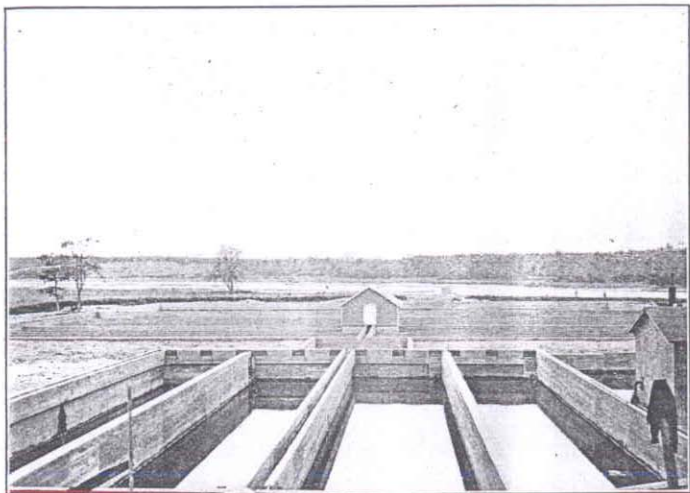


Freehold. Land Filtration Beds.





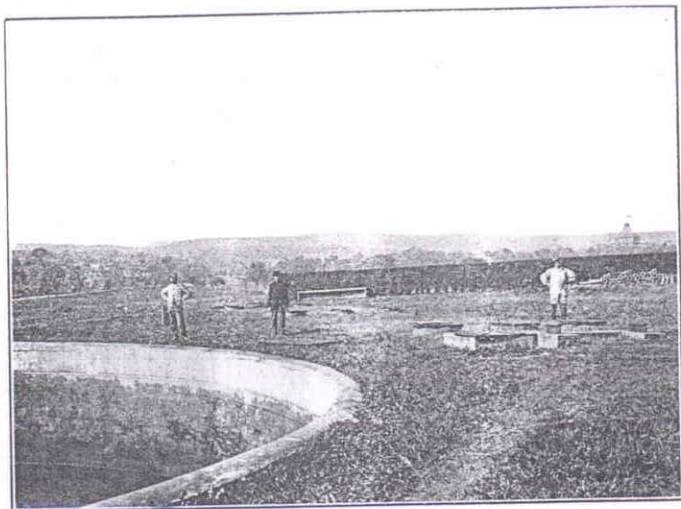
Glen Gardner. Cinder Secondary Beds.



Millville. Septic Tank and Contact Beds.



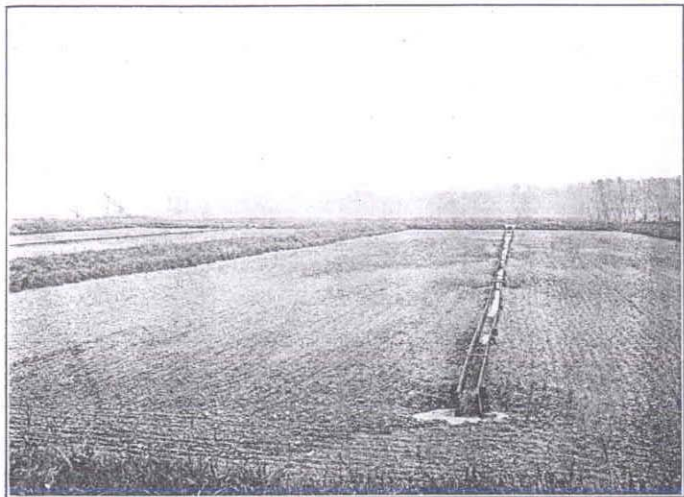
Millville. View Showing Aeration Well.



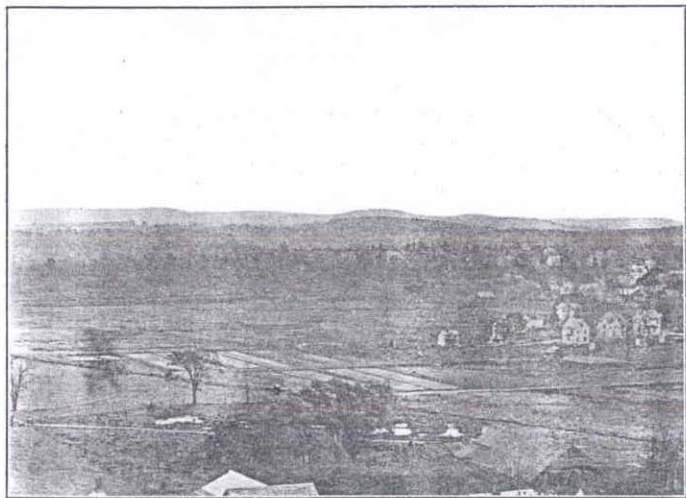
Morris Plains, South Side. Septic Tank and Flush Tank.



Morris Plains. South Side. Filtration Beds.



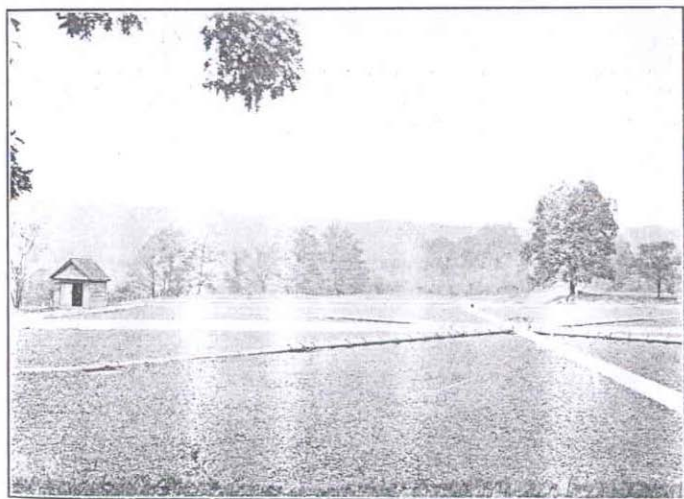
Newton. Clinton Street. Sand Bed.



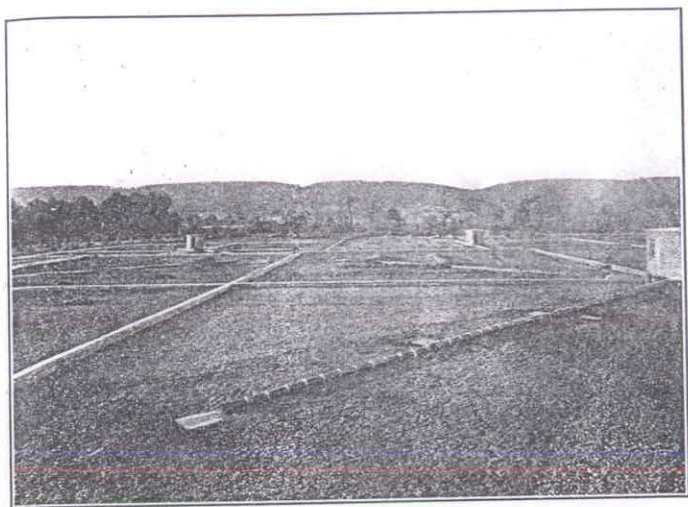
Newton. View of the Clinton Street Disposal Plant.



Overbrook. Septic Tank.



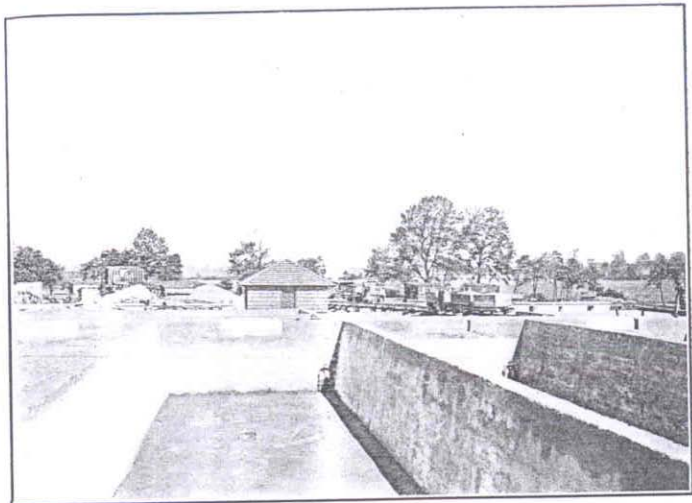
Overbrook. Contact Beds.



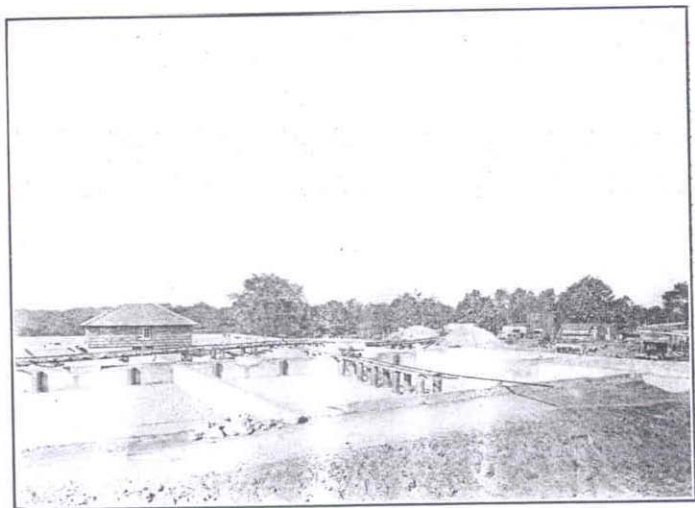
Plainfield. Contact Beds.



Princeton. North-east Field. Septic Tank.



Riverside. Septic Tank.



Riverside. View showing construction of Disposal Plant.



Vineland. Sand Beds.



Trenton. I. O. O. F. Home. Sand Beds.



TABLE OF ANALYSES OF SAMPLE SEWAGE.

LOCATION OF PLANT AND DATE OF SAMPLE.	SOURCE OF SAMPLE.	Temperature, degrees Fahr.	Color.	Odor.	Turbidity.	Sediment.	Total solids.	Fixed solids.	Volatile solids.	Solids in solution.	Nitrogen as										Oxygen consumed.	Oxygen con. in sol.	Oxygen dissolved.	Bacteria per cc. 20°	Bacteria per cc. 37°	Rod Colonies per cc. 37°	B. coli per cc.	Putrescibility, days.	REMARKS.								
											Fixed solids in sol.	Vol. solids in sol.	Solids in suspension.	Fixed solids in susp.	Vol. solids in susp.	Chlorine.	Total (Kjcl).													Free ammonia.	Organic (diff).	Organic (diff.) in sol.	Nitrites.	Nitrates.			
																	Total (Kjcl).	Total (Kj.) in sol.	Total (Kj.) in sol.	Total (Kj.) in sol.															Total (Kj.) in sol.	Total (Kj.) in sol.	Total (Kj.) in sol.
Allenhurst, Sept. 2, 1909.	Septic effluent.						682	504	178	630	489	141	52	15	37																			Catch sample.			
Asyla—Nov. 11, 1908.	Raw sewage.				400	320	438	141	297	328	134	194	110	7	103	15	24	23	9	15	14		109	83		680,000	350,000	300,000	100,000				Catch sample.				
Nov. 11, 1908.	Effluent.			Sl. sep.	40	0	223	136	87							18	20	15	5	5		27	27	3	1,100,000	180,000	100,000	10,000				1	Catch sample.				
Jan. 7, 1909.	Raw sewage.				50	slight	191	130	61	191	130	61	0	0	0	5	14	14	4	10	10		18	18	4	350,000	100,000	100,000	10,000				2	Catch sample.			
Jan. 7, 1909.	Effluent.			0	slight	15	194	147	47	194	147	47	0	0	0	5	16	16	11	10	5		18	18	4	350,000	100,000	100,000	10,000				2	Catch sample.			
Feb. 20, 1909.	Raw sewage.				100	60	293	164	129	285	147	118	28	17	11	5	10	18	6	13	12		46	39		450,000	350,000	300,000	10,000				14+	Catch sample.			
Feb. 20, 1909.	Effluent.		0		0	slight	210	149	61	210	149	61	0	0	0	15	18	18	6	9	9		23	23	5	65,000	33,000	30,000	10,000				14+	Composite sample, Jan. 8, Feb. 2.			
April 5, 1909.	Raw sewage.				175	75	450	209	241	420	203	217	30	6	24	10	23	22	6	17	16		109	97		300,000	100,000	100,000	1,000				6	Catch sample.			
April 5, 1909.	Effluent.			slight	50	slight	229	154	75	229	154	75	0	0	0	10	16	16	8	8	8		24	24	1	255,000	80,000	75,000	1,000				6	Catch sample.			
May 26, 1909.	Raw sewage.				200	160	336	155	181	290	139	151	46	16	30	5	12	10	1	10	9		66	58		500,000	100,000	90,000	10,000				6	Catch sample.			
May 26, 1909.	Effluent (not up to standard).			septic	slight	slight	308	130	178	308	130	178	0	0	0	30	12	12	4	8	8		16	16	1.30	150,000	15,000	13,000	1,000				5	Catch sample.			
Aug. 19, 1909.	Raw sewage.				400	300	270	119	151	217	109	108	53	10	43	22	20	10	12	10		48	42		1,500,000	300,000	250,000	10,000				10	Catch sample.				
Aug. 19, 1909.	Effluent (below standard)				75	slight	266	181	85	266	181	85	slight	slight	slight	20	24	24	2	2	2		20	20	0	2,000,000	120,000	100,000	10,000				10	Catch sample.			
Avon—Sept. 2, 1909.	Septic effluent.						613	297	318	517	289	228	98	5	90																			10	Catch sample.		
Bradley Beach—Sept. 2, 1909.	Septic effluent.						856	590	266	801	585	216	35	5	50																				10	Catch sample.	
Burlington—Oct. 9, Nov. 7, '08.	Raw sewage.				200	110	357	191	166	325	180	145	32	11	21	60	26	24	12	14	12		52	49		540,000	30,000	30,000	10,000				14+	Catch sample.			
Oct. 9, Nov. 7, '08.	Effluent.			0	0	0	245	180	65	245	180	65	0	0	0	50	16	16	9	7	7		7	7	5	26,000	600	500	10				14+	Catch sample.			
Jan. 13, 1909.	Raw sewage.				1,200	1,050	344	186	158	313	180	133	31	6	25	45	17	16	7	10	9		69	56		500,000	100,000	100,000	10,000				14+	Catch sample.			
Jan. 13, 1909.	Effluent.			0	slight	0	181	144	37	181	144	37	0	0	0	35	10	10	4	6	6		1	19	19	7.7	120,000	1,000	1,000	100				14+	Catch sample.		
Mar. 8, 1909.	Raw sewage.				400	350	329	183	146	300	181	119	29	2	27	40	20	19	7	13	12		54	46		350,000	50,000	10,000	10,000				14+	Catch sample.			
Mar. 8, 1909.	Effluent.			0	0	0	205	147	58	205	147	58	0	0	0	45	15	15	4	11	11		10	10	4.5	100,000	6,600	6,000	1,000				14+	Catch sample.			
April 19, 1909.	Raw sewage.				200	160	378	205	173	379	178	551	49	27	22	55	10	9	7	3	2		57	50		200,000	150,000	150,000	10,000				14+	Catch sample.			
April 19, 1909.	Effluent.			0	slight	slight	234	170	64	234	170	64	0	0	0	50	8	8	4	4	4		9	9	5	4,000	100	100	10				14+	Catch sample.			
June 10, 1909.	Raw sewage.				50	10	322	190	132							55	18	18	2	14	14		35	35		550,000	120,000	100,000	1,000				14+	Catch sample.			
June 10, 1909.	Effluent (below standard)				slight	slight	137	178	59	237	178	59	0	0	0	55	16	16	3	14	14		10	10	0.2	30,000	8,000	7,000	100				14+	Catch sample.			
Aug. 5, 1909.	Raw sewage.				150	100	374	236	138	332	207	125	42	29	13	95	8	17	3	15	14		31	28		300,000	40,000	40,000	100,000				10	Catch sample.			
Aug. 5, 1909.	Effluent.			slight	slight	slight	285	207	78	255	207	78	0	0	0	75	12	12	1	11	11		13	13		10,000	5,000	1,000	1,000				10	Catch sample.			
Collingswood—Aug. 10, 1909.	Effluent (below standard)																																		10	Catch sample.	
Aug. 28, 1909.	Effluent (below standard)																																			10	Catch sample.

TABLE OF ANALYSES OF SAMPLE SEWAGE.—Continued.

LOCATION OF PLANT AND DATE OF SAMPLE.	SOURCE OF SAMPLE.	Temperature, degrees Fahr.	Color.	Odor.	Turbidity.	Sediment.	Total solids.	Fixed solids.	Volatile solids.	Nitrogen as										Oxygen consumed.	Oxygen con. in sol.	Oxygen dissolved.	Bacteria per cc. 20°.	Bacteria per cc. 37°.	Red Colonies per cc. 37°.	B. Coll per cc.	Putrescibility, days.	REMARKS.										
										Solids in solution.		Fixed solids in sol.		Vol. solids in sol.		Solids in suspension.		Fixed solids in susp.											Vol. solids in susp.		Chlorine.	Total (KJel).	Total (KJ.) in sol.	Free ammonia.	Organic (diff).	Organic (diff) in sol.	Nitrites.	Nitrates.
										310	184	126	24	8	16	30	21	20	12.5										8.5	7.5								
Essex Fells— Nov. 30, 1908.	Septic sewage.				600	560	334	192	142	310	184	126	24	8	16	30	21	20	12.5	8.5	7.5	.....	.....	.....	550,000	120,000	100,000	1,000	1/2	Catch sample.								
Nov. 30, 1908	Effluent		0	0	0	0	238	178	60	238	178	60	0	0	0	35	7	7	2	4	4	.....	.....	.....	15,000	3,000	2,000	10	14+	Catch sample.								
Jan. 19, 1909.	Raw sewage.				500	400	369	195	174	342	151	161	27	14	13	15	18	17	7.5	10.5	9.5	.....	.....	.....	800,000	60,000	60,000	10,000	.....	Catch sample.								
Jan. 19, 1909.	Effluent		0	0	0	0	195	154	41	195	154	41	0	0	0	20	10	10	3	7	7	.....	.....	.....	40,000	4,500	4,000	100	14+	Catch sample.								
Mar. 16, 1909.	Raw sewage.				500	450	268	132	136	259	128	131	9	4	5	23	12	12	8	15	14	.....	.....	.....	330,000	120,000	100,000	1,000	.....	Catch sample.								
Mar. 16, 1909.	Effluent				slight	slight	199	138	61	199	138	61	0	0	0	5	16	16	7	9	9	.....	.....	.....	200,000	30,000	50,000	100	1	Catch sample.								
May 17, 1909.	Raw sewage.			septic	600	550	394	206	188	311	182	129	83	24	59	20	20	18	12	8	6	.....	.....	.....	850,000	100,000	80,000	100	.....	Catch sample.								
May 17, 1909.	Effluent		0	0	0	0	329	231	98	329	231	198	0	0	0	10	7	7	4	3	3	.....	.....	.....	170,000	14,500	10,000	100	14+	Catch sample.								
July 21, 1909.	Effluent (below standard) (Prim. beds out of com.)			septic	slight	slight	320	215	105	320	215	105	0	0	0	35	15	15	7	8	8	.....	.....	.....	80,000	30,000	20,000	1,000	1/2	Catch sample.								
July 21, 1909.	Septic sewage.				400	300	352	183	169	316	179	137	36	4	32	25	36	34	23	13	11	.....	.....	.....	310,000	150,000	120,000	10,000	.....	Catch sample.								
Sept. 13, 1909.	Septic Sewage.				375	275	518	300	218	459	287	172	49	13	36	60	48	46	20	18	16	.....	.....	.....	350,000	100,000	100,000	10,000	.....	Catch sample.								
Sept. 13, 1909.	Effluent		0	0	0	0	364	279	85	364	279	85	0	0	0	50	12	12	4	8	8	.....	.....	.....	10,000	600	600	1,000	.....	Catch sample.								
Dec. 28, 1908.	Raw sewage.				600	475	632	349	283	447	236	211	185	113	72	50	23	22	11	12	11	.....	.....	.....	250,000	100,000	100,000	10,000	.....	Catch sample.								
Dec. 28, 1908.	Effluent		0	0	0	0	297	220	77	297	220	77	0	0	0	50	6	6	2	4	4	.....	.....	.....	150,000	5,000	5,000	1,000	14+	Catch sample.								
Feb. 17, 1909.	Raw sewage.				700	640	326	161	165	315	159	156	11	2	9	25	18	16	8	10	8	.....	.....	.....	200,000	20,000	10,000	10,000	.....	Catch sample.								
Feb. 17, 1909.	Effluent				slight	slight	355	250	105	355	250	105	0	0	0	25	12	12	7.5	4.5	4.5	.....	.....	.....	125,000	32,000	30,000	1,000	14+	Catch sample.								
Mar. 29, 1909.	Raw sewage.				1,000	875	546	211	335	397	179	218	149	32	117	25	18	16	6	12	10	.....	.....	.....	750,000	200,000	180,000	1,000	.....	Catch sample.								
Mar. 29, 1909.	Effluent		0	0	40	0	222	139	83	222	139	83	0	0	0	10	11	11	4	7	7	.....	.....	.....	100,000	7,500	6,000	1,000	14+	Catch sample.								
May 27, 1909.	Raw sewage.				200	50	372	193	179	328	167	161	44	26	18	20	12	11	0	12	11	.....	.....	.....	450,000	150,000	120,000	10,000	.....	Catch sample.								
May 27, 1909.	Effluent (not up to standard)				slight	slight	217	141	76	217	141	76	0	0	0	30	2	2	0	2	2	.....	.....	.....	6,000	2,000	100?	10?	4	Catch sample.								
July 12, 1909.	Raw sewage.				300	200	582	353	229	456	314	172	96	39	57	145	30	24	13	17	11	.....	.....	.....	350,000	100,000	100,000	100,000	.....	Catch sample.								
July 12, 1909.	Effluent		0	0	260	258	102	369	258	102	369	102	0	0	0	80	8	8	0	8	8	.....	.....	.....	130,000	30,000	15,000	10,000	14+	Catch sample.								
Sept. 9, 1909.	Raw sewage.				450	400	474	272	202	388	252	136	86	20	66	90	23	24	5	20	19	.....	.....	.....	50,000	10,000	10,000	1,000	.....	Catch sample.								
Sept. 9, 1909.	Effluent				0	0	352	269	89	352	269	89	0	0	0	95	15	15	0	15	15	.....	.....	.....	60,000	35,000	35,000	10,000	.....	Catch sample.								
Freehold— Dec. 29, 1908.	Raw sewage.				350	200	996	652	314	926	634	292	70	18	52	145	25	23	12	13	11	.....	.....	.....	4,000,000	500,000	450,000	10,000	.....	Catch sample.								
Dec. 29, 1908.	Effluent (from wet field)		300	0	0	0	584	510	74	584	510	74	0	0	0	85	6	6	3	3	3	.....	.....	.....	540,000	60,000	50,000	100	1	Catch sample.								
Feb. 3, 1909.	Raw sewage.				200	1,800	734	376	358	655	371	284	79	5	74	55	36	33	16	20	17	.....	.....	.....	2,250,000	40,000	10,000	10,000	.....	Catch sample.								



TABLE OF ANALYSES OF SAMPLE SEWAGE—Continued.

LOCATION OF PLANT AND DATE OF SAMPLE.	SOURCE OF SAMPLE.	Temperature, degrees Fahr.	Color.	Odor.	Turbidity.	Sediment.	Total solids.	Fixed solids.	Volatile solids.	Solids in solution.	Fixed solids in sol.	Vol. solids in sol.	Solids in suspension.	Fixed solids in susp.	Vol. solids in susp.	Chlorine.	Nitrogen as						Oxygen consumed.	Oxygen cons. in sol.	Oxygen dissolved.	Bacteria per cc. 20°.	Bacteria per cc. 37°.	Red colonies per cc. 37°.	B. coli per cc.	Putrescibility, days.	REMARKS.				
																	Total (Kjel.).	Total (Kj.) in sol.	Free Ammonia.	Organic (diff.)	Organic (diff.) in sol.	Nitrites.										Nitrates.			
Lakehurst—Jan. 6, 1909.	Raw sewage.				800	650	571	165	403	476	160	316	95	8	87	45	43	42	14	29	28		144	122	1										
Jan. 6, 1909.	Effluent.		0		40	slight	494	271	223	494	271	223	0	0	0	45	34	34	25	9	9		42	42											
Lawrenceville—Feb. 12, 1909.	Raw sewage.				1,500	1,050	779	261	518	570	232	338	209	29	180	5	58	56	14	4	4		156	120											
Feb. 12, 1909.	Septic effluent.				1,000	825	509	311	198	487	305	182	22	6	16	110	38	36	23	15	13		85	71											
Loch Arbor—Sept. 2, 1909.	Septic effluent.						451	265	186	390	235	155	61	30	31																				
Manasquan—Sept. 3, 1909.	Septic effluent.						1019	631	388	972	601	371	47	30	17																				
Moorestown—Dec. 14, 1908.	Raw sewage.				100	60	230	130	100	200	114	86	30	16	14	25	14	12	7.5	6.5	4.5		40	32		900,000	180,000	170,000	10,000						
Dec. 14, 1908.	Effluent.		0	0	0	0	213	137	76	213	137	76	0	0	0	25	12	12	8	4	4		27	27	5.4	50,000	20,000	18,000	10	14+					
Jan. 28, 1909.	Raw sewage.				600	540	222	124	98	199	117	82	23	7	16	10	21	20	12	9	8		58	44		520,000	170,000	150,000	10,000						
Jan. 28, 1909.	Effluent.		0	0	0	0	186	114	72	186	114	72	0	0	0	10	12	12	5.5	6.5	6.5		12	12	4.9	32,000	13,000	12,000	1,000	14+					
Mar. 24, 1909.	Raw sewage.				1,000	950	204	128	76	197	124	3	7	4	3	15	19	16	6	13	10		45	39		650,000	100,000	100,000	1,000						
Mar. 24, 1909.	Effluent.		0	0	slight	slight	202	120	82	202	120	82	0	0	0	10	14	14	8	8	8		30	30	5	13,000	3,000	3,000	10	14+					
April 23, 1909.	Raw sewage.				700	680	243	126	117	213	114	96	30	12	13	15	16	15	6	10	8.5		53	39		1,000,000	400,000	350,000	100,000						
April 23, 1909.	Effluent.		0	0	0	0	180	98	82	180	98	82	0	0	0	15	9	9	3	6	6		13	13	1.00	60,000	12,000	10,000	1,000	14+					
June 4, 1909.	Raw sewage.				200	150	271	168	103							60	12		4	8			22			1,000,000	150,000	100,000	100,000						
June 4, 1909.	Effluent.		0	0	0	0	223	141	82	223	141	82	0	0	0	35	12	12	4	8	8		32	32	2.0	105,000	15,000	14,000	1,000	14+					
June 7, 1909.	Effluent (below standard)																																		
June 14, 1909.	Effluent (below standard)																																		
July 26, 1909.	Effluent (below standard)		0	septic	slight	slight	204	132	72	204	132	72	0	0	0	35	22	22	8	14	14		14	14	0.5	540,000	160,000	20,000	100,000						
July 26, 1909.	Raw sewage.				800	700	462	221	242	364	106	178	99	35	64	60	35	30	9	14	21		85	60		970,000	230,000	60,000	100,000						
Newton, Clinton st.—Aug. 28, 1909.	Effluent (below standard)																																		
Nov. 19, '08.	Raw sewage.				350	290	502	342	160	490	338	152	12	4	8	50	13	12	5	8	7		65	61		500,000	150,000	100,000	10,000	7					
Nov. 19, '08.	Effluent (snow).		0	0	0	0	280	223	67	280	223	67	0	0	0	45	8	8	2.5	5.5	5.5		1.00	1.00	10.0	40,000	3,000	3,000	10	14+					
Jan. 20, '09.	Raw sewage.				300	250	493	243	250	427	231	196	66	12	54	65	22	19	8	14	11		75	69		750,000	100,000	80,000	1,000						
Jan. 20, '09.	Effluent (snow).		0	0	0	0	314	269	45	314	269	45	0	0	0	45	12	12	4	8	8		2	2	11	2,000	1,000	1,000	10	14+					
Mar. 23, '09.	Raw sewage.				200	150	352	153	199	324	143	81	28	10	18	45	23	22	6	17	16		87	64		140,000	50,000	40,000	1,000						
Mar. 23, '09.	Effluent.		0	0	0	0	308	212	96	308	212	96	0	0	0	45	18	18	5	13	13		15	15	8.00	900	500	300	1	0					
May 28, '09.	Raw sewage.				250	200	334	175	159	307	162	145	27	13	14	35	17	16	1	16	15		71	67		650,000	150,000	120,000	100,000	14+					
May 28, '09.	Effluent.		0	0	0	0	443	330	113	443	330	113	0	0	0	40	6	6	0	6	6		25	25	1.0	60,000	6,000	5,000	100	14+					
Newton, Sparta st.—Nov. 19, '08.	Raw sewage.				350	290	209	87	122	196	83	113	13	4	9	10	6	14	8	8	6		59	46		430,000	120,000	90,000	10,000						

Composite sample, Nov. 4, Nov. 17. Sewage running over into effluent.

Composite sample, Oct. 21, Dec. 13. Composite sample, Oct. 21, Dec. 13.

Composite sample, Mar. 6, 15. Composite sample, Mar. 6, 15.

Composite sample, May 4, June 3. Composite sample, May 4, June 3.

Composite sample, Nov. 20, 1908. Jan. 4, 1909. Composite sample, Nov. 20, 1908. Jan. 4, 1909.

Composite sample, Mar. 10, 21. Composite sample, Mar. 10, 21. Composite sample, May 12, 28. Composite sample, May 12, 28.

TABLE OF ANALYSES OF SAMPLES OF SEWAGE—Continued.

LOCATION OF PLANT AND DATE OF SAMPLE.	SOURCE OF SAMPLE.	Temperature, degrees Fahr.	Color.	Odor.	Turbidity.	Sediment.	Total solids.	Fixed solid.	Volatile solids.	Solids in solution.	Fixed solids in sol.	Vol. solids in sol.	Solids in suspension.	Fixed solids in susp.	Vol. solids in susp.	Chlorine.	Nitrogen as						Oxygen consumed.	Oxygen cons. in sol.	Oxygen dissolved.	Bacteria per cc. 20°.	Bacteria per cc. 37°.	Red colonies per cc. 37°.	B. coli per cc.	Putrescibility, days.	REMARKS.
																	Total (Kjcl).	Total (Kj.) in sol.	Free ammonia.	Organic (diff.)	Organic (diff.) in sol.	Nitrites.									
Newton, Sparta st.—Nov. 19, '08	Effluent (snow on ground)				200	0	242	125	117	242	125	117	0	0	0	0	0	18	5	5	3	1	1	22,000	2,000	2,000	100	14+	Catch sample.		
Jan. 20, '09	Raw sewage				0	125	231	105	126	200	83	117	31	22	0	0	18	5	5	3	36	32	240,000	70,000	30,000	10,000	14+	Catch sample.			
Jan. 20, '09	Effluent				275	200	186	147	69	218	147	69	0	0	0	0	23	21	19	12	62	60	50,000	3,000	1,000	1,000	14+	Catch sample.			
Mar. 23, '09	Raw sewage				0	0	264	176	83	264	176	88	0	0	0	0	14	14	19	12	62	60	270,000	80,000	50,000	1,000	14+	Composite sample, Nov. 20, Jan. 4, 1909.			
Mar. 23, '09	Effluent				0	0	0	0	0	0	0	0	0	0	0	0	23	21	19	12	62	60	10,000	100	100	100	14+	Composite sample, Nov. 20, Jan. 4, 1909. Jan. 4, 1909.			
May 28, '09	Raw sewage				300	250	198	80	118	177	76	101	21	4	17	5	20	19	0	20	19	17	10,000	100	100	100	14+	Composite sample, Mar. 9, 20.			
May 28, '09	Effluent				0	0	307	172	135	307	172	135	0	0	0	0	8	8	0	8	8	36	31	150,000	10,000	1,000	1,000	14	Catch sample.		
Sept. 2, 1909	Septic effluent				150	70	814	659	155	752	625	127	62	34	28	5	15	14	6	5	5	30	30	5,000	70	20	10	14	Catch sample.		
Overbrook—Dec. 30, 1908.	Raw sewage				250	210	234	135	99	209	125	84	25	10	15	5	15	14	6	5	5	34	26	1,800,000	40,000	40,000	1,000	14	Catch sample.		
Feb. 23, 1909.	Raw sewage				0	0	248	123	125	219	111	108	29	12	17	5	15	14	6	5	5	51	40	120,000	100,000	100,000	1,000	14	Catch sample.		
Feb. 23, 1909.	Effluent				50	10	178	123	53	176	123	53	0	0	0	12	12	3	9	9	8	8	20,000	200	200	10	14+	Catch sample.			
May 13, 1909.	Raw sewage				0	0	181	81	100	0	0	0	0	0	0	12	12	3	9	9	8	8	2,000,000	10,000	10,000	10	14+	Composite sample, Jan. 15, Feb. 12.			
May 13, 1909.	Effluent				75	slight	136	97	39	136	97	39	0	0	0	12	12	3	9	9	39	1	2,000,000	10,000	10,000	10	14+	Catch sample.			
Aug. 2, 1909.	Raw sewage				0	0	189	95	94	0	0	0	0	0	0	15	10	0	15	10	23	1	5,000	1,000	800	10	14+	Composite sample, April 1, 30.			
Aug. 2, 1909.	Effluent				0	0	160	123	37	160	123	37	0	0	0	10	10	0	10	10	1	1	950,000	170,000	150,000	10,000	14+	Catch sample.			
Phillipsburg—July 14, 1909.	Raw sewage		purple		400	250	456	212	244	0	0	0	0	0	0	55	20	0	0	0	0	0	2,030,000	1,600,000	0	100,000	14+	Catch sample.			
July 14, 1909.	Raw sewage		d'k gr'n		500	400	417	222	195	0	0	0	0	0	0	55	10	0	0	0	0	0	140,000	100,000	0	10,000	14+	Catch sample.			
July 14, 1909.	Raw sewage				1,000	slight	2426	1916	510	443	268	175	107	7	100	55	8	0	0	0	0	0	100,000	100,000	0	1,000	14+	Catch sample.			
Plainfield—Dec. 1, 1908.	Raw sewage				0	0	900	550	275	275	268	175	107	7	100	35	30	29	19	11	10	99	65	3,250,000	100,000	80,000	100,000	14+	Catch sample.		
Dec. 1, 1908.	Effluent				0	0	378	293	85	378	293	85	0	0	0	60	11	11	6	5	5	14	14	150,000	30,000	10,000	1,000	14+	Catch sample.		
Jan. 12, 1909.	Raw sewage			slight	600	500	510	262	248	386	243	143	124	19	105	45	21	20	11	10	9	82	53	750,000	1,250,000	1,200,000	10,000	14+	Catch sample.		
Jan. 12, 1909.	Effluent			slight	1,500	1,400	331	264	67	331	264	67	0	0	0	77	45	12	12	6	6	12	12	250,000	23,000	20,000	1,000	2	Composite sample, Dec. 2, 1908. Jan. 8, 1909.		
Mar. 1, 1909.	Raw sewage			slight	25	slight	458	207	251	376	202	174	82	5	0	35	26	24	12	14	12	85	60	1,650,000	100,000	100,000	1,000	2	Composite sample, Dec. 2, 1908. Jan. 8, 1909.		
Mar. 1, 1909.	Effluent			slight	500	450	296	234	62	296	234	62	0	0	0	35	18	18	7	5	11.5	11.5	1,650,000	100,000	100,000	1,000	2	Composite sample, Jan. 13, Feb. 13.			
April 16, 1909.	Raw sewage				20	slight	437	234	203	365	215	150	72	19	53	45	14	13	9	5	4	72	59	150,000	15,000	12,000	1,000	2	Composite sample, Jan. 13, Feb. 13.		
April 16, 1909.	Effluent				300	slight	305	216	89	305	216	89	0	0	0	45	10	10	5	5	5	4.00	14	14	0	14+	Brook too high.				
June 28, 1909.	Raw sewage				800	slight	250	484	257	413	250	163	71	7	64	65	30	25	16	14	9	51	34	2,600,000	500,000	450,000	100,000	14+	No catch sample. Composite sample, Mar. 1, April 13.		
June 28, 1909.	Effluent				500	slight	383	275	113	383	275	113	0	0	0	65	33	13	6	7	7	11	11	90,000	20,000	10,000	10,000	14+	Composite sample, April 17, June 4.		
Aug. 11, 1909.	Raw sewage				500	slight	600	329	299	330	390	271	119	139	111	80	15	14	20	16	14	40	28	3,500,000	500,000	400,000	1,000,000	14+	Composite sample, April 17, June 4.		
Aug. 11, 1909.	Effluent				500	slight	356	323	61	386	323	69	0	0	0	70	14	14	5	9	9	9	9	200,000	75,000	65,000	10,000	14+	Composite sample, June 28, Aug. 10. Composite sample, June 28, Aug. 10.		



TABLE OF ANALYSES OF SAMPLE SEWAGE—Continued.

LOCATION OF PLANT AND DATE OF SAMPLE.	SOURCE OF SAMPLE.	Temperature, degrees Fahr.	Color.	Odor.	Turbidity.	Sediment.	Nitrogen as																	Oxygen consumed.	Oxygen cons. in sol.	Oxygen dissolved.	Bacteria per cc. 20°	Bacteria per cc. 37°	Red colonies per cc. 37°	B. Coll per cc.	Putrescibility, days.	REMARKS.
							Total solids.	Fixed solids.	Volatile solids.	Solids in solution.	Fixed solids in sol.	Vol. solids in sol.	Solids in suspension.	Fixed solids in susp.	Vol. solids in susp.	Chlorine.	Total (Mjel)	Total (N.) in sol.	Free ammonia.	Organic (diff.)	Organic (diff.) in sol.	Nitrites.	Nitrates.									
							622	330	292	573	297	276	49	33	16	55	18	17	12	6	5	0.5	6									
Spring Lake—Sept. 3, 1909.	Sep. effluent (Brighton sv)				250	150	622	330	292	573	297	276	49	33	16	55	18	17	12	6	5	0.5	6	6	1.6	500,000	20,000	20,000	1,000	Catch sample.	Composite sample, Oct. 6, Nov. 3.	
Vineland—Dec. 24, 1908.	Raw sewage (snow)				0	0	287	147	140	256	136	120	31	11	11	35	15	15	11.5	3.5	3.5	0.5	6	6	1.6	2,300,000	330,000	300,000	1,000	Catch sample.	Composite sample, Oct. 6, Nov. 3.	
Dec. 24, 1908.	Effluent (snow) (tar in sewage).		0	tar	0	0	190	136	54	190	136	54	0	0	0	45	15	15	12	12	11	6	6	1.6	500,000	20,000	20,000	1,000	Catch sample.	Composite sample, Oct. 6, Nov. 3.		
Jan. 27, 1909.	Raw sewage.		0	tar	3,000	2,800	327	115	212	267	113	154	60	2	2	35	25	24	13	12	11	6	6	1.6	2,300,000	330,000	300,000	1,000	Catch sample.	Composite sample, Jan. 11, 12.		
Jan. 27, 1909.	Effluent.		0	tar	slight	slight	165	112	53	165	112	53	0	0	0	35	17	17	11	11	6	6	1.6	525,000	80,000	70,000	1,000	Catch sample.	Composite sample, Jan. 11, 12.			
Mar. 18, 1909.	Raw sewage.				500	400	324	135	189	280	125	155	44	10	10	40	28	26	16	12	10	10	10	0.5	950,000	180,000	150,000	1,000	Catch sample.	Composite sample, Feb. 4, Mar. 14.		
Mar. 18, 1909.	Effluent (Filter bed No. 8)				slight	slight	171	117	54	171	117	54	0	0	0	30	18	19	10	9	9	8	8	0.5	800,000	12,000	10,000	100	Catch sample.	Composite sample, Feb. 4, March 14.		
Apr. 20, 1909.	Raw sewage.				250	200	297	126	171	266	124	142	31	2	2	40	18	15	10	9	9	8	8	0.5	2,550,000	220,000	200,000	10,000	Catch sample.	Composite sample, Mar. 20, April 29.		
Apr. 20, 1909.	Effluent.			septic	slight	slight	190	131	67	190	123	67	0	0	0	35	12	12	10	10	10	10	10	0	900,000	25,000	2,000	1,000	Catch sample.	Composite sample, Mar. 20, April 29.		
June 14, 1909.	Raw sewage.				100	100	290	131	139	290	139	139	0	0	0	60	35	35	16	19	19	19	19	0	1,250,000	550,000	500,000	10,000	Catch sample.	Composite sample, April 24, May 29.		
June 14, 1909.	Effluent.				slight	slight	203	137	66	203	137	66	0	0	0	40	30	30	21	9	9	9	9	0	130,000	16,000	15,000	1,000	Catch sample.	Composite sample, April 24, May 29.		
Aug. 18, 1909.	Raw sewage.				300	200	290	137	152	262	125	137	28	13	13	75	36	34	20	16	14	14	14	0	850,000	300,000	250,000	1,000,000	Catch sample.	Composite sample, June 17, July 29.		
Aug. 18, 1909.	Effluent.				slight	slight	188	125	53	188	135	57	0	0	0	55	20	20	19	12	12	12	12	0	150,000	5,000	4,000	10,000	Catch sample.	Composite sample, June 17, July 29.		
Westfield—Jan. 5, 1909.	Raw sewage (rain).				400	310	474	266	208	331	187	144	143	79	79	25	24	23	12	12	11	11	11	1.5	2,950,000	550,000	500,000	100,000	Catch sample.	Composite sample, Oct. 22, Nov. 29.		
Jan. 5, 1909.	Effluent (rain).		0	0	0	0	249	150	69	249	180	69	0	0	0	25	12	12	5	7	7	7	7	1.6	2,500,000	100,000	80,000	10,000	Catch sample.	Composite sample, Oct. 22, Nov. 29.		
May 24, 1909.	Raw sewage.				800	700	491	276	215	364	230	134	127	46	46	40	24	23	11	13	12	12	12	0	2,000,000	120,000	100,000	100,000	Catch sample.	Composite sample, April 24, May 29.		
May 24, 1909.	Effluent.		0	slight	0	0	247	167	60	247	187	60	0	0	0	35	6	6	1	1	1	1	1	0	200,000	6,000	5,000	1,000	Catch sample.	Composite sample, June 17, July 29.		
July 16, 1909.	Effluent (below standard)				slight	slight	275	133	42	275	233	42	0	0	0	45	10	10	3	5	7	7	7	0	340,000	950,000	80,000	100,000	Catch sample.	Composite sample, May 25, June 20.		
July 16, 1909.	Raw sewage.				800	700	540	273	263	359	209	150	181	63	63	45	20	20	11	19	9	9	9	0	3,000,000	350,000	250,000	100,000	Catch sample.	Composite sample, Oct. 22, Nov. 29.		
Sept. 14, 1909.	Effluent.				0	slight	290	218	72	290	218	72	0	0	0	45	15	15	11	7	7	7	7	0.5	250,000	4,000	4,000	10,000	Catch sample.	Composite sample, Aug. 5, 30.		
Sept. 14, 1909.	Raw sewage.				700	500	575	305	270	347	190	157	228	115	113	5	35	30	15	20	15	15	15	0	1,000,000	500,000	400,000	100,000	Catch sample.	Composite sample, Aug. 5, 30.		
Dec. 21, 1908.	Raw sewage.				600	450	808	389	419	667	365	302	141	24	24	117	65	74	66	50	24	16	16	12	124	82	6,000,000	500,000	500,000	10,000	Catch sample.	Composite sample, Nov. 16, Dec. 4.
Dec. 21, 1908.	Effluent.		0	0	0	0	416	286	130	416	286	130	0	0	0	55	14	14	10	4	4	4	4	12	13	13	6,000,000	6,000	6,000	10	Catch sample.	Composite sample, Nov. 16, Dec. 4.
Feb. 11, 1909.	Raw sewage.				600	500	513	306	207	463	301	162	50	5	5	20	44	40	27	17	13	13	13	82	74	90,000	6,000	6,000	10,000	Catch sample.	Composite sample, Nov. 16, Dec. 4.	
Feb. 11, 1909.	Septic effluent (creek was up over underdr'n outlets)				800	700	511	320	191	424	269	155	57	51	36	20	34	32	22	12	10	10	10	97	57	90,000	6,000	6,000	10,000	Catch sample.	Composite sample, Nov. 16, Dec. 4.	
Mar. 31, 1909.	Raw sewage.				800	600	589	365	284	515	291	224	74	14	14	60	45	50	30	20	17	17	17	84	65	1,250,000	120,000	100,000	1,000	Catch sample.	Composite sample, Aug. 5, 30.	
Mar. 31, 1909.	Effluent, bedwater logged			sewage	100	100	462	285	167	462	295	167	0	0	0	55	25	25	17	8	8	8	8	0.00	28	28	125,000	5,000	5,000	100	Catch sample.	Composite sample, Aug. 5, 30.
June 7, 1909.	Raw sewage.				700	400	607	315	292	563	308	245	54	7	7	47	30	48	47	20	28	27	27	99	77	900,000	210,000	200,000	100,000	Catch sample.	Composite sample, Aug. 5, 30.	
June 7, 1909.	Effluent.				0	0	433	318	118	433	318	115	0	0	0	56	23	23	8	15	15	15	15	0	75,000	35,000	34,500	1,000	Catch sample.	Composite sample, Aug. 5, 30.		
Aug. 10, 1909.	Raw sewage.				800	600	615	355	280	511	330	181	104	25	25	79	40	50	48	35	15	13	13	61	50	1,000,000	500,000	400,000	100,000	Catch sample.	Composite sample, Aug. 5, 30.	
Aug. 10, 1909.	Effluent.		0	0	0	0	611	451	160	611	451	160	0	0	0	75	14	14	10	4	4	4	4	25	14	20,000	14,000	11,000	1,000	Catch sample.	Composite sample, Aug. 5, 30.	

## PUBLIC WATER SUPPLIES.

The public supplies of potable water have received more attention this year than ever before. Following the passage of Chapter 253 of the laws of 1909, which provides for the analysis of a sample of water from each public supply not less than four times each year, arrangements were made with the various water companies to aid in this work and the results have been very gratifying. The analytical work done shows that most of the supplies are in good condition, but there are a few which need special attention, and it is the intention of this department to try to bring these up to standard during the coming year.

The prolonged drought during the summer had a very noticeable effect on all the water supplies of the state. Surface supplies of course were the most affected, but during the latter part of the season the supply from driven wells was also diminished. In a few cases the supply was almost entirely cut off, thereby causing the people much discomfort. The experience of the past summer has led to the increasing of storage facilities in many cases and it is doubtful if another drought would cause so much trouble as was experienced with the one just past.

There have been several new water plants constructed during the year, and changes made in some of the old ones. The people are beginning to understand the necessity for pure water and are beginning to demand purification for their potable water supplies.

The following is the table of analysis of the public water supplies made during the year.



TABLE 0.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	TOWN.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.	Total Solids.	Loss on Ignition.	Mineral Residue.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	Bacteria per cc. 20°.	Bacteria per cc. 37°.	Present in 1 cc. Absent.	B. Coll Communis.	
										Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.								
July 21, 1909.	Allentown.	Pond.	0	0	0	0	46	28	21	Darkened.	.016	.164	.005	.09	5.00	16.00	1.2			Present in 1 cc.	
Oct. 20, 1909.	Allentown.	Filtered water.	0	1-m	2-m	slt	49	18	24	Slt darkening.	.012	.056	0.0	0.52	4.5	11.0	0.0			Absent.	
Oct. 29, 1909.	Allenhurst.	Artesian wells.	0	0	0	slt	138	21	117	No change.	.076	.008	.001	0.0	1.0	69.0	0.6				
June 29, 1909.	Arlington.	Passaic river filtered.	0	0	0	slt	141	22	119	No change.	.012	.024	0.0	0.16	9.5	20.0	0.0				
Sept. 13, 1909.	Asbury Park.	Artesian wells, filtered.	0	1-m	2-m	0	83	21	68	No change.	.004	.040	0.0	0.0	6.0	31.0	0.0				
Nov. 13, 1908.	Asbury Park.	Artesian wells, filtered.	0	0	0	0	119	44	75	Darkening.	.010	.028	0.0	0.0	1.5	40.0	0.0				
Nov. 13, 1908.	Asbury Park.	Kisner's Pond, filtered.	0	0	0	0	82	14	68	No change.	.030	.034	0.0	0.0	9.0	18.0	0.4				
Dec. 28, 1908.	"	"	0	0	0	0	90	23	82	Slt darkening.	.032	.050	0.0	0.0	7.0	18.0	0.6				
Dec. 28, 1908.	"	"	0	1-m	2-m	slt	95	16	73	No change.	.018	.032	0.0	0.0	1.0	32.0	0.0				
Jan. 26, 1909.	"	"	0	0	0	0	85	12	77	Slt darkening.	.012	.042	0.0	0.0	7.0	12.0	0.4				
Jan. 26, 1909.	"	"	0	1-m	2-m	0	91	14	78	No change.	.008	.024	0.0	0.20	1.0	36.0	0.2				
Mar. 3, 1909.	"	"	0	0	0	0	89	11	78	Slt darkening.	.008	.042	0.0	0.0	7.5	14.0	0.0				
Mar. 3, 1909.	"	"	0	0	0	0	97	8	79	No change.	.008	.018	0.0	0.0	1.0	46.0	0.0				
May 3, 1909.	"	"	0	0	0	0	97	8	73	Slt darkening.	.008	.042	0.0	0.0	6.5	18.0	0.2				
May 3, 1909.	"	"	0	0	0	0	92	19	78	No change.	.004	.016	0.0	0.0	6.0	19.0	0.0				
June 12, 1909.	"	"	0	0	0	0	90	12	66	Slt darkening.	.004	.024	0.0	0.0	1.0	28.0	0.0				
June 17, 1909.	"	"	0	0	0	0	92	28	77	No change.	.004	.042	0.0	0.0	7.0	18.0	0.2				
June 17, 1909.	"	"	0	0	0	0	94	16	68	Slt darkening.	.008	.048	0.0	0.0	7.0	18.0	0.2				
Aug. 10, 1909.	"	"	0	0	0	0	94	26	74	No change.	.004	.012	0.0	0.0	1.0	22.0	0.2				
Aug. 10, 1909.	"	"	0	0	0	0	88	14	76	Slt darkening.	.012	.048	0.0	0.0	7.0	22.0	0.0				
Sept. 18, 1909.	"	"	0	0	0	slt	104	28	60	Darkening.	.020	.056	.002	0.0	10.0	11.0	0.0				
Sept. 29, 1909.	"	"	0	0	0	0	80	20	72	Darkening.	.004	.016	0.0	0.0	1.5	45.0	0.2				
Sept. 29, 1909.	"	"	0	0	0	0	94	22	83	No change.	.020	.056	0.0	0.0	10.5	10.0	0.0				
Sept. 29, 1909.	"	"	0	0	0	0	102	19	69	Slt darkening.	.020	.056	0.0	0.0	6.0	0.0	0.0				
April 29, 1909.	Atlantic City.	Artesian supply, filtered.	0	0	0	0	93	24	38	Darkening.	.004	.034	0.0	0.0	4.5	0.0	0.0				
April 29, 1909.	Atlantic City.	Mixed artesian well and stream.	0	0	0	0	37	19	11	Slt darkening.	.008	.060	0.0	0.0	6.0	0.0	0.0				
April 29, 1909.	Absecon.	Pond Water, Absecon creek.	15	1-e	2-e	0	33	22	28	Darkening.	.008	.056	0.0	0.0	6.5	2.0	0.0				
April 29, 1909.	"	Reservoir, Artesian wells.	0	0	0	0	44	18	37	Slt darkening.	.008	.056	0.0	0.0	6.5	2.0	0.0				
Sept. 14, 1909.	Atlantic City.	Tap, Mixed water.	10	1-m	2-m	0	44	22	28	Darkening.	.008	.056	0.0	0.0	6.5	2.0	0.0				
June 15, 1909.	Atlantic Highlands.	Artesian well	0	0	0	0	61	24	37	Slt darkening.	.004	.012	0.0	0.0	2.5	19.0	0.0				
Sept. 27, 1909.	"	"	0	0	0	0	64	24	40	No change.	.004	.020	0.0	0.0	2.5	21.0	0.0				
Aug. 9, 1909.	Avalon.	"	0	0	0	0	188	47	141	No change.	.088	.012	.003	0.0	25.0	84.0	0.2				
June 14, 1909.	Barnegat.	"	0	0	0	0	126	18	102	Slt darkening.	.008	.028	0.0	0.0	6.0	0.0	0.8				
July 14, 1909.	Bay Head.	3 Artesian wells.	0	0	0	80	139	45	94	No change.	.044	.020	.000	0.00	2.5	80.00	.8				
July 29, 1909.	Belmar.	Artesian wells.	0	0	0	0	117	23	94	No change.	.084	.008	.007	0.0	1.0	78.0	0.2				
Oct. 23, 1909.	"	"	0	0	0	0	117	23	98	No change.	.012	.012	.003	.016	1.0	18.0	0.0				
Dec. 1, 1908.	Belvidere.	Buckhorn Springs water	0	1-e	2-e	0	51	15	30	No change.	.012	.044	0.0	0.0	2.0	18.0	0.1				
Dec. 1, 1908.	"	Delaware river.	0	1-e	2-e	slt	47	17	41	No change.	.024	.074	0.0	0.0	2.0	17.0	0.0				
Dec. 1, 1908.	"	Buckhorn Springs	0	1-e	2-e	0	83	42	30	No change.	.150	.080	.005	.068	1.5	144.0	0.0				
Mar. 8, 1909.	"	Drivenwell, Belvidere Water Co.	0	0	0	0	192	42	156	No change.	.004	.018	.002	.068	1.5	144.0	0.0				
Mar. 8, 1909.	"	"	0	0	0	0	193	37	84	Slt darkening.	.008	.044	.000	0.36	1.0	71.0	0.0				
June 21, 1909.	"	Driven wells, Belvidere Water Co	0	0	0	0	115	31	27	No change.	.004	.008	0.0	0.0	1.5	18.0	0.0				
Aug. 19, 1909.	"	Tap, Delaware river.	0	0	0	0	139	45	36	Slt darkening.	.008	.060	0.0	0.0	2.0	14.0	0.0				
Aug. 19, 1909.	"	Reservoir, Buck Horn Springs.	0	0	0	0	83	17	47	No change.	.008	.018	0.0	0.0	16.0	4.0	0.0				
Oct. 27, 1909.	"	Tap, Delaware river.	0	2-e	2-e	slt	61	14	68	No change.	.004	.016	0.0	3.60	16.0	4.0	0.0				
Aug. 29, 1909.	Bernardsville.	Surface supply.	0	0	0	0	38	17	62	No change.	.008	.012	0.0	0.0	5.0	5.0	0.0				
July 4, 1909.	Beverly.	Artesian wells.	0	0	0	0	107	39	62	No change.	.008	.012	0.0	0.0	5.0	2.0	0.0				
Oct. 28, 1908.	Bloomfield.	"	0	0	0	0	98	36	45	Slt darkening.	.024	.048	.002	0.0	2.0	13.0	0.0				
Nov. 20, 1908.	Bloomfield.	Passaic river, filtered.	0	0	0	0	75	22	63	Slt darkening.	.008	.036	0.0	0.0	5.0	18.0	0.0				
Mar. 23, 1909.	"	"	0	0	0	0	67	22	63	Slt darkening.	.012	.040	0.0	0.0	3.0	42.0	0.0				
May 28, 1909.	"	"	0	0	0	0	36	21	15	No change.	.012	.040	0.0	0.0	3.0	39.0	0.1				
Aug. 11, 1909.	"	"	0	0	0	0	33	11	15	No change.	.012	.040	0.0	0.0	2.0	12.0	0.0				
Aug. 11, 1909.	"	"	0	0	0	0	33	11	19	No change.	.012	.142	.002	0.0	1.0	11.0	0.0				
Nov. 5, 1908.	Boonton.	Broad Valley Brook.	0	0	0	slt	36	21	19	No change.	.012	.082	0.0	0.0	1.5	13.0	0.0				
Nov. 14, 1908.	"	Tap.	0	0	0	0	33	12	18	No change.	.012	.090	0.0	0.0	1.5	13.0	0.0				
Dec. 4, 1908.	"	"	0	0	0	0	37	14	23	No change.	.018	.098	0.0	0.0	1.0	12.0	0.0				
Dec. 4, 1908.	"	"	0	0	0	0	34	16	19	No change.	.008	.074	.004	0.0	1.0	12.0	0.0				
Jan. 8, 1909.	"	"	0	0	0	0	35	16	18	No change.	.012	.084	0.0	0.0	11.00	12.0	0.0				
Jan. 8, 1909.	"	"	0	1-e	2-e	0	35	16	18	No change.	.008	.066	0.0	0.16	2.0	8.0	0.0				
Feb. 8, 1909.	"	"	0	0	0	0	34	15	26	No change.	.004	.080	0.0	0.18	2.0	8.0	0.0				
Mar. 10, 1909.	"	"	0	0	0	0	37	11	24	No change.	.003	.030	0.0	0.03	1.0	7.0	0.0				
Mar. 10, 1909.	"	"	0	0	0	0	37	11	24	No change.	.008	.042	0.0	0.08	1.0	8.0	0.0				
April 7, 1909.	"	"	0	0	0	0	37	13	30	No change.	.008	.042	0.0	0.09	1.0	8.0	0.0				
April 7, 1909.	"	"	0	1-m	2-m	0	41	11	30	No change.	.008	.042	0.0	0.09	1.0	8.0	0.0				

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.
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TABLE 0.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

Table with columns: DATE, TOWN, SOURCE OF SUPPLY, Color, Odor, Cold, Odor, Hot, Turbidity, Total Solids, Loss on Ignition. Rows include various towns like Boonton, Bordentown, Bridgeton, Camden, etc., and their respective water sources.

THE PUBLIC SUPPLIES OF NEW JERSEY.—PARTS PER MILLION.

Table with columns: Mineral Residue, Appearance on Ignition, Nitrogen as (Ammonia, Permanganate in Solution, Nitrites, Nitrates), Chlorine, Alkalinity, Iron, Bacteria per cc. 20°, Bacteria per cc. 37°, B. Coli Communis. Rows list various public supplies with their chemical and biological analysis results.

TABLE 0—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	TOWN.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.	Total Solids.	Loss on Ignition.
Aug. 6, 1909	Dover	No. 2 reservoir	0	0	0	0	150	45
Mar. 24, 1909	Dunellen	Reservoir Watchung Water Co.	0	1-e	2-e	0	130	38
Mar. 29, 1909	"	Green Brook	0	1-e	2-e	0	129	45
Jun. 16, 1909	"	Tap. Watchung Water Co.	0	1-e	2-e	0	135	46
Sept. 23, 1909	"	"	0	0	0	0	161	44
July 7, 1909	Elizabeth	Artesian wells	0	0	0	0	256	43
Oct. 5, 1909	"	Tap.	5	1-aro	2-aro	25	272	62
Oct. 29, 1909	"	"	0	0	0	0	147	40
Nov. 5, 1908	East Orange	Tap. Artesian wells	0	0	0	0	142	37
Dec. 7, 1908	"	"	0	0	0	0	129	31
Jan. 15, 1909	"	"	0	0	0	0	129	31
Feb. 4, 1909	"	"	0	0	0	alt	126	30
Apr. 12, 1909	"	"	0	0	0	0	160	40
May 10, 1909	"	"	0	0	0	0	143	25
June 4, 1909	"	"	0	0	0	0	141	25
Aug. 19, 1909	"	"	0	0	0	0	146	26
Jan. 23, 1909	EssexFells	"	0	0	0	0	115	17
Jan. 28, 1909	"	"	0	0	0	0	110	21
Aug. 26, 1909	"	"	0	0	0	0	141	37
Oct. 26, 1909	"	"	0	0	0	25	141	37
Dec. 18, 1908	Flemington	Tap. Mix'd surface & arte'n water	0	0	0	0	80	24
June 14, 1909	"	"	0	0	0	0	87	31
Sept. 20, 1909	"	"	0	0	0	0	110	36
Aug. 19, 1909	Freshold	Tap. Artesian wells	0	0	0	0	148	25
Sept. 22, 1909	Frenchtown	Tap. Surface supply (filtered)	0	1-m	2-m	0	75	24
July 21, 1909	Garfield	3 driven wells.	0	0	0	0	352	109
Dec. 9, 1908	Glassboro	7 artesian wells.	0	0	0	0	161	81
June 12, 1909	"	Tap.	0	0	0	0	156	76
Sept. 17, 1909	"	Driven well.	0	0	0	0	174	78
Sept. 9, 1909	Glen Lake	Reservoir. Mixed water filtered.	0	0	0	alt	125	20
Dec. 3, 1908	Gloucester	Tap. Newton cr. & artesian wells.	0	0	0	0	138	42
Jan. 14, 1909	"	"	0	0	0	0	148	42
Feb. 3, 1909	"	Tap in pumping station.	10	1-m	2-m	40	148	42
Mar. 6, 1909	"	" " " " filtered.	0	0	0	0	129	30
April 7, 1909	"	" " " " " "	0	0	0	alt	99	25
May 5, 1909	"	" " " " " "	0	0	0	alt	99	25
May 15, 1909	"	" " " " " "	0	0	0	alt	104	23
May 15, 1909	"	Newton creek.	0	1-m	2-m	50	84	24
May 15, 1909	"	Unfiltered water. Settling tanks	15	1-e	2-e	80	136	24
May 15, 1909	"	Water from 26 driven wells	15	1-e	2-e	50	129	28
Aug. 5, 1909	"	Tap. Unfiltered water.	0	0	0	0	133	35
Aug. 5, 1909	"	Filtered water.	0	0	0	0	133	35
Aug. 14, 1909	"	"	0	2-e	2-e	alt	110	26
Mar. 14, 1909	"	Driven wells.	20	1-e	2-e	40	138	46
July 23, 1909	Hacketts town.	Mine Hill reservoir, surface supply	0	0	0	0	48	20
July 23, 1909	"	Morris Co. Reservoir. Springs	0	0	0	0	42	19
Oct. 26, 1909	"	"	0	0	0	0	44	20
Oct. 26, 1909	"	Mine Hill reservoir.	0	0	0	0	51	22
Oct. 26, 1909	"	Tap. Springs.	0	0	0	alt	75	47
Oct. 29, 1909	Haddonfield.	"	0	0	0	alt	69	24
Aug. 21, 1909	Hackensack.	Tap. Hackensack river, filtered.	0	0	0	0	111	31
Sept. 13, 1909	Harrison.	Tap. Passaic river, filtered.	0	1-m	2-m	0	119	45
July 5, 1909	Haworth.	Driven well.	0	0	0	0	129	30
Mar. 30, 1909	Helmetta.	Pond.	0	1-e	2-e	0	29	18
Mar. 23, 1909	"	Dug well 24' x 6'	0	0	0	0	48	20
Mar. 30, 1909	"	Dug well 24' x 7'	0	0	0	alt	71	33
July 8, 1909	"	Dug well 24' x 7'	15	0	0	25	...	...
Sept. 26, 1909	"	Dug well 24' x 6'	0	0	0	0	61	23
July 12, 1909	Hightstown.	Tap. Driven wells	0	0	0	0	30	9
Sept. 12, 1909	"	"	0	0	0	0	29	8
July 15, 1909	Hopewell.	Tap. Driven well, 500' x 6"	0	1-v	2-v	0	120	33
July 14, 1909	Inland Heights.	Tap. Driven wells.	0	0	0	0	184	26

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Hardness, Total.	Iron.	Bacteria per cc. 20°	Bacteria per cc. 37°	B. Coll Communis.
		Ammonia.	By Permanganate Solution.	Nitrates.	Nitrites.							
27 Sit dark	.020	.176	0.0	0.0	5.5	17.0	0.3				In 10.0 cc.	
94 No change	.012	.060	0.0	0.20	5.5	32.0	0.0				Absent.	
84 Sit darkening	.100	.086	.012	0.48	7.5	46.0	0.4				In 0.1 cc.	
87 Sit darkening	.100	.078	.012	0.48	7.5	46.0	0.4				In 0.1 cc.	
106 No change	.012	.028	0.0	0.40	5.5	64.0	0.0				In 10.0 cc.	
119 No change	.004	.024	.002	0.84	6.00	73.0	0.0				Absent.	
213 No change	.008	.016	0.0	1.32	6.5	84.0	0.0				In 10.0 cc.	
221 No change	.060	.292	.012	0.60	3.0	55.0	0.0				In 10.0 cc.	
107 No change	.012	.032	0.0	1.40	6.5	103.0	0.0				In 10.0 cc.	
105 No change	.008	.028	0.0	0.48	4.5	86.0	0.0	55.7	7.0		7	
98 No change	.008	.032	.000	0.24	4.0	86.0	0.0				6 Absent.	
96 No change	.004	.008	0.0	0.16	3.0	82.0	0.0				Absent.	
120 No change	.004	.018	0.0	0.16	3.0	74.0	0.0				"	
118 No change	.004	.018	0.0	0.48	3.0	77.0	0.0				"	
116 No change	.012	.028	0.0	0.48	3.5	82.0	0.0				"	
118 No change	.004	.008	0.0	0.48	2.5	85.0	0.0				"	
98 No change	.004	.020	0.0	0.0	2.5	86.0	0.0	50.0	0.0		"	
89 No change	.008	.024	0.0	0.0	3.5	50.0	0.0				"	
88 No change	.004	.008	.001	0.64	3.0	58.0	0.0				"	
104 No change	.008	.012	0.0	0.84	5.0	8.0	0.0				"	
56 Sit darkening	.018	.056	0.0	0.48	3.0	26.0	0.2				In 1.0 cc.	
56 Sit darkening	.012	.048	0.0	0.48	1.0	47.0	0.0				In 1.0 cc.	
74 Sit darkening	.024	.100	0.0	0.28	1.6	67.0	0.1				In 10.0 cc.	
123 No change	.004	.008	.002	0.0	2.0	31.0	0.0				Absent.	
51 Sit darkening	.018	.058	0.0	0.68	1.0	31.0	0.0				In 10.0 cc.	
138 No change	.008	.012	0.0	2.80	22.0	113.0	0.0				"	
80 Sit darkening	.012	.024	0.0	2.88	23.5	40.0	0.0				"	
80 Sit darkening	.012	.028	0.0	3.80	24.0	20.0	0.0				"	
96 Sit darkening	.080	.040	.012	3.80	26.5	58.0	0.0				"	
105 Sit darkening	0.0	0.0	0.0	0.0	2.0	61.0	0.8				"	
96 Sit darkening	.020	.042	0.0	0.32	7.0	39.0	0.4				In 1.0 cc.	
		.090	0.0	0.16	3.0	36.0					In 1.0 cc.	
106 Darkening	.094	.028	.003	0.24	3.0	34.0	0.5				In 10.0 cc.	
98 Sit dark	.008	.032	0.0	0.12	5.5	33.0	0.4				In 10.0 cc.	
73 Sit dark	.008	.042	0.0	0.12	5.5	33.0	0.0				In 10.0 cc.	
77 Sit dark	.008	.042	0.0	0.0	4.0	30.0	0.5				In 10.0 cc.	
81 Sit dark	.012	.048	0.0	0.0	4.0	0.0	0.5				In 1.0 cc.	
60 Sit dark	.114	.104	.000	0.0	2.5	0.0	2.0				In 0.1 cc.	
102 Sit dark	.112	.060	.002	0.0	4.0	0.0	5.0				In 0.1 cc.	
101 Sit dark	.118	.022	0.0	0.0	6.5	0.0	4.0				In 1.0 cc.	
											In 1.0 cc.	
											In 1.0 cc.	
											In 1.0 cc.	
											In 1.0 cc.	
84 Sit dark	.004	.052	.006	0.20	10.0	42.0	0.7				In 0.1 cc.	
92 Sit dark	.072	.100	.017	0.16	11.0	43.0	3.5				In 0.1 cc.	
28 Dark	.008	.040	0.0	0.32	1.5	20.0	0.0				In 10.0 cc.	
24 Sit dark	.008	.016	0.0	0.16	1.5	19.0	0.0				In 10.0 cc.	
24 Sit dark	.008	.032	0.0	0.20	2.0	19.0	0.0				Absent.	
29 Sit dark	.012	.052	0.0	0.32	2.0	19.0	0.0				Absent.	
28	.008	.016	0.0	2.60	4.5	6.0	0.2				In 10. cc.	
45 Sit dark	.026	.042	.003	3.60	4.5	5.0	0.0				In 10.0 cc.	
80 No change	.008	.080	0.0	0.12	3.0	26.0	0.0				Absent.	
74 Dark	.004	.036	0.0	0.0	6.0	30.0	0.0				Absent.	
99	.004	.004	0.0	1.08	4.0	65.00	0.0				"	
11 Sit dark	.012	.100	0.0	0.24	3.0	0.0	0.0				In 10.0 cc.	
38 No change	.008	.028	0.0	1.20	7.5	2.0	0.0				Absent.	
35 No change	.042	.060	0.0	1.88	5.5	3.0	3.2				"	
35 No change	.040	.036	.001	2.20	6.5	0.0	0.0				"	
38 No change	.008	.048	0.0	1.68	7.5	3.0	0.0				"	
21 No change	.008	.028	.008	0.0	1.0	4.0	0.2				"	
20 No change	.018	.024	0.0	0								

# REPORT OF STATE BOARD OF HEALTH.

TABLE 0.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE	TOWN	SOURCE OF SUPPLY.	Color.		Total Solids.	Loss on Ignition.	
			Color.	Odor.			
June 14, 1909	Island Heights	Tap. Driven Wells.	0	0	60	129	27
Oct. 12, 1909	"	" " "	15	0	40	119	27
July 8, 1909	Jersey City	" Rockaway river, treated.	10	1-m	2-m	0	0
July 16, 1909	"	" Reservoir, springs.	0	1-e	2-e	55	19
Mar. 4, 1909	Junction Water Co.	" " "	0	1-e	2-e	62	17
Apr 19, 1909	Kearny	Tap. Passaic river, filtered.	5	1-e	2-e	62	17
May 10, 1909	"	" " "	0	1-e	2-e	66	23
July 12, 1909	"	" " "	0	0	0	86	24
Sept. 13, 1909	"	" " "	0	0	0	104	38
June 17, 1909	Keyport	" Driven Wells, filtered.	0	0	2-m	0	76
July 6, 1909	"	" " "	30	0	0	80	75
Oct. 27, 1909	"	" " "	0	0	0	75	13
Dec. 5, 1908	"	" " "	0	0	0	79	18
Sept. 23, 1909	Lakewood	" " "	0	0	0	111	14
May 11, 1909	Lambertville	" Surface supply.	0	0	0	67	23
July 9, 1909	"	" " "	20	1-m	2-m	60	78
Oct. 25, 1909	"	" " "	15	2-m	2-m	30	86
July 23, 1909	Laurel Springs	Tap. Driven Wells.	0	0	0	131	20
Oct. 23, 1909	"	" " "	0	0	0	0	0
June 25, 1909	Little Falls	" Passaic river, filtered.	0	v	2-v	0	83
Sept. 17, 1909	"	" " "	0	2-m	3-m	0	115
June 28, 1909	Lopatcong	" Reservoir, surface supply.	10	0	0	57	30
Sept. 8, 1909	Long Branch	Tap. Filtered water.	9	0	0	109	40
Nov. 4, 1908	"	" Newman Springs reservoir	40	1-e	2-e	0	104
Nov. 4, 1908	"	" Filtered water.	5	1-m	2-m	slt	92
Dec. 5, 1908	"	" Whale Pond Brook	0	1-e	2-m	slt	103
Dec. 5, 1908	"	" Filtered water.	0	0	0	0	93
Dec. 5, 1908	"	" Newman Springs reservoir	0	1-e	2-e	25	107
Jan. 13, 1909	"	" Whale Pond brook.	0	1-e	2-e	slt	108
Jan. 13, 1909	"	Tap. Filtered water.	0	0	0	0	101
Jan. 13, 1909	"	" " "	0	0	2-e	40	118
Feb. 8, 1909	"	" Newman Springs reservoir.	0	1-m	2-m	0	97
Feb. 9, 1909	"	Tap. Filtered water.	0	1-m	2-m	0	97
Feb. 9, 1909	"	" " "	0	1-m	2-m	25	112
Feb. 10, 1909	"	" Whale Pond brook.	5	1-e	2-e	25	79
Mar. 9, 1909	"	" " "	0	1-e	2-e	slt	71
Mar. 9, 1909	"	Tap. " "	0	1-e	2-e	slt	98
Mar. 9, 1909	"	" Newman Springs reservoir.	0	1-e	2-e	slt	96
Mar. 9, 1909	"	" " "	5	1-e	2-e	slt	74
May 18, 1909	"	" Whale Pond brook.	0	0	0	40	72
May 18, 1909	"	Tap. " "	0	0	0	0	70
May 19, 1909	"	" " "	5	1-e	2-e	0	97
May 19, 1909	"	" Newman Springs reservoir.	0	0	0	0	69
April 6, 1909	"	" " "	0	0	0	0	67
April 7, 1909	"	" " "	0	0	0	0	59
April 7, 1909	"	" Whale Pond brook.	5	1-e	2-e	slt	109
April 7, 1909	"	" Newman Springs reservoir.	15	1-e	2-e	slt	76
June 15, 1909	"	" Whale Pond brook.	0	0	0	0	78
June 15, 1909	"	" " "	0	0	0	0	84
June 15, 1909	"	Tap. " "	0	0	0	0	81
June 16, 1909	"	" " "	0	0	0	0	81
Aug. 6, 1909	"	" " "	0	0	0	0	89
Aug. 6, 1909	"	" " "	0	0	0	0	117
Aug. 6, 1909	"	" Newman Springs reservoir.	30	2-e	2-m	slt	87
Aug. 6, 1909	"	" Whale Pond brook.	30	2-m	2-m	80	50
Sept. 27, 1909	"	" Ranocosa creek.	20	0	0	0	86
Sept. 27, 1909	"	Tap. Unfiltered.	351	m	2-m	0	163
May 27, 1909	Lumberton	" Driven well.	0	0	0	0	160
Aug. 4, 1909	Madison	" " "	0	0	0	0	152
Sept. 16, 1909	"	" " "	0	0	0	0	51

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Mineral Residue.	Nitrogen as					Chlorine.	Alkalinity.	Iron.	Bacteria per cc. 20°	Bacteria per cc. 37°	B. Coll. Communis.
	Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.	Apparent on Ignition.						
102	Slt dark.	.054	.028	0.0	0.0	2.5	63	2.2	0.0		Absent.
97	Slt dark.	.124	.038	0.0	0.0	2.0	62.0	1.8	0.0		"
56	Slt dark.	.008	.130	.012	0.08	2.0	14.0	0.0	0.0		In 10.0 cc.
48	Slt dark.	.008	.028	0.0	0.88	2.0	5.0	0.2	0.0		Absent.
45	Slt dark.	.018	.042	.003	0.12	2.0	0.0	0.0	0.0		In 10.0 cc.
38	Slt dark.	.012	.042	.003	0.08	2.5	0.0	0.0	0.0		Absent.
62	Slt dark.	.008	.052	0.0	0.0	2.5	33.0	0.0	0.0		"
66	Dark.	.004	.040	0.0	0.0	5.5	24.0	0.0	0.0		"
50	No change.	.012	.024	0.0	0.0	1.5	53.0	0.0	0.0		"
62	No change.	.012	.024	0.0	0.0	1.0	45.0	4.2	0.0		"
46	Slt dark.	.020	.008	0.0	0.0	1.0	31.0	0.0	0.0		"
61	No change.	.008	.032	.003	0.0	1.5	76.0	0.4	0.0		"
97	No change.	.124	.024	0.0	0.0	2.5	25.0	0.0	0.0		"
44	Slt darkening.	.012	.060	.002	0.20	3.00	0.0	0.0	0.0		In 10.0 cc.
49	Slt darkening.	.000	.098	.002	.000	3.00	35.0	0.0	0.0		Absent.
58	Slt darkening.	.004	.112	0.0	0.0	3.0	40.0	0.0	0.0		"
108	Slt darkening.	.012	.214	0.0	0.0	2.0	82.0	0.3	0.0		"
111	Slt darkening.	.018	.020	0.0	0.0	1.5	81.0	0.2	0.0		"
55	No change.	.016	.072	0.0	0.08	3.0	21.0	0.0	0.0		"
77	Slt darkening.	.028	.084	0.0	0.0	5.5	44.0	0.0	0.0		"
46	Dark.	.014	.132	.003	0.16	0.5	28.0	0.0	0.0		"
51	Dark.	.012	.120	.002	0.20	1.0	31.0	0.4	0.0		"
62	No change.	.012	.070	.001	0.16	7.0	28.0	0.3	0.0		In 1.0 cc.
78	Slt darkening.	.036	.162	.003	0.12	7.0	30.0	4.5	0.0		Absent.
61	No change.	.012	.070	0.0	0.20	7.0	24.0	0.0	0.0		In 1.0 cc.
56	No change.	.042	.170	.009	0.20	9.0	28.0	0.5	0.0		In 1.0 cc.
58	No change.	.042	.090	.006	0.08	8.0	29.0	0.5	0.0		Absent.
58	No change.	.012	.060	.002	0.08	6.0	28.0	0.3	0.0		"
54	No change.	.012	.060	.002	0.0	6.0	26.0	0.2	0.0		In 10.0 cc.
72	Slt dark.	.030	.124	.004	0.12	7.0	29.0	4.00	0.0		In 1.0 cc.
75	Slt dark.	.036	.060	0.0	0.24	4.5	26.0	0.0	0.0		In 10.0 cc.
62	Slt dark.	.028	.048	.000	0.10	6.0	17.0	0.5	0.0		In 10.0 cc.
55	No change.	.024	.042	0.0	0.20	6.5	15.0	0.2	0.0		Absent.
60	No change.	.012	.042	0.0	0.20	6.5	15.0	0.2	0.0		"
78	Slt dark.	.032	.078	0.0	0.32	4.0	22.0	3.5	0.0		In 10.0 cc.
56	No change.	.020	.042	0.0	0.24	6.0	14.0	0.0	0.0		"
61	No change.	.012	.042	0.0	0.16	7.0	14.0	0.0	0.0		"
66	Slt darkening.	.032	.060	0.16	0.60	6.0	16.0	0.2	0.0		"
53	Slt darkening.	.024	.048	0.0	0.20	6.0	12.0	2.0	0.0		In 10.0 cc.
46	Slt darkening.	.012	.042	0.0	0.24	6.0	12.0	0.0	0.0		"
52	Slt darkening.	.018	.042	0.0	0.16	6.0	10.0	0.2	0.0		"
63	Slt darkening.	.020	.060	0.0	0.24	3.0	18.0	1.0	0.0		In 1.0 cc.
68	Slt darkening.	.018	.090	0.0	0.24	6.5	12.0	1.5	0.0		In 10.0 cc.
52	Slt darkening.	.018	.028	0.0	0.24	6.5	10.0	0.5	0.0		Absent.
51	Slt darkening.	.008	.032	0.0	0.20	6.5	9.0	0.5	0.0		In 10.0 cc.
48	Slt darkening.	.012	.020	0.0	0.32	4.5	9.0	0.5	0.0		"
74	Slt darkening.	.042	.066	0.0	0.24	7.5	9.0	0.6	0.0		"
49	Slt darkening.	.008	.030	0.0	0.24	7.5	9.0	0.0	0.0		"
50	Slt darkening.	.008	.042	0.0	0.24	7.0	10.0	1.1	0.0		In 1.0 cc.
49	Slt darkening.	.018	.030	0.0	0.24	7.0	10.0	1.0	0.0		In 10.0 cc.
85	Slt darkening.	.038	.076	0.0	0.32	4.5	25.0	3.4	0.0		In 0.1 cc.
54	Slt darkening.	.018	.042	0.0	0.20	7.5	17.0	0.8	0.0		"
56	Slt darkening.	.008	.036	0.0	0.24	4.5	22.0	0.2	0.0		"
58	Slt darkening.	.008	.036	0.0	0.24	6.0	22.0	0.6	0.0		"
58	Slt darkening.	.008	.036	0.0	0.24	6.0	21.0	0.2	0.0		"
63	Slt darkening.	.008	.032	0.0	0.24	5.5	24.0	0.4	0.0		In 10.0 cc.
88	Slt darkening.	.040	.084	0.0	0.28	5.5	25.0	3.8	0.0		In 1.0 cc.
88	Slt darkening.	.040	.084	0.0	0.28	5.5	25.0	3.8	0.0		"
58	Darkening.	.020	.048	.002	0.20	2.0	2.0	0.7	0.0		In 10.0 cc.
18	Darkening.	.012	.090	0.0	0.16	2.0	12.0	0.6	0.0		In 10.0 cc.
45	Darkening.	.008	.086	0.0	0.12	7.0	88.0	0.2	0.0		Absent.
112	No change.	.004	.008	0.0	1.20	6.0	93.0	0.0	0.0		"
109	No change.	.012	.016	0.0	1.20	6.0	93.0	0.0	0.0		"
101	No change.	.008	.036	0.0	1.20	5.5	90.0	0.0	0.0		"

TABLE 0.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE	TOWN.	SOURCE OF SUPPLY.	Color.					Loss on Ignition.
			Color.	Color, cold.	Color, Hot.	Turbidity.	Total Solids.	
Mar. 26, 1909	Manasquan	Driven wells	0	0	0	0	48	13
June 4, 1909	Manasquan	Driven well	0	0	0	0	213	46
Sept. 20, 1909	Marlton	"	0	0	0	25	218	46
Oct. 9, 1909	Marlton	"	0	0	0	sit	190	29
June 3, 1909	Medford	Tap. Surface supply—untreated	20	0	0	0	30	18
Sept. 24, 1909	Merchantville	" " " "	15	1-m	2-m	0	54	24
Aug. 18, 1909	"	" Driven wells	20	0	0	0	62	21
Aug. 18, 1909	"	" After aeration	20	0	0	40	62	29
Aug. 18, 1909	"	" Public fountain	20	0	0	40	52	20
Sept. 11, 1909	"	" Collecting basin	15	0	0	0	25	15
Sept. 11, 1909	"	" Public fountain	0	0	0	sit	0	0
Sept. 20, 1909	"	" Driven wells direct	30	0	0	25	0	0
Sept. 20, 1909	"	" Driven wells, after aeration	0	0	0	40	0	0
Sept. 20, 1909	"	" Driven wells 12'3" x 8"	0	0	0	200	207	44
Sept. 25, 1909	"	" Public fountain	0	0	0	sit	0	0
Jan. 12, 1909	Metuchen	Tap. Driven well	0	0	0	0	308	48
July 6, 1909	"	" " " " "	0	0	0	0	38	9
Aug. 9, 1909	Midland Park	Brook near water plant	0	1-m	1-m	0	87	28
Aug. 13, 1909	"	Four driven wells	0	0	0	0	0	0
Aug. 16, 1909	"	Well No. 1	0	0	0	0	0	0
Aug. 16, 1909	"	" No. 2	0	0	0	0	0	0
Aug. 16, 1909	"	" No. 3	0	0	0	0	0	0
Aug. 16, 1909	"	" No. 4	0	0	0	0	0	0
Aug. 26, 1909	"	Wells No. 1, 3, 4	0	0	0	0	80	0
Aug. 26, 1909	"	Well No. 1	50	0	0	120	0	0
Aug. 26, 1909	"	" No. 3	0	0	0	0	3	0
June 22, 1909	Milltown	Tap. Milltown Pond, untreated	15	1-e	2-e	0	63	27
Sept. 9, 1909	"	Milltown Pond	30	2-m	3-m	25	0	0
Nov. 9, 1908	Millville	Peoples Water Co. Driven wells	0	0	0	0	46	14
Nov. 9, 1908	"	Tap. Union Lake, filtered	5	0	0	0	40	19
Dec. 8, 1908	"	" " " "	0	1-m	2-m	0	61	27
Dec. 8, 1908	"	" Driven wells	0	1-m	2-m	0	54	17
Jan. 7, 1909	"	" Union Lake, filtered	5	1-m	2-m	sit	64	28
Jan. 7, 1909	"	" Driven wells	0	1-m	2-m	0	59	20
Feb. 4, 1919	"	" Union Lake, filtered	20	1-e	2-e	sit	78	32
Feb. 4, 1909	"	" Driven wells	0	0	0	0	58	22
Mar. 9, 1909	"	" Union Lake, filtered	15	0	2-e	sit	46	20
Mar. 9, 1909	"	" Driven wells	5	1-e	2-e	sit	56	22
April 8, 1909	"	" Driven wells	5	0	2-e	sit	35	19
May 11, 1909	"	" Union Lake	50	0	0	0	36	24
May 11, 1909	"	" Driven wells	0	0	0	0	33	10
July 15, 1909	"	" Union Lake, unfiltered	60	2-m	3-m	0	42	17
July 23, 1909	"	" Driven wells	0	0	0	0	37	12
Oct. 8, 1909	"	" Driven wells	0	0	0	0	38	14
Oct. 29, 1909	"	" Union Lake	20	1-m	2-m	sit	43	16
Jan. 28, 1909	Montclair	Passaic river, filtered	0	0	0	0	85	27
Oct. 2, 1909	"	" " " "	0	0	0	0	93	27
Nov. 4, 1908	Moorestown	Filter tanks	5	0	0	0	114	44
Nov. 4, 1908	"	Pensauken creek	40	0	0	sit	112	40
Nov. 8, 1908	"	Tap. Filtered water	0	0	0	0	103	41
Dec. 4, 1908	"	" " " "	0	0	0	0	94	31
Dec. 4, 1908	"	Treated water	0	1-e	2-e	sit	121	43
Dec. 4, 1908	"	Water from creek	0	1-e	2-e	sit	124	43
Jan. 7, 1909	"	Treated water	0	1-e	2-e	sit	118	33
Jan. 7, 1909	"	Filtered water	0	0	0	sit	95	32
Jan. 7, 1909	"	Water from Pensauken creek	0	1-e	2-e	40	114	36
Feb. 2, 1909	"	Treated water	0	1-e	2-e	sit	107	28
Feb. 2, 1909	"	Filtered water	0	0	0	0	84	22
Feb. 2, 1909	"	Water from Pensauken creek	0	1-e	2-e	sit	101	29
Mar. 5, 1909	"	Water from Pensauken creek	0	1-e	2-e	sit	98	27
Mar. 5, 1909	"	Treated water	0	0	0	0	95	27
Mar. 5, 1909	"	Filtered water	0	0	0	0	81	22
April 6, 1909	"	Treated water	0	1-m	2-m	sit	102	40
April 6, 1909	"	Water from Pensauken creek	0	1-m	2-m	sit	97	36

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Mineral Residue.	Appearance on Ignition.	Nitrogen as					Iron.	Bacteria per cc. 20°	Bacteria per cc. 37°	B. Coll. Communis.
		Ammonia	By Permanganate in Solution.	Nitrites.	Nitrates.	Chlorine.				
35	No change.	.024	.028	0.0	0.0	7.5	0.0	0.2	0.4	Absent.
167	No change.	.020	.040	0.0	0.0	10.5	142.0	0.3	0.3	In 1.0 cc.
172	No change.	.186	.042	0.0	0.0	11.0	145.0	0.3	0.3	Absent.
161	No change.	.044	.020	0.0	0.0	2.0	114.0	0.6	0.6	Absent.
12	Silt darkening.	0.0	.016	0.0	0.0	1.5	0.0	0.2	0.2	In 0.1 cc.
30	Silt darkening.	.004	.052	0.0	0.0	4.5	11.0	0.0	0.4	In 10.0 cc.
41	No change.	.008	.008	0.0	0.0	0.5	13.0	0.0	0.0	In 1.0 cc.
33	No change.	.008	.008	0.0	0.0	1.0	12.0	0.0	0.0	In 1.0 cc.
32	No change.	.008	.008	0.0	0.0	0.5	14.0	0.0	0.0	In 10.0 cc.
		0.0	0.0	0.0	0.16	2.0	12.0	0.0	0.0	Absent.
		0.008	0.002	0.0	0.16	1.0	17.0	0.0	0.0	"
		.008	.028	.002	.32	1.0	17.0	0.0	0.0	"
163	Silt darkening.	.064	.048	0.0	0.0	2.0	14.0	27.0	27.0	"
		.008	.016	0.0	0.16	2.0	14.0	0.0	0.0	"
260	No change.	.004	.024	0.0	0.48	6.0	122.0	0.2	0.2	"
255	No change.	0.0	.008	0.0	0.56	5.5	115.0	0.0	0.0	"
56	No change.	.008	.012	0.0	.048	3.0	47.0	0.0	0.0	In 0.1 cc.
		.005	.008	0.0	0.40	3.0	0.0	0.0	0.0	5,000
		.004	.008	0.0	1.32	3.5	0.0	0.0	0.0	5,000
		.004	.020	.002	0.56	2.5	0.0	0.0	0.0	5,000
		.002	.004	0.0	0.64	2.5	0.0	0.0	0.0	5,000
		.006	.106	0.0	0.24	3.5	5.0	1.2	1.2	In 0.1 cc.
36	Dark.	.136	.196	0.0	0.0	4.0	0.0	0.0	0.0	In 0.1 cc.
32	No change.	.008	.020	.002	0.0	2.5	1.0	0.0	0.0	Absent.
21	Dark.	.028	.084	0.0	3.0	3.00	1.0	0.0	0.0	In 1.0 cc.
34	Silt dark.	.024	.058	0.0	0.0	2.5	1.0	0.0	0.0	Absent.
37	Silt dark.	.012	.024	0.0	0.0	2.0	0.0	0.0	0.0	"
36	Silt dark.	.012	.078	0.0	0.0	2.0	0.0	0.0	0.0	"
39	Silt dark.	.004	.024	0.0	0.0	1.5	0.0	0.0	0.0	"
46	Dark.	.008	.078	0.0	0.0	2.0	0.0	0.0	0.0	"
36	No change.	.008	.018	0.0	0.0	1.0	0.0	0.0	0.0	"
26	No change.	.012	.078	0.0	0.16	0.0	0.0	0.0	0.0	"
34	No change.	.016	.042	0.0	0.0	2.0	0.0	0.0	0.0	"
16	Silt dark.	.008	.066	0.0	0.0	1.5	0.0	0.0	0.6	"
12	Dark.	.008	.096	0.0	0.0	3.0	0.0	0.0	0.0	"
28	No change.	.008	.028	0.0	0.0	3.5	0.0	0.0	0.0	"
35	Dark.	.004	.110	.001	.000	4.0	1.00	0.0	0.4	In 10 cc.
25	No change.	.004	.012	0.0	0.0	3.0	0.0	0.0	0.0	Absent.
24	No change.	.008	.020	0.0	0.0	3.5	1.0	0.0	0.3	"
32	Dark.	.032	.098	0.0	0.0	2.5	1.00	0.0	0.0	In 1.0 cc.
58	No change.	.018	.044	0.0	1.0	3.0	16.0	0.2	0.2	Absent.
71	Silt dark.	.004	.036	0.0	0.16	3.0	31.0	0.0	0.0	"
70	Silt dark.	.028	.060	.008	1.60	6.0	4.0	1.0	1.0	"
73	Silt dark.	.04	.086	.006	0.60	9.0	23.0	0.5	0.5	In 0.1 cc.
62	Silt dark.	.012	.054	.005	1.60	9.0	9.0	0.5	0.5	Absent.
63	Silt dark.	.012	.042	.002	0.80	8.5	16.0	0.4	0.4	"
76	Silt dark.	.024	.054	.002	0.80	7.5	13.0	0.8	0.8	"
76	Silt dark.	.036	.060	.002	0.90	9.5	17.0	1.2	1.2	In 1.0 cc.
85	Silt dark.	.024	.126	.004	0.48	3.5	10.0	4.0	4.0	In 10.0 cc.
63	Silt dark.	.024	.072	.004	0.88	4.0	14.0	0.6	0.6	Absent.
78	Dark.	.042	.126	.004	0.48	5.0	14.0	2.7	2.7	In 10.0 cc.
79	Silt dark.	.032	.068	.003	1.40	6.5	8.0	3.5	3.5	Absent.
62	Silt dark.	.032	.052	.001	1.48	6.5	10.0	0.5	0.5	"
72	Dark.	.036	.124	.004	0.40	7.0	11.0	3.0	3.0	In 10.0 cc.
71	Silt dark.	.028	.060	.003	1.0	3.0	1.0	2.7	2.7	Absent.
68	Silt dark.	.042	.060	0.0	1.48	5.0	0.0	2.7	2.7	"
59	Silt dark.	.024	.028	0.0	1.40	6.0	1.0	0.4	0.4	"
62	Silt dark.	.020	.042	.011	0.92	6.5	3.0	0.6	0.6	"
61	Silt dark.	.036	.060	.007	0.72	7.0	7.0	0.6	0.6	"

TABLE 0.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

Table with columns: DATE, TOWN, SOURCE OF SUPPLY, Color, Odor, Cold, Odor, Hot, Turbidity, Total Solids, Loss on Ignition.

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Table with columns: Mineral Residue, Appearance on Ignition, Nitrogen as Ammonia, By Ferrous sulfate in Solution, Nitrites, Nitrates, Chlorine, Alkalinity, Iron, Bacteria per cc. 20°, Bacteria per cc. 37°, B. Coll Communals.

TABLE O.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

Table with columns: DATE, TOWN, SOURCE OF SUPPLY, Color, Odor, Cold, Odor, Hot, Turbidity, Total Solids, Loss on Ignition.

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Table with columns: Mineral Residue, Appearance on ignition, Nitrogen as (Ammonia, By Permanganate in Solution, Nitrites, Nitrites), Chlorine, Alkalinity, Iron, Bacteria per cc. 20°, Bacteria per cc. 37°, B. Coll Communica.

TABLE 0.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

Table with columns: DATE, TOWN, SOURCE OF SUPPLY, Color, Ochr. Cold, Ochr. Hot, Turbidity, Total Solids, Loss on Ignition. Rows list various dates from 1909 and towns like Raritan, Red Bank, Rockaway, etc.

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Table with columns: Mineral Residue, Appearance on Ignition, Nitrogen as Ammonia, By Permanganate in Solution, Nitrites, Nitrates, Chlorine, Alkalinity, Iron, Bacteria per cc. 20°, Bacteria per cc. 37°, B. Coll. Communica. Rows list various analyses with values for each parameter.





TABLE 0.—CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	TOWN.	SOURCE OF SUPPLY.	ANALYSES						
			Color.	Odor, Cold.	Odor, Hot.	Turbidity.	Total Solids.	Loss on Ignition.	
Oct. 18, 1909.	Trenton	Tap. On pump.	0	2-m	3-m	slt	.....	.....	
Oct. 18, 1909.	"	" In laboratory.	0	2-m	3-m	slt	.....	.....	
Oct. 25, 1909.	"	" On pump.	10	2-m	3-m	slt	.....	.....	
Oct. 25, 1909.	"	" In laboratory.	10	2-m	3-m	slt	.....	.....	
July 5, 1909.	Tuckerton	" Surface supply.	80	1-e	2-e	0	36	26	
Oct. 2, 1909.	"	"	50	2-m	3-m	slt	48	16	
Aug. 20, 1909.	Ventnor City.	Driven well.	0	0	0	0	123	30	
July 8, 1909.	Vineland	Driven wells.	0	0	0	0	45	15	
Oct. 14, 1909.	"	"	0	0	0	0	45	19	
Aug. 4, 1909.	Wallington	Tap. Springs.	0	0	0	0	250	111	
July 4, 1909.	Washington	"	0	0	0	0	62	24	
Sept. 16, 1909.	"	"	0	0	0	0	69	27	
July 6, 1909.	Weehawken	Hackensack river—filtered.	0	1-e	2-e	0	98	30	
Oct. 29, 1909.	"	"	0	0	0	0	110	24	
Feb. 26, 1909.	Wenonah	Tap. Artesian wells.	0	0	0	0	181	30	
Feb. 26, 1909.	"	Little Pond.	0	1-e	2-e	slt	33	22	
July 22, 1909.	"	Tap. Mineral water.	0	0	0	0	135	63	
Oct. 5, 1909.	"	Tap. Artesian wells.	15	1-m	2-m	slt	191	67	
Mar. 17, 1909.	Westville	"	0	0	0	0	112	17	
June 12, 1909.	"	"	0	1-m	2-m	slt	120	20	
Sept. 4, 1909.	"	"	0	1-m	2-m	slt	124	22	
June 21, 1909.	Wildwood	" Driven wells.	0	0	0	0	655	219	
Sept. 3, 1909.	"	"	0	0	0	0	608	192	
July 7, 1909.	Williamstown	Tap at wells.	0	0	0	0	28	18	
July 7, 1909.	"	Tap at wells.	0	0	0	0	31	19	
June 25, 1909.	Woodbine	Reservoir. Driven wells.	0	0	0	0	80	39	
Sept. 8, 1909.	"	Reservoir. Driven wells.	0	0	0	0	76	36	
Nov. 19, 1908.	Woodbury	Mantua creek.	5	1-m	2-m	slt	66	23	
Nov. 19, 1909.	"	Tap. Creek water.	0	1-m	2-m	slt	69	22	
Jan. 7, 1909.	"	Stream at pumping station.	5	1-m	2-m	25	80	28	
Feb. 3, 1909.	"	"	0	1-m	2-m	slt	62	19	
Mar. 6, 1909.	"	"	0	0	0	0	68	21	
April 1, 1909.	"	Tap.	0	0	0	0	90	51	
May 6, 1909.	"	"	0	0	0	0	68	29	
June 9, 1909.	"	Stream.	5	1-m	2-m	slt	78	42	
Aug. 6, 1909.	"	"	30	1-m	2-m	slt	74	36	
Dec. 30, 1908.	Woodstown	Open reservoir. Driven wells.	0	1-veg	2-veg	slt	259	57	
Dec. 30, 1908.	"	Tap. Driven wells.	0	0	0	0	255	21	
Feb. 1, 1909.	"	"	0	0	0	0	247	25	
Mar. 18, 1909.	"	"	0	0	0	0	239	24	
June 3, 1909.	"	"	5	0	0	0	15	254	
Aug. 6, 1909.	"	"	0	0	0	0	40	258	
Jan. 12, 1909.	Woodbridge	Standpipe. Rahway river filtered.	0	0	0	0	312	55	
Jan. 12, 1909.	"	Tap. Rahway river filtered.	0	0	0	0	306	47	

THE PUBLIC SUPPLIES OF NEW JERSEY—PARTS PER MILLION.

Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	Bacteria per cc. 20°	Bacteria per cc. 27°	B. Coll Communis.
		Ammonia.	By Permanganate in Solution.	Nitrates.	Nitrites.						
.....	.....	.012	.070	.004	0.24	4.0	60.0	.....	.....	In 0.1 cc.	
.....	.....	.012	.062	.003	0.24	4.5	54.0	.....	.....	In 1.0 cc.	
.....	.....	.012	.084	.003	0.32	4.0	.....	.....	.....	In 10.0 cc.	
.....	.....	.012	.084	.002	0.36	4.5	.....	.....	.....	In 1.0 cc.	
10 Dark	.....	.008	.072	0	0	2.0	0.0	0.0	.....	In 1.0 cc.	
32 Dark	.....	.016	.132	0	0.12	6.0	1.0	0.0	.....	In 10.0 cc.	
93 No change	.....	.132	.016	0	0	4.0	56.0	0.0	.....	In 1.0 cc.	
26 No change	.....	.036	.016	.004	1.80	5.5	.....	0.0	.....	Absent.	
139 No change	.....	.068	.042	0	1.75	4.5	10	0.0	.....	"	
.....	.....	.012	.012	0	5.60	9.0	68.0	0.0	.....	In 0.1 cc.	
38 Slt dark	.....	.008	.044	0	0.44	1.0	10.0	0.0	.....	In 10.0 cc.	
42 No change	.....	.008	.036	0	0.48	1.5	16.0	0.0	.....	In 10.0 cc.	
68 Slt dark	.....	.012	.108	0	0.12	3.0	35.0	0.0	.....	In 1 cc.	
86 Slt dark	.....	.008	.098	0	0.12	5.0	48.0	0.2	.....	In 10.0 cc.	
157 No change	.....	.166	.028	.002	0.9	8.0	135.0	0.4	.....	Absent.	
11 Slt dark	.....	.004	.144	0	0	1.5	2.0	0.3	.....	"	
171 No change	.....	Free.	.018	0	0	7.0	127.0	0.3	.....	In 1.0 cc.	
124 No change	.....	.246	.028	.004	0	7.5	128.0	0.2	.....	Absent.	
95 No change	.....	.134	.028	.004	0	1.0	71.0	0.6	.....	Absent.	
100 No change	.....	0.84	.042	.050	0.16	1.0	10.0	0.4	.....	"	
102 No change	.....	0	0	0	0.16	1.5	73.0	0.2	.....	"	
436 No change	.....	too h.	.072	.010	0	202.0	126.0	0.4	.....	"	
416 No change	.....	too h.	.064	.005	0	152.0	120.0	0.4	.....	"	
10 No change	.....	.008	.016	0	1.16	1.0	2.0	0.0	.....	"	
12 No change	.....	.008	.012	0	1.08	1.0	2.0	0.0	.....	"	
41 No change	.....	0	.016	0	2.30	13.0	4.0	0.0	.....	"	
40 Slt dark	.....	.004	.016	0	0	6.0	4.0	0.0	.....	"	
43 Slt dark	.....	.032	.084	0	0.32	4.0	10.0	0.9	.....	In 1.0 cc.	
47 Slt dark	.....	.028	.074	0	0.32	4.0	10.0	0.6	.....	In 10.0 cc.	
52 Dark	.....	.024	.078	.006	0.24	3.0	8.0	2.7	.....	In 10.0 cc.	
43 No change	.....	.008	.060	0	0.12	3.0	6.0	2.0	.....	Absent.	
47 Slt dark	.....	.032	.060	.002	0.48	3.5	11.0	1.8	.....	In 10.0 cc.	
39 Dark	.....	.004	.058	0	0.44	2.5	12.0	0.6	.....	Absent.	
37 Dark	.....	.016	.060	0	0.32	3.0	13.0	0.8	.....	"	
36 Dark	.....	.018	.052	.002	0.32	3.0	21.0	1.2	.....	In 1.0 cc.	
38 Dark	.....	.012	.056	0	0.24	3.0	16.0	1.5	.....	In 0.1 cc.	
202 Dark	.....	.058	.042	.004	0	3.5	154.0	0.8	.....	In 10.0 cc.	
222 Slt dark	.....	.012	.016	.002	0	3.0	190.0	1.3	.....	In 10.0 cc.	
222 Slt dark	.....	.032	.020	0	0	3.0	192.0	1.2	.....	Absent.	
215 Slt dark	.....	.080	.060	0	0	2.5	.....	.....	.....	"	
226 Slt dark	.....	.008	.016	0	0	2.5	177.0	0.6	.....	"	
226 Slt dark	.....	.008	.020	0	0	2.5	175.0	0.8	.....	"	
257 No change	.....	.024	.080	0	0.48	6.0	114.0	0.2	.....	"	
259 No change	.....	.004	.024	.000	0.48	5.5	122.0	0.2	.....	"	

DAIRY WELLS.

511 samples of water from dairy wells have been examined this year, and of that number 165 were grossly polluted, 133 were reported as suspicious, 120 were marked as probably safe, while only 93 could be reported as good and above any suspicion.

The fact is to be deplored that so many of the dairy wells in this state are polluted and unfit for use, but since so little care is taken in placing the wells, and less paid to the proper building of them it is not to be supposed that results can be any better than they are. Barnyards are not the proper place in which to sink wells, and over 15 % of the wells examined have been dug either in the barnyard or on its edges where the danger from surface pollution is just as great.

The kitchen well is next in consideration, situated only a few steps from the door, the ground surrounding it used at all times as a repository for kitchen wastes thrown from the door

by the busy housewife. During the summer the well itself serves as a refrigerator and cans filled with milk, although just coming from their resting place on the barn floor, are lowered into the well, dropping into the water some of the contaminating material which they have gathered from their last repository.

Polluted wells on dairy premises should be closed at once. Too much dependence cannot be put on the statement often made that the water will not be used, for it is usually the most convenient well which is the worst contaminated. Convenience usually means use, and the safest plan is to have the polluted well filled with sand or ashes.

In case new wells are to be dug, care should be taken in selecting the site, the walls should be carefully built, and instead of a bucket, a good pump on a tight curb should be the means of obtaining water.

Here follows the table of the analysis of Dairy Wells.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	No.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.
Aug. 2, 1909.	A	9679 Andover, Geo. Lawrence.	0	0	0	0
Aug. 2, 1909.	A	9680 Andover, C. Valentine.	0	0	0	0
Aug. 2, 1909.	A	9681 Andover, D. B. Stackhouse.	0	0	0	0
Aug. 26, 1909.	D	884 Atlantic Twp., M. Riordan.	0	0	0	0
Aug. 26, 1909.	D	885 Atlantic Twp., G. Smock.	0	0	0	0
Jan. 12, 1909.	B	6550 Belleville, John Reilly.	0	0	0	0
April 21, 1909.	A	9903 Belle Mead, E. T. Cain.	5	0	0	slt
April 21, 1909.	A	9904 Belle Mead, J. E. Dixon.	0	0	0	0
April 21, 1909.	A	9905 Belle Mead, Carl Elfoin.	0	0	0	0
April 22, 1909.	A	9906 Belle Mead, W. H. Huff.	0	0	0	slt
April 22, 1909.	A	9907 Belle Mead, J. Rosenberg.	0	0	0	slt
April 22, 1909.	A	9908 Belle Mead, J. V. D. Brokaw.	0	0	0	slt
April 26, 1909.	A	9909 Belle Mead, Henry Staats.	0	1-m	2-m	slt
May 13, 1909.	A	9913 Belle Mead, W. G. Moore.	0	0	0	0
May 13, 1909.	A	9914 Belle Mead, P. H. Lantz.	0	0	0	0
Mar. 17, 1909.	B	6927 Bethlehem, F. Becker.	0	1-off	2-off	0
Mar. 17, 1909.	B	6926 Bethlehem, L. Saunders.	0	0	0	0
Mar. 17, 1909.	B	6928 Bethlehem, J. Yauger.	0	0	0	0
Mar. 17, 1909.	B	6929 Bethlehem, J. Chudwedden.	0	0	0	0
Mar. 17, 1909.	B	6930 Bethlehem, R. W. Stirres.	0	0	0	0
Mar. 18, 1909.	B	6932 Bethlehem, Geo. Trybulus.	0	0	0	0
Mar. 18, 1909.	B	6934 Bethlehem, C. V. Moore.	0	0	0	0
Mar. 19, 1909.	B	6933 Bethlehem, N. F. Hoppoch.	0	0	0	0
Mar. 19, 1909.	A	6993 Bethlehem, W. H. Brittan.	0	0	0	0
April 28, 1909.	D	85 Bethlehem, Geo. Trybulus.	0	0	0	slt
April 28, 1909.	D	86 Bethlehem, W. Cieslenich.	0	0	0	0
April 29, 1909.	D	87 Bethlehem, C. Mayberry.	0	0	0	0
May 3, 1909.	D	88 Bethlehem, E. Hackett.	0	0	0	0
May 3, 1909.	D	89 Bethlehem, D.	0	0	0	0
June 23, 1909.	D	433 Bethlehem, Cyrus V. Moore.	0	0	0	0
Feb. 5, 1909.	B	6257 Bloomfield, Rowe Bros.	0	1-s	2-s	slt

THE SUPPLY OF DAIRIES—PARTS PER MILLION.

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	B. Coll Communis.
				Ammonia.	By Permanganate in Solution.	Nitrates.	Nitrites.				
0.008	0.008	0.0	0.44	0.5						In 10.0 cc.	
0.012	0.016	0.008	0.35	3.0						In 0.1 cc.	
0.012	0.008	0.0	1.92	5.5						In 1.0 cc.	
0.008	0.020	0.009	14.0	21.5						In 0.1 cc.	
0.012	0.090	0.003	8.80	8.0						In 10.0 cc.	
0.054	0.124	0.0	0.0	3.0						In 1.0 cc.	
0.0	0.020	0.0	1.40	0.0						In 10.0 cc.	
0.020	0.028	0.005	11.20	35.0						In 10.0 cc.	
0.004	0.042	0.0	1.23	4.5						In 0.1 cc.	
0.004	0.078	0.0	9.20	27.0						In 10.0 cc.	
0.008	0.078	0.0	0.40	93.0						In 10.0 cc.	
0.0	0.078	0.0	4.40	13.0						In 0.1 cc.	
0.012	0.060	0.0	4.80	11.0						In 1.0 cc.	
0.126	0.120	0.120	6.40	32.0						Absent.	
0.012	0.036	0.0	0.88	2.5						"	
0.008	0.060	0.0	2.60	5.0						"	
0.008	0.020	0.0	3.36	2.5						"	
0.012	0.024	0.0	1.60	1.0						"	
0.008	0.020	0.0	0.48	4.0						"	
0.008	0.020	0.0	4.32	10.5						"	
0.012	0.038	0.0	0.88	2.25						In 10.0 cc.	
0.004	0.044	0.0	1.72	2.5						Absent.	
0.012	0.088	0.0	2.80	7.0						In 10.0 cc.	
0.008	0.016	0.0	3.80	6.0						Absent.	
0.008	0.042	0.0	1.60	3.0						In 10.0 cc.	
0.012	0.030	0.0	1.80	5.0						Absent.	
0.012	0.048	0.0	4.80	6.0						"	
0.012	0.048	0.0	0.42	6.5						"	
0.044	0.168	0.006	8.80	12.0						In 10.0 cc.	
0.0	0.042	0.0	0.24	4.0						In 10.0 cc.	

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

THE SUPPLY OF DAIRIES—PARTS PER MILLION—(Continued).

DATE.	No.	SOURCE OF SUPPLY.	Color.	Color, Cold.	Color, Hot.	Turbidity.
Jan. 4, 1909.	B 6531	Bordentown, G. Holloway.	0	1-veg	2-veg	0
Jan. 4, 1909.	B 6532	Bordentown, J. Rockhill.	0	0	0	slt
Jan. 4, 1909.	B 6534	Bordentown, J. Klein.	0	0	0	0
Jan. 6, 1909.	B 6536	Bordentown, G. Buckalew.	0	0	0	0
Jan. 6, 1909.	B 6540	Bordentown, H. Colkitt.	0	1-veg	2-veg	0
Jan. 6, 1909.	B 6541	Bordentown.	0	1-veg	2-veg	0
Jan. 6, 1909.	B 6179	Bordentown, E. Newell.	0	1-veg	2-veg	0
Jan. 15, 1909.	D 63	Bordentown, J. Klein.	0	0	0	0
Jan. 15, 1909.	D 66	Bordentown, Geo. Holloway.	0	0	0	0
Jan. 15, 1909.	D 67	Bordentown, J. G. Rockhill.	0	0	0	slt
Jan. 15, 1909.	D 68	Bordentown, E. Newell.	0	1-off	2-off	0
Jan. 15, 1909.	D 73	Bordentown, G. Buckalew.	0	0	0	0
Jan. 19, 1909.	D 80	Bordentown, Hamilton Bros.	0	0	0	0
Jan. 19, 1909.	D 81	Bordentown, Elmer Jobes.	0	0	0	0
May 20, 1909.	D 116	Bordentown, J. Rockhill.	0	1-off	2-off	40
May 20, 1909.	D 117	Bordentown, J. Rockhill.	0	0	0	slt
May 21, 1909.	D 119	Bordentown, E. Newell.	0	0	0	0
May 24, 1909.	D 130	Bordentown, Elmer Jobes.	0	0	0	0
May 24, 1909.	D 121	Bordentown, Hamilton Bros.	0	0	0	0
Jan. 24, 1909.	D 122	Bordentown, Gilbert Sutterly.	0	0	0	0
Jan. 24, 1909.	D 123	Bordentown, S. Taylor.	0	0	0	0
Oct. 1, 1909.	D 901	Bordentown, J. Burtis.	0	0	0	0
May 11, 1909.	D 94	Bound Brook, P. Tulla.	0	0	0	0
Aug. 26, 1909.	W 85	Bound Brook, Clarkhurst Farms.	0	0	0	30
Aug. 26, 1909.	W 86	Bound Brook, C. B. Isham.	0	0	0	15
May 11, 1909.	D 95	Bridgewater, J. P. Malloy.	0	1-veg	2-veg	slt
May 11, 1909.	D 96	Bridgewater, J. Hoffmann.	0	0	0	0
May 11, 1909.	D 97	Bridgewater, William Moore.	0	0	0	0
May 12, 1909.	D 100	Bridgewater, C. Henry.	0	0	0	0
May 12, 1909.	D 101	Bridgewater, G. Freuler.	0	0	0	0
Feb. 1, 1909.	B 6783	Burlington, W. Atkinson, Jr.	0	1-veg	2-veg	slt
Feb. 1, 1909.	B 6786	Burlington, O. Wittmayer.	0	0	0	0
Feb. 1, 1909.	B 6787	Burlington, A. W. Johnson.	0	0	0	0
Feb. 1, 1909.	B 6788	Burlington, W. H. Borden.	0	1-off	2-off	slt
Feb. 2, 1909.	B 6789	Burlington, T. McFarland.	0	1-off	2-off	slt
April 7, 1909.	B 6948	Burlington, J. C. McCormick.	0	0	0	0
April 7, 1909.	B 54	Burlington, W. H. Borden.	0	0	0	0
April 8, 1909.	D 55	Burlington, E. Cook.	0	0	0	0
April 8, 1909.	D 59	Burlington, W. J. Terrell.	0	0	0	0
April 12, 1909.	D 60	Burlington, H. Bowers.	0	0	0	0
April 12, 1909.	D 62	Burlington, W. Travis.	0	0	0	0
Aug. 18, 1909.	W 53	Califon, H. F. Appar.	0	0	0	0
Aug. 18, 1909.	W 54	Califon, C. B. Alpsaugh.	0	0	0	0
Aug. 18, 1909.	W 55	Califon, J. B. Philhower.	0	0	0	0
Aug. 18, 1909.	W 56	Califon, Chris. Hildebrandt.	0	0	0	0
Aug. 18, 1909.	W 57	Califon, H. Fleming.	0	0	0	0
Aug. 18, 1909.	W 58	Califon, G. Hoffmann.	0	0	0	0
Jan. 21, 1909.	B 6137	Chatham, C. Smith.	0	0	0	0
July 20, 1909.	D 539	Chatham, F. M. Budd.	0	0	0	0*
July 21, 1909.	D 534	Chatham, W. E. Raymond.	25	1-m	2-m	slt
July 21, 1909.	D 535	Chatham, J. H. Brown.	0	2-sew	3-sew	0
Feb. 18, 1909.	B 6981	Chester, W. P. Test, Jr.	0	1-e	2-e	0
Jan. 4, 1909.	B 6106	Chesterfield, C. H. Tyndall.	0	0	0	alt
Jan. 4, 1909.	B 6529	Chesterfield, F. Applegate.	0	0	0	0
Jan. 4, 1909.	B 6530	Chesterfield, D. Coeman.	0	0	0	0
Jan. 4, 1909.	B 6533	Chesterfield, J. Shanahan.	0	0	0	0
Jan. 4, 1909.	B 6535	Chesterfield, H. R. Oldrey.	0	0	0	0
Jan. 6, 1909.	B 6536	Chesterfield, G. H. Lippincott.	0	1-c	2-e	0
Jan. 6, 1909.	B 6537	Chesterfield, H. Satterthwaite.	0	0	0	00
Jan. 6, 1909.	B 6538	Chesterfield, A. Ansin.	0	1-m	2-m	0
Feb. 1909.	B 6824	Chesterfield, W. Oldrey.	0	0	0	0
April 15, 1909.	D 64	Chesterfield, J. Shanahan.	0	0	0	0

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	B. Coli Communis.
				Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.				
0.12	.066	.022	20.00	65.5						In 10.0 cc.	
.086	.048	.004	2.08	4.5						In 10.0 cc.	
.018	.028	0.0	2.20	14.0						In 10.0 cc.	
.004	.042	.005	12.0	104.0						In 10.0 cc.	
.012	.040	0.0	1.08	6.0						Absent.	
.018	.060	.011	22.0	97.0						In 10.0 cc.	
.042	.052	.005	4.40	6.0						Absent.	
.008	.024	0.0	2.20	8.0						"	
too high.	.112	.008	19.20	57.0						In 10.0 cc.	
.074	.030	0.0	2.30	4.5						In 1.0 cc.	
.202	.084	.008	5.20	6.5						In 0.1 cc.	
.018	.060	.009	12.80	81.0						Absent.	
.008	.048	0.0	4.80	23.0						In 10.0 cc.	
.008	.084	.004	12.0	68.0						In 1.0 cc.	
.028	.034	0.0	2.0	4.0						Absent.	
.028	.024	.018	6.40	28.5						In 1.0 cc.	
0.0	.016	0.0	2.80	14.0						Absent.	
.008	.036	.010	10.40	57.0						In 10.0 cc.	
.016	.020	.006	2.80	15.0						In 1.0 cc.	
.004	.012	0.0	1.60	26.5						Absent.	
.060	.024	.012	1.52	4.0						"	
.008	.012	0.0	0.44	2.0						"	
.008	.024	0.0	2.80	8.0						"	
.004	.040	0.0	2.20	11.5						In 1.0 cc.	
.034	.004	0.0	5.58	10.5						In 0.1 cc.	
.034	.150	.012	13.20	52.5						In 1.0 cc.	
.008	.060	.004	4.80	13.0						Absent.	
.012	.024	0.0	0.80	7.0						"	
.008	.028	0.0	8.0	11.0						"	
.008	.060	0.0	1.40	20.0						In 10.0 cc.	
.004	.042	0.0	4.0	4.0						In 10.0 cc.	
.004	.024	0.0	2.20	9.5						Absent.	
.004	.060	0.0	24.0	73.0						In 10.0 cc.	
.012	.048	.003	10.0	98.0						Absent.	
.004	.024	0.0	4.0	5.0						"	
.060	.038	0.0	2.80	4.5						"	
.012	.042	.006	5.0	12.5						"	
0.0	.018	0.0	1.40	1.0						"	
.012	.034	0.0	2.60	4.0						"	
.016	.028	0.0	0.40	1.0						"	
.012	.020	0.0	1.40	4.5						"	
0.0	.004	0.0	0.20	0.0						In 1.0 cc.	
.002	.008	0.0	0.80	2.0						In 10.0 cc.	
.032	.016	.002	5.0	2.5						In 0.1 cc.	
.002	.004	0.0	1.60	2.0						In 0.1 cc.	
0.0	.004	0.0	1.60	4.0						In 0.1 cc.	
.024	.012	.002	0.58	2.0						In 0.1 cc.	
.004	.016	.003	0.16	3.0						Absent.	
.012	.042	.001	4.80	33.0						In 0.1 cc.	
.018	.072	0.0	0.0	8.0						Absent.	
too high	.032	.045	8.00	61.0						In 0.1 cc.	
.012	.052	.002	8.0	43.0						In 0.1 cc.	
.012	.048	0.0	2.80	8.0						Absent.	
.018	.028	0.0	0.48	8.5						"	
too high	.060	.003	22.0	50.5						In 10.0 cc.	
.018	.042	0.0	3.20	5.5						In 10.0 cc.	
.018	.060	0.0	0.48	5.5						In 10.0 cc.	
.004	.024	0.0	5.12	28.0						Absent.	
.012	.070	.004	24.0	72.0						In 10.0 cc.	
.008	.040	.002	2.08	13.0						"	
.004	.022	.002	10.80	14.5						"	
.012	.056	0.0	2.80	52.0						In 1.0 cc.	

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	No.	SOURCE OF SUPPLY.	ANALYSES			
			Color.	Odor. Cold.	Odor. Hot.	Turbidity.
April 15, 1909.	P 65	Chesterfield, F. Applegate.	0	0	0	0
April 16, 1909.	D 69	Chesterfield, L. Klein.	0	0	0	0
April 16, 1909.	D 70	Chesterfield, E. M. Carr.	0	0	0	sit
April 16, 1909.	D 71	Chesterfield, D. Campbell.	0	0	0	0
April 16, 1909.	D 72	Chesterfield, D. Coleman.	0	0	0	0
April 16, 1909.	D 74	Chesterfield, C. Roselle.	0	1-e	2-e	0
April 19, 1909.	D 75	Chesterfield, C. Roselle.	0	0	0	sit
April 19, 1909.	D 77	Chesterfield, C. Fenimore.	0	0	0	0
April 19, 1909.	D 78	Chesterfield, H. Satterthwaite.	100	0	0	80
May 20, 1909.	D 112	Chesterfield, F. Applegate.	0	0	0	sit
May 20, 1909.	D 113	Chesterfield, E. Carr.	0	1-e	2-e	sit
May 20, 1909.	D 114	Chesterfield, D. Campbell.	0	0	0	sit
May 20, 1909.	D 115	Chesterfield, D. Coleman.	0	0	0	0
May 21, 1909.	D 118	Chesterfield, C. Fenimore.	0	0	0	0
Aug. 5, 1909.	D 328	Chesterfield, E. Potts.	0	0	0	0
Aug. 5, 1909.	D 329	Chesterfield, E. Holloway.	0	0	0	0
Aug. 5, 1909.	D 330	Chesterfield, T. Newbold.	0	0	0	0
May 20, 1909.	A 9690	Chesterfield, G. H. Sexton.	0	0	0	0
Oct. 1, 1909.	D 900	Chesterfield, Thos. Newbold.	0	0	0	sit
Nov. 23, 1908.	B 6404	Clinton, B. E. Tins.	0	0	0	0
Nov. 23, 1908.	B 6403	Clinton, J. B. Anderson.	0	0	0	0
Nov. 27, 1908.	B 6411	Clinton, Wm. Keeppert.	0	0	0	0
July 6, 1909.	D 411	Colhingswood, W. Backell.	0	0	0	0
April 15, 1909.	B 6387	Coytesville, F. Housmann.	5	1-m	2-m	60
Aug. 23, 1909.	D 875	Columbus, F. B. Haines.	0	0	0	0
Aug. 23, 1909.	D 876	Columbus, E. H. Dull.	0	0	0	sit
Aug. 23, 1909.	D 877	Columbus, C. G. Kinsley.	0	0	0	sit
July 7, 1909.	D 416	Delaware, W. Day.	50	0	0	200
July 7, 1909.	D 417	Delaware, A. Ebert.	0	1-w	2-w	0
July 7, 1909.	D 418	Delaware, Jos. K. Lippincott.	0	0	0	0
July 7, 1909.	D 419	Delaware, Chas. Rogers.	0	0	0	0
Sept. 13, 1909.	D 890	Delaware Twp., M. Wills.	0	0	0	0
Sept. 13, 1909.	D 888	Delaware Twp., A. Bates.	0	0	0	sit
Sept. 13, 1909.	D 889	Delaware Twp., H. Shivers.	0	0	0	0
Dec. 3, 1908.	B 6280	East Brunswick, B. Miller.	0	1-e	2-e	sit
Dec. 3, 1908.	B 6281	East Brunswick, Max Mayerowitz.	0	2-e	2-e	40
April 15, 1909.	A 9901	Englewood Bluffs, H. Carrington.	0	1-v	2-v	sit
Sept. 8, 1909.	D 886	Englewood Cliffs, F. Housmann.	0	3-off	3-off	sit
July 30, 1909.	D 420	Evesham Twp., G. Platt.	0	0	0	0
July 30, 1909.	D 421	Evesham, C. L. Evans.	0	0	0	0
Dec. 21, 1908.	B 6298	Ewing, W. P. Bainbridge.	0	0	0	0
June 8, 1909.	D 305	Ewing, H. C. Scudder.	0	0	0	0
Sept. 17, 1909.	D 891	Ewing, Sam Heath.	0	0	0	0
May 14, 1909.	D 105	Fairfield, Fairfield Dairy Co.	0	0	0	0
June 11, 1909.	D 329	Fairview.	0	0	0	0
Feb. 3, 1909.	B 6796	Florence, W. Markwood.	0	0	0	0
April 21, 1909.	D 83	Florence, J. F. Warren.	0	1-m	2-m	sit
Nov. 30, 1908.	B 6187	Franklin, J. Schmidt.	0	0	0	sit
Nov. 30, 1908.	B 6412	Franklin, E. G. French.	0	0	0	0
Dec. 1, 1908.	B 6419	Franklin, J. S. Bennett.	0	2-e	2-e	40
Dec. 1, 1908.	B 6422	Franklin, S. A. Lyons.	0	0	0	0
Dec. 1, 1908.	B 6423	Franklin, J. L. Totten.	0	0	0	0
Dec. 2, 1908.	B 6425	Franklin, B. Young.	0	0	0	0
Dec. 2, 1908.	B 6276	Franklin, S. Adler.	0	0	0	0
Dec. 2, 1908.	B 6277	Franklin, V. E. Verge.	0	0	0	0
Dec. 2, 1908.	B 6279	Franklin, A. V. S. Folhemus.	0	1-e	2-e	0
Dec. 9, 1908.	B 6292	Franklin, E. Smalley.	0	0	0	0
Dec. 9, 1908.	B 6293	Franklin, A. K. Hagaman.	0	0	0	0
Dec. 9, 1908.	B 6294	Franklin, G. Duval.	0	1-e	2-e	25
Dec. 9, 1908.	B 6295	Franklin, H. Leonhard.	0	0	0	25

THE SUPPLY OF DAIRIES—PARTS PER MILLION—(Continued).

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	B. Cell Communis.
				Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.				
0.005	0.042	0.0	0.56	12.0						In 10.0 cc.	
0.004	0.020	0.0	2.60	3.5						In 1.0 cc.	
0.005	0.084	0.14	16.80	49.0						In 0.1 cc.	
0.008	0.058	0.0	1.80	28.0						Absent.	
0.018	0.112	0.006	28.0	57.0						In 0.1 cc.	
0.052	0.032	0.0	18.0	92.5						Absent.	
0.004	0.008	0.0	4.0	26.0						"	
0.008	0.028	0.0	2.40	47.3						"	
0.028	0.028	0.003	4.80	18.0						"	
0.0	0.024	0.0	0.32	11.0						"	
too high	0.180	0.26	3.80	41.0						In 1.0 cc.	
0.008	0.050	0.0	0.88	44.0						Absent.	
too high	0.118	0.003	12.0	35.5						"	
0.008	0.028	0.0	2.60	34.5						"	
0.016	0.028	0.0	2.80	76.0						In 0.1 cc.	
0.016	0.024	0.0	2.80	76.0						Absent.	
0.016	0.028	0.007	4.80	6.5						"	
0.0	0.004	0.012	24.0	103.5						"	
0.008	0.024	0.0	7.20	7.5						"	
0.008	0.028	0.0	0.16	1.5						In 10.0 cc.	
0.014	0.048	0.01	0.36	2.0						In 1.0 cc.	
0.008	0.028	0.0	0.0	3.0						In 1.0 cc.	
0.012	0.030	0.012	14.00	20.5						In 1.0 cc.	
too high	0.198	0.085	11.20	44.0						In 0.1 cc.	
0.005	0.020	0.0	8.0	28.0						Absent.	
0.008	0.024	0.0	14.0	24.0						"	
0.008	0.036	0.008	0.20	7.0						In 1.0 cc.	
0.008	0.024	0.0	0.24	2.0						In 0.1 cc.	
0.056	0.024	0.006	0.18	5.0						Absent.	
0.008	0.036	0.008	12.0	10.0						In 10 cc.	
0.008	0.024	0.0	10.80	19.5						Absent.	
0.004	0.008	0.0	4.40	7.5						In 0.1 cc.	
0.008	0.012	0.014	0.68	6.5						In 0.1 cc.	
0.002	0.290	0.080	40.0	211.0						In 0.1 cc.	
0.048	0.082	0.006	10.80	30.0						Absent.	
0.044	0.088	0.01	0.30	3.0						"	
0.044	0.140	0.012	18.50	42.0						In 1.0 cc.	
too high	0.300	0.260	50.5	50.5						In 0.1 cc.	
0.100	0.064	0.111	8.0	25.5						In 0.1 cc.	
0.0	0.0	0.0	0.0	2.0						Absent.	
0.008	0.042	0.0	1.68	3.0						"	
0.028	0.025	0.008	2.0	5.5						"	
0.012	0.036	0.003	6.40	7.0						In 1.0 cc.	
0.012	0.028	0.0	4.48	9.0						Absent.	
0.012	0.054	0.0	0.16	2.5						"	
0.004	0.020	0.0	4.00	8.0						"	
0.082	0.038	0.060	0.56	6.5						"	
0.046	0.170	0.022	11.20	25.0						In 0.1 cc.	
0.028	0.094	0.002	2.20	12.0						In 0.1 cc.	
0.024	0.029	0.009	2.80	10.0						In 10.0 cc.	
0.008	0.068	0.0	0.28	18.5						In 1.0 cc.	
0.024	0.092	0.0	16.0	15.0						In 1.0 cc.	
0.008	0.084	0.0	4.40	16.5						In 10.0 cc.	
0.048	0.120	0.002	4.80	19.0						Absent.	
0.024	0.162	0.0	6.40	39.0						In 0.1 cc.	
0.058	0.102	0.024	7.60	41.5						In 1.0 cc.	
0.012	0.054	0.0	0.48	10.0						In 0.1 cc.	
0.028	0.050	0.006	0.48	12.0						In 10.0 cc.	
too high	0.072	0.250	0.88	9.0						In 0.1 cc.	
0.012	0.128	0.0	5.60	16.5						In 0.1 cc.	

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

THE SUPPLY OF DAIRIES—PARTS PER MILLION—(Continued).

DATE.	No.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.
Dec. 9, 1908.	B 6297	Franklin, J. Lavine.	0	0	0	25
Jan. 28, 1909.	B 6778	Franklin, H. Boice.	0	1-m	2-m	slt
Mar. 11, 1909.	B 6994	Franklin, J. Anderegg.	0	0	0	0
Mar. 11, 1909.	B 6995	Franklin, J. Anderegg.	0	0	0	0
Dec. 18, 1909.	B 6935	Franklin, A. H. Reed.	0	0	0	0
Mar. 19, 1909.	B 6937	Franklin, S. Parsons.	0	0	0	slt
May 4, 1909.	D 9	Franklin, S. Alpaugh.	0	0	0	0
May 11, 1909.	D 98	Franklin, S. Fisher.	0	0	0	slt
May 11, 1909.	D 99	Franklin, Siragusa Bros.	0	0	0	0
May 12, 1909.	D 103	Franklin, J. H. Wilson.	0	0	0	0
May 12, 1909.	D 104	Franklin, L. Van Pelt.	0	0	0	0
Sept. 7, 1909.	W 105	Franklin Park, A. P. Voorhees.	0	0	0	0
Sept. 7, 1909.	W 106	Franklin Park, A. T. Thomas.	0	1-off	2-off	0
Oct. 16, 1909.	D 903	Franklin Twp., Jacob Lavine.	15	0	0	25
July 22, 1909.	D 324	Gillette, Geo. A. Cornish.	0	1-sew	2-sew	0
July 22, 1909.	D 325	Gillette, J. McGrath.	20	0	0	0
July 8, 1909.	D 412	Haddon Twp., H. Schmitzius.	0	0	0	0
July 8, 1909.	D 413	Haddon Twp., C. Hartner.	0	0	0	0
July 7, 1909.	D 415	Haddon Twp., H. Rexon.	0	0	0	0
July 6, 1909.	D 414	Haddonfield, S. Woods.	0	0	0	0
Feb. 5, 1909.	B 6123	Hamilton, L. F. Eggert.	0	1-m	2-m	25
Feb. 5, 1909.	B 6181	Hamilton, L. F. Eggert.	0	0	0	slt
May 13, 1909.	A 9915	Hardingen, W. Wyckoff.	0	0	0	0
May 13, 1909.	A 9916	Hardingen, S. Manners.	0	0	0	0
May 13, 1909.	A 9917	Hardingen, J. C. Seran.	0	1-m	2-m	slt
June 28, 1909.	D 438	Highland Park, F. Ayers.	0	0	0	0
Nov. 30, 1908.	B 6105	Hillsboro, J. H. Van Cleef.	0	1-m	2-m	0
Nov. 30, 1908.	B 6413	Hillsboro, J. G. Voorhees.	0	0	0	0
Nov. 30, 1908.	B 6414	Hillsboro, J. Stasaek.	0	0	0	0
Nov. 30, 1908.	B 6415	Hillsboro, J. Van Cleef.	0	0	0	0
Nov. 30, 1908.	B 6416	Hillsboro, R. P. Craig.	0	0	0	0
June 29, 1909.	D 431	Hillsboro, J. V. Johnson.	0	1-m	2-m	slt
June 29, 1909.	D 432	Hillsboro, W. Shoemaker.	0	0	0	slt
June 10, 1909.	D 307	Hilcrest, N. J. State Home for Girls.	0	0	0	0
Nov. 19, 1908.	B 6196	Hopewell, T. Taylor Bros.	0	0	0	0
Nov. 19, 1908.	B 6197	Hopewell, I. Erickson.	0	0	0	0
Jan. 27, 1909.	B 6171	Hopewell, I. Erickson.	0	0	0	0
Jan. 27, 1909.	B 6172	Hopewell, I. Erickson.	0	1-m	2-m	25
Feb. 15, 1909.	B 6977	Hopewell, V. H. Scomp.	0	1-aro	2-aro	25
Mar. 26, 1909.	B 6939	Jersey City, W. Furlong.	0	0	0	0
Mar. 26, 1909.	B 6940	Jersey City, H. Erle.	5	0	0	slt
Mar. 26, 1909.	B 6941	Jersey City, J. Murray.	0	1-off	2-off	slt
Mar. 27, 1909.	B 6946	Jersey City, Mrs. Wellhofer.	0	0	0	0
Mar. 29, 1909.	B 6942	Jersey City, Mrs. Jane Smith.	0	0	0	0
Mar. 29, 1909.	B 6943	Jersey City, F. J. Levanan.	0	0	0	0
Mar. 29, 1909.	B 6944	Jersey City, G. Artzinger.	0	0	0	0
Mar. 29, 1909.	B 6945	Jersey City, G. Kazellinsky.	0	1-w	2-w	0
Feb. 16, 1909.	A 9977	Jutland, Ervin Jones.	0	1-off	2-off	slt
Feb. 16, 1909.	A 9978	Jutland, J. Püttenger.	0	0	0	slt
Feb. 17, 1909.	A 9979	Jutland, W. Johnson.	0	0	0	0
Feb. 17, 1909.	A 9982	Jutland, J. Truesdell.	0	0	0	0
Feb. 18, 1909.	A 9984	Jutland, H. Stires.	0	0	0	0
Nov. 19, 1908.	B 6195	Lawrence, W. H. Warren.	0	0	0	0
Dec. 29, 1908.	B 6526	Lawrence, W. Hendrickson.	0	0	0	0
Dec. 29, 1908.	B 6527	Lawrence, A. Pierson.	0	0	0	0
Dec. 29, 1908.	B 6528	Lawrence, G. Scudder.	0	0	0	0
Dec. 29, 1908.	B 6300	Lawrence, J. Phillips.	0	0	0	0
Mar. 12, 1909.	B 6996	Lawrenceville, R. Cook.	0	0	0	0
Mar. 12, 1909.	B 6997	Lawrenceville, W. Hendrickson.	0	0	0	0
Mar. 17, 1909.	A 9996	Lebanon, Eli Smith.	0	0	0	0
Mar. 17, 1909.	A 9997	Lebanon, David Smith.	0	0	0	0
Mar. 17, 1909.	A 9998	Lebanon, C. Smith.	0	0	0	0
Jan. 27, 1909.	B 6168	Linden, O. Nosniak.	0	1-e	2-e	slt

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	B. Coll Communica.				
				Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.								
												0.00	0.00	0.00	0.00
												0.00	0.00	0.00	0.00
0.06	0.226	0.004	0.48	34.0						In 0.1 cc.					
0.008	0.042	0.0	0.48	10.0						In 1.0 cc.					
0.018	0.204	0.0	10.40	67.5						In 1.0 cc.					
0.028	0.028	0.0	0.44	17.0						Absent.					
0.012	0.043	0.002	3.52	17.0						"					
0.018	0.084	0.006	2.0	2.0						"					
0.024	0.060	0.002	0.20	0.0						"					
0.012	0.018	0.0	0.24	7.0						In 1.0 cc.					
0.016	0.078	0.018	12.0	107.5						In 1.0 cc.					
0.008	0.012	0.0	1.80	3.5						"					
0.012	0.060	0.0	0.88	8.5						In 1.0 cc.					
0.008	0.016	0.003	1.20	6.0						In 1.0 cc.					
0.008	0.008	0.0	4.0	9.0						In 1.0 cc.					
0.032	0.068	0.006	1.60	11.30						In 1.0 cc.					
0.014	0.044	0.03	2.41	10.8						In 1.0 cc.					
0.012	0.076	0.009	2.80	13.0						Absent.					
0.008	0.036	0.004	1.52	17.5						In 1 cc.					
0.0	0.004	0.016	2.20	6.0						Absent.					
0.012	0.036	0.014	9.20	45.00						In 0.1 cc.					
0.004	0.008	0.0	1.08	7.0						Absent.					
0.004	0.075	0.004	3.40	10.0						"					
0.008	0.036	0.0	3.40	37.0						"					
0.008	0.086	0.0	4.80	27.0						In 1.0 cc.					
0.012	0.090	0.0	3.52	6.5						In 1.0 cc.					
0.072	0.078	0.005	0.40	1.5						Absent.					
0.018	0.032	0.0	0.720	1.0						In 1.0 cc.					
0.048	0.134	0.018	10.80	36.0						In 1.0 cc.					
0.012	0.036	0.0	19.20	8.5						In 1.0 cc.					
0.062	0.104	0.008	7.20	15.0						In 0.1 cc.					
0.008	0.052	0.0	0.98	2.5						In 0.1 cc.					
0.012	0.042	0.0	1.52	3.0						In 10.0 cc.					
0.048	0.130	0.004	1.92	11.5						In 0.1 cc.					
0.012	0.242	0.004	1.12	3.0						In 0.1 cc.					
0.008	0.024	0.007	0.32	3.5						Absent.					
0.024	0.048	0.0	0.48	6.5						In 10.0 cc.					
0.072	0.060	0.006	4.8	26.0						In 1.0 cc.					
0.008	0.036	0.0	0.0	68.5						Absent.					
0.024	0.140	0.008	2.20	14.0						In 0.1 cc.					
0.012	0.028	0.0	2.20	6.0						Absent.					
0.028	0.096	0.006	48.0	76.5						In 1.0 cc.					
0.274	0.224	0.040	24.0	138.0						In 0.1 cc.					
too high	too high	read 12.0		73.0						In 0.1 cc.					
0.032	0.042	0.014	4.0	27.0						In 1.0 cc.					
0.024	0.136	0.004	48.0	121.5						In 10.0 cc.					
0.012	0.032	0.002	28.0	73.5						In 10.0 cc.					
0.012	0.062	0.002	10.0	40.5						In 10.0 cc.					
too high	0.078	0.040	8.0	41.5						In 10.0 cc.					
0.038	0.058	0.006	10.80	19.0						Absent.					
0.072	0.094	0.300	8.00	36.0						"					
0.012	0.096	0.0	1.28	1.0						"					
0.008	0.028	0.0	2.80	3.5						In 10.0 cc.					
0.012	0.028	0.0	2.40	4.0						In 10.0 cc.					
0.018	0.060	0.004	6.00	38.0						In 10.0 cc.					
0.120	0.032	0.025	2.20	6.5						Absent.					
0.018	0.032	0.0	0.72	3.0						"					
0.028	0.042	0.0	2.60	0.0						In 10.0 cc.					
0.018	0.028	0.0	2.20	4.5						In 10.0 cc.					
0.042	0.052	0.004	3.20	11.5						Absent.					
0.098	0.038	0.060	2.20	3.0						"					
0.008	0.036	0.0	1.40	1.0						"					
0.004	0.020	0.0	1.48	1.5						In 10.0 cc.					
0.008	0.042	0.0	2.0	0.0						Absent.					
0.012	0.052	0.0	6.4	22.5						In 1.0 cc.					

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

THE SUPPLY OF DAIRIES—PARTS PER MILLION—(Continued).

DATE.	No.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.
Dec. 8, 1908.	A 9674	Livingston, F. J. Hoch.	0	0	0	slt
Dec. 8, 1908.	A 9675	Livingston, D. Baum.	0	1-off	2-off	0
Dec. 8, 1908.	B 6381	Livingston, F. W. Meeker.	0	1-e	2-e	25
Dec. 10, 1908.	B 6383	Livingston, E. Teed.	0	0	0	0
Dec. 12, 1908.	B 6382	Livingston, F. Parkhurst.	0	0	0	slt
Dec. 12, 1908.	B 6394	Livingston, J. J. Farce.	0	0	0	slt
Mar. 8, 1909.	B 6395	Livingston, F. W. Meeker.	0	1-veg	2-veg	25
Mar. 8, 1909.	B 6396	Livingston, F. Hoch.	0	0	0	0
Mar. 8, 1909.	B 6397	Livingston, C. Fund.	0	0	0	0
Jan. 14, 1909.	D 321	Livingston, E. and W. R. Baldwin.	0	1-off	2-off	slt
June 30, 1909.	D 408	Livingston, Casper Schultz.	0	0	0	0
Sept. 7, 1909.	A 9693	Livingston, C. E. Baldwin.	0	0	0	0
Sept. 22, 1909.	D 892	Lower Penn's Neck Twp, E. Powers.	0	0	0	0
Oct. 14, 1909.	D 909	Lumberton, Herbert Warrell.	0	0	0	0
Feb. 3, 1909.	B 6795	Mansfield, E. Scattergood.	0	0	0	0
Feb. 19, 1909.	B 6982	Mansfield, E. Zelley.	0	0	0	0
April 21, 1909.	D 82	Mansfield, E. Scattergood.	0	0	0	slt
Aug. 19, 1909.	D 347	Mansfield, F. Gusie.	0	0	0	0
Aug. 20, 1909.	D 350	Mansfield, F. Leatke.	0	0	0	0
Aug. 25, 1909.	D 882	Mansfield, L. Durr.	0	0	0	0
Aug. 25, 1909.	D 883	Mansfield, J. Bowe.	0	0	0	0
Oct. 7, 1909.	D 903	Mansfield, Albert Carty.	0	0	0	0
Aug. 24, 1909.	D 881	Marlboro Twp., R. C. and W. S. Schenck.	0	0	0	0
May 17, 1909.	D 106	Metuchen, E. Skogguist.	0	0	0	0
May 17, 1909.	D 111	Metuchen, H. A. Campbell.	0	0	0	0
July 28, 1909.	D 1011	Middlebush, A. T. Campbell.	0	0	0	25
July 28, 1909.	D 1012	Middlebush, J. I. Bennett.	0	0	0	15
Aug. 19, 1909.	W 41	Middlebush, H. W. Woodruff, Jr.	0	1-e	2-e	25
Aug. 19, 1909.	W 42	Middlebush, E. Smalley.	0	1-e	2-e	25
Aug. 19, 1909.	W 43	Middlebush, J. S. Clark, estate.	0	0	0	100
Aug. 19, 1909.	W 44	Middlebush, A. T. Campbell.	0	1-m	2-m	100
Aug. 19, 1909.	W 46	Middlebush, J. Ganelson.	0	0	0	0
Aug. 27, 1909.	W 79	Middlebush, Mr. Cadmus.	0	0	0	slt
Aug. 27, 1909.	W 81	Middlebush, J. B. French.	0	0	0	slt
Sept. 7, 1909.	W 107	Middlebush, B. Young.	0	0	0	0
Sept. 7, 1909.	W 108	Middlebush, C. Gannler.	0	0	0	0
Sept. 7, 1909.	W 110	Middlebush, L. J. Snyder.	0	0	0	slt
Sept. 7, 1909.	W 111	Middlebush, J. Young.	0	2-m	2-m	slt
Sept. 7, 1909.	W 112	Middlebush, C. H. Snyder.	0	0	0	slt
June 29, 1909.	D 436	Millboro, J. V. N. Stryker.	30	1-off	2-off	slt
Jan. 21, 1909.	B 6154	Millburn.	0	0	0	0
April 26, 1909.	A 9910	Millstone, J. M. Bronson.	0	0	0	0
April 26, 1909.	A 9911	Millstone, Geo. Hill.	0	1-m	2-m	slt
June 29, 1909.	D 430	Millstone, T. V. N. Hoagland.	10	1-off	2-off	slt
Aug. 24, 1909.	D 379	Millstone, W. C. Mount.	0	0	0	0
Aug. 24, 1909.	D 380	Mourne Twp., F. Steward.	0	0	0	0
Oct. 8, 1909.	D 902	Edward Grew.	0	0	0	0
Nov. 20, 1908.	B 6199	Montgomery, Mrs. S. Bolmer.	0	0	0	0
Nov. 20, 1908.	B 6401	Montgomery, R. P. Jennings.	0	0	0	0
Nov. 20, 1908.	B 6402	Montgomery, Geo. W. Campbell.	0	0	0	0
Nov. 20, 1908.	B 6200	Montgomery, C. Smithson.	0	0	0	0
Jan. 25, 1909.	B 6059	Montgomery, L. E. Opie.	0	0	0	0
Jan. 25, 1909.	B 6160	Montgomery, C. Opie.	0	0	0	40
Jan. 28, 1909.	B 6777	Montgomery, Geo. Campbell.	0	0	0	slt
Jan. 28, 1909.	B 6779	Montgomery, H. De Witt Terhune.	0	0	0	0
Jan. 28, 1909.	B 6780	Montgomery, A. S. Hoagland.	0	0	0	0
Jan. 28, 1909.	B 6161	Montgomery, R. E. Jennings.	0	0	0	0
May 17, 1909.	D 9453	Mountainside, N. A. Darby.	0	0	0	0
May 17, 1909.	D 9456	Mountainside, N. A. Darby.	0	0	0	0
July 15, 1909.	D 9453	Mountainside, N. A. Darby.	0	0	0	0
June 28, 1909.	D 439	New Brunswick, Max Glasser.	0	1-e	2-e	0
July 21, 1909.	D 518	New Brunswick, A. G. Aitken.	0	0	0	0

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	B. Colt Communia.
				Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.				
				.024	.028	.012	1.00	23.5			In 10.0 cc.
				.024	.106	.012	16.80	92.0			In 1.0 cc.
				.008	.102	0.0	0.0	4.5			In 0.1 cc.
				.012	.042	0.0	1.08	4.5			Absent.
				.040	.040	0.0	0.44	4.5			"
				.012	.024	0.0	0.0	3.0			In 10.0 cc.
				.008	.024	0.0	0.0	1.5			Absent.
				.012	.042	.004	8.80	20.5			"
				.008	.042	.003	0.84	6.0			"
				.024	.042	.009	1.68	11.0			In 0.1 cc.
				.008	.020	0.0	2.20	7.0			In 1.0 cc.
				.004	.024	.003	4.80	16.0			In 10.0 cc.
				.016	.042	.002	0.88	3.0			In 0.1 cc.
				.008	.016	.003	2.80	5.0			In 10.0 cc.
				.004	.016	.003	3.60	3.0			In 10.0 cc.
				.008	.018	0.0	2.40	5.0			Absent.
				.004	.028	.003	2.20	9.0			"
				.030	.032	.040	7.20	7.5			In 1.0 cc.
				.012	.036	.008	11.20	25.5			In 0.1 cc.
				.008	.040	.007	2.40	4.5			In 0.1 cc.
				.005	.040	.030	20.0	47.0			In 0.1 cc.
				.008	.028	0.0	0.0	2.5			Absent.
				.008	.016	.002	11.20	38.5			In 1.0 cc.
				.008	.024	0.0	2.60	16.5			Absent.
				.012	.018	0.0	2.60	21.5			"
				.080	.088	.024	20.8	28.0			In 0.1 cc.
				.008	.016	0.0	2.32	9.5			In 0.1 cc.
				.004	.078	0.0	1.52	4.5			In 0.1 cc.
				.064	.132	0.0	1.88	9.5			In 0.1 cc.
				.036	too high	.001	12.0	43.0			In 0.1 cc.
				.084	.254	.038	2.60	11.0			In 0.1 cc.
				.008	.040	.003	7.20	32.0			In 0.1 cc.
				.008	.112	.086	6.40	13.0			In 0.1 cc.
				.008	.184	.005	12.80	19.5			In 0.1 cc.
				.012	.182	.009	6.0	13.5			In 0.1 cc.
				.004	.040	.005	4.80	8.5			In 0.1 cc.
				.016	.168	.080	28.0	22.0			In 0.1 cc.
				.012	.024	.008	8.80	11.5			In 0.1 cc.
				.004	.008	0.0	1.68	3.0			In 1.0 cc.
				too high	too high	0.0	0.0	1.0			In 0.1 cc.
				.004	.016	.002	0.0	4.0			Absent.
				.008	.060	0.0	0.72	4.0			In 10.0 cc.
				.060	.060	.018	2.40	10.0			In 1.0 cc.
				.186	.198	.080	0.28	1.0			Absent.
				.012	.100	0.0	12.8	13.5			In 0.1 cc.
				.012	.064	.008	18.0	33.0			In 0.1 cc.
				.016	.040	0.0	1.60	4.5			In 10.0 cc.
				.008	.024	0.0	2.60	4.5			Absent.
				.024	.104	0.0	3.80	19.5			In 0.1 cc.
				.042	.036	.032	1.68	7.0			Absent.
				.012	.024	0.0	1.28	5.0			"
				.018	.042	0.0	3.20	23.5			"
				.018	.060	0.0	2.20	4.0			In 10.0 cc.
				.008	.042	0.0	0.32	1.0			In 1.0 cc.
				.008	.018	0.0	0.60	1.0			Absent.
				.008	.036	0.0	0.16	1.5			In 1.0 cc.
				.018	.060	0.0	1.60	6.5			In 10.0 cc.
				.008	.024	0.0	0.60	1.5			In 1.0 cc.
				.008	.042	0.0	0.0	1.5			In 1.0 cc.
				.012	.012	.002	.000	2.5			In 10.0 cc.
				.076	too high	.024	2.0	97.0			In 0.1 cc.
				.008	.032	.002	1.40	3.0			In 0.1 cc.

THE SUPPLY OF DAIRIES—PARTS PER MILLION—(Continued).

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

Table with 6 columns: DATE, No., SOURCE OF SUPPLY, Color, Odor, Odor, Hot, Turbidity. Contains multiple rows of water analysis data from various locations in New Brunswick and surrounding areas.

Table with multiple columns including: Total Solids, Loss on Ignition, Mineral Residue, Appearance on Ignition, Nitrogen as, Chlorine, Alkalinity, Iron, B. Coli Communis. Contains detailed chemical and microbiological analysis data for various water samples.



CONTINUOUS RECORD OF ANALYSES OF WATER FROM

THE SUPPLY OF DAIRIES—PARTS PER MILLION—(Continued).

DATE.	No.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.
Aug. 23, 1909.	W 50	Pine Brook, John Pier.	0	0	0	0
Aug. 23, 1909.	W 51	Pine Brook, J. W. Van Duyne.	0	0	0	0
Aug. 23, 1909.	W 52	Pine Brook, Mr. Van Ness.	0	2-off	2-off	slt
Feb. 17, 1909.	A 9981	Pittstown, John Reading.	25	2-e	3-e	100
Dec. 8, 1908.	B 6289	Piscataway, William Borwegen.	0	1-off	8-off	25
Dec. 8, 1908.	B 6291	Piscataway, E. S. Amerman.	0	0	0	0
Sept. 9, 1909.	D 887	Plainfield, R. H. Krog.	0	0	0	0
Nov. 17, 1908.	B 6189	Princeton Twp., Edgar Hunt.	0	0	0	0
Nov. 17, 1908.	B 6190	Princeton Twp., A. Eugene Thompson.	0	0	0	0
Nov. 19, 1908.	B 6107	Princeton Twp., Jacob Weigel.	0	1-e	2-e	0
Nov. 19, 1908.	B 6194	Princeton Twp., Joseph Hullfish.	0	0	0	0
Nov. 19, 1908.	B 6198	Princeton Twp., Robert A. Campbell.	0	1-m	2-m	0
Nov. 25, 1908.	B 6406	Princeton Twp., Edward Howe.	0	0	0	0
Nov. 25, 1908.	B 6407	Princeton Twp., Edward Howe.	0	0	0	slt
Nov. 25, 1909.	B 6408	Princeton Twp., Reuben Farr.	0	0	0	0
Jan. 8, 1909.	B 6543	Princeton Twp., George Thompson.	0	0	0	0
Jan. 8, 1909.	B 6544	Princeton Twp., Thomas Davis.	0	1-m	2-m	slt
Jan. 8, 1909.	B 6545	Princeton Twp., Edward Howe.	0	0	0	0
Jan. 8, 1909.	B 6546	Princeton Twp., Theodore Pierson.	0	0	0	slt
Jan. 8, 1909.	B 6547	Princeton Twp., Joseph Hullfish.	0	1-veg	2-veg	0
Jan. 8, 1909.	B 6548	Princeton Twp., Joseph Hullfish.	0	0	0	0
Jan. 25, 1909.	B 6158	Princeton Twp., F. D. Jakeway.	10	1-e	2-e	slt
Jan. 25, 1909.	B 6163	Princeton Twp., Bertram Gulick.	0	0	0	0
Jan. 27, 1909.	B 6170	Princeton Twp., A. Eugene Thompson.	0	0	0	0
Mar. 29, 1909.	B 6958	Princeton Twp., J. G. Pierson.	0	0	0	0
Mar. 29, 1909.	B 6959	Princeton Twp., J. G. Pierson.	0	0	0	0
Dec. 8, 1908.	B 6290	Raritan, Noah Runyon.	0	0	0	0
Feb. 25, 1909.	B 6986	Raritan, Robbins Holloway.	0	0	0	slt
Feb. 25, 1909.	B 6987	Raritan, John Snyder.	0	1-e	2-e	slt
Feb. 25, 1909.	B 6989	Raritan, Mrs. A. Dilts.	0	1-e	2-e	slt
Feb. 25, 1909.	A 9985	Raritan, G. Buchanan.	0	0	0	0
Feb. 25, 1909.	B 9986	Raritan, John Polhaus.	0	1-veg	2-veg	0
Feb. 25, 1909.	B 9988	Raritan, John H. Hoff.	0	0	0	0
Feb. 26, 1909.	B 9988	Raritan, Pierson Kuhl.	0	0	0	0
Feb. 26, 1909.	A 9991	Raritan, Joseph Trimmer.	0	0	0	0
Feb. 26, 1909.	A 9992	Raritan, James J. Higgins.	0	0	0	0
Feb. 26, 1909.	A 9993	Raritan, Joseph Cronce.	0	0	0	slt
Mar. 1, 1909.	B 6991	Raritan, James H. Boyer.	0	0	0	0
Mar. 1, 1909.	B 6992	Raritan, Sam. Levine.	0	0	0	0
Mar. 1, 1909.	B 6993	Raritan, Minzer & Young.	0	0	0	slt
May 17, 1909.	D 107	Raritan, David M. Drake.	5	0	0	slt
May 17, 1909.	D 108	Raritan, Frank P. Seguire.	0	1-off	2-off	slt
May 17, 1909.	D 109	Raritan, Frank Lupo.	0	0	0	0
May 17, 1909.	D 110	Raritan, Patrick J. Haines.	0	0	0	0
June 3, 1909.	D 302	Raritan, Frank P. Seguire.	0	0	0	0
June 3, 1909.	D 303	Raritan, Frank P. Seguire.	0	0	0	0
June 12, 1909.	D 376	Raritan, Noah Runyon.	10	1-e	2-e	slt
June 12, 1909.	D 377	Raritan, E. Sims.	0	1-off	2-off	0
June 12, 1909.	D 378	Raritan, E. Sims.	0	0	0	0
Feb. 25, 1909.	A 9987	Readington, Henry Webb.	5	1-w	2-w	25
Feb. 25, 1909.	A 9989	Readington, Theo. Zeelsdorff.	0	0	0	slt
Feb. 25, 1909.	A 9990	Readington, Geo. A. Castner.	0	1-veg	2-veg	slt
Jan. 27, 1909.	B 6169	Roselle, Thos. Nutley.	0	0	0	0
May 23, 1909.	D 213	Roselle Park, B. F. Tutthill.	0	1-e	2-e	0
July 22, 1909.	D 522	Scotch Plains, A. Drake.	0	0	0	0
Aug. 11, 1909.	D 349	Shrewsbury Twp., J. Wardell.	0	0	0	0
Aug. 11, 1909.	D 341	Shrewsbury Twp., H. Scuthorpe.	0	0	0	0
May 12, 1909.	.....	Shrewsbury Twp., W. Zimmermann.	0	1-e	2-e	0
Nov. 25, 1908.	B 6409	South Brunswick, Cyrus D. Green.	0	0	0	0
Nov. 25, 1908.	B 6410	South Brunswick, Voorhees P. Hunt.	0	1-m	2-m	0
Dec. 3, 1908.	B 6292	South Brunswick, Abram Schubert.	0	1-e	2-e	slt

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	B. Coll. Communica.
				Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrate s.				
				.004	.016	.004	0.44	6.0			In 1.0 cc.
				.004	.008	0.0	0.32	0.5			In 10.0 cc.
				.020	.020	0.0	1.40	1.0			In 0.1 cc.
				too high	too high	.035	2.88	11.0			In 1.0 cc.
				.062	.064	0.0	1.68	8.5			In 1.0 cc.
				.012	.030	.004	1.20	4.0			In 10.0 cc.
				.012	.028	0.0	0.48	4.5			Absent.
				.008	.032	0.0	0.88	4.5			In 1.0 cc.
				.015	.042	0.0	0.0	5.0			Absent.
				.008	.036	.002	0.20	5.0			In 0.1 cc.
				.024	.060	0.0	1.20	6.0			In 1.0 cc.
				.012	.024	.002	1.05	9.0			In 10.0 cc.
				.004	.024	0.0	2.20	10.0			In 1.0 cc.
				.046	.104	.024	11.20	9.5			In 10.0 cc.
				.008	.020	0.0	1.08	8.0			Absent.
				.008	.032	0.0	1.28	8.0			In 10.0 cc.
				.004	.016	0.0	1.28	4.0			In 10.0 cc.
				.012	.028	0.0	0.48	4.0			In 0.1 cc.
				.012	.042	0.0	3.40	5.0			In 10.0 cc.
				.004	.032	0.0	1.68	4.0			Absent.
				.014	.000	.018	0.20	12.0			"
				.008	.036	0.0	6.40	7.0			"
				.012	.024	0.0	1.40	7.0			"
				.008	.028	0.0	1.28	2.5			In 10.0 cc.
				.012	.028	0.0	0.52	15.0			In 10.0 cc.
				.012	.042	.008	12.80	96.0			In 0.1 cc.
				.012	.022	0.0	2.80	11.0			In 10.0 cc.
				.103	.072	.004	0.60	1.0			In 1.0 cc.
				.086	.102	.024	1.28	8.0			In 10.0 cc.
				.012	.098	.002	8.80	30.0			Absent.
				.052	.088	.002	2.80	57.0			In 10.0 cc.
				.044	.073	.003	12.80	22.0			In 1.0 cc.
				.004	.018	0.0	0.60	1.0			Absent.
				.003	.036	0.0	1.60	3.5			"
				.012	.042	0.0	0.48	2.5			In 10.0 cc.
				.020	.090	0.0	1.60	3.0			Absent.
				.008	.024	0.0	0.40	1.0			In 10.0 cc.
				.042	.088	.048	8.00	148.0			"
				too high	.136	.120	8.80	35.0			In 1.0 cc.
				.018	.024	0.0	2.20	6.5			In 10.0 cc.
				.042	.184	.003	2.80	23.0			In 1.0 cc.
				.004	.028	0.0	0.32	7.0			In 10.0 cc.
				.008	.052	0.0	2.80	21.5			In 10.0 cc.
				too high	.048	.060	22.0	127.0			In 1.0 cc.
				.008	.012	0.0	1.80	6.0			In 1.0 cc.
335	87	248	No change	.008	.012	0.0	1.80	6.0			In 1.0 cc.
				too high	.222	.050	0.48	2.0			In 0.1 cc.
				.028	.084	.004	4.32	26.5			In 0.1 cc.
				.012	.024	0.0	8.0	1.5			In 1.0 cc.
				.090	.104	0.120	7.20	13.5			Absent.
				.012	.068	0.0	8.80	7.0			In 0.1 cc.
				.018	.036	.008	3.20	6.0			In 10.0 cc.
				.012	.032	.004	4.32	37.0			Absent.
				.004	.008	.007	10.0	30.0			In 1.0 cc.
				.004	.008	.004	0.16	2.5			Absent.
				.012	.048	.024	2.40	30.0			In 1.0 cc.
				.004	.016	0.0	2.20	9.0			In 0.1 cc.
				.012	.042	0.0	2.40	14.5			In 10.0 cc.
				.012	.024	0.0	6.80	25.0			Absent.
				.024	.036	0.0	7.60	23.0			In 0.1 cc.
				.004	.062	0.0	0.0	4.5			In 10.0 cc.



## CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	No.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.
Aug. 10, 1909.	A 9682	Upper Freehold, Thomas Meiers.	0	0	0	0
Aug. 10, 1909.	A 9683	Freehold, Nathan McCoy.	0	0	0	0
Aug. 10, 1909.	A 9684	Upper Freehold, Moses Ivins.	0	0	0	0
Aug. 10, 1909.	A 9685	Upper Freehold, R. T. Woodward.	0	0	0	0
Aug. 10, 1909.	A 9686	Upper Freehold, Daniel Hart.	0	0	0	0
Aug. 10, 1909.	A 9687	Upper Freehold, James A. Ivins.	0	0	0	0
July 21, 1909.	D 429	Pittsgrove, John Gantz.	0	1-sew	2-sew	0
Sept. 23, 1909.	D 885	Upper Pittsgrove, Newkirk Vanneter.	0	0	0	silt
Sept. 23, 1909.	D 897	Upper Pittsgrove, Charles Hanna.	0	0	0	40
July 30, 1909.	D 422	Voorhees Twp., George Gardner.	50	0	0	200
Aug. 11, 1909.	D 338	Wall Twp., J. J. Hughes.	0	0	0	0
Sept. 7, 1909.	A 9695	Warren Township.	0	0	0	0
Mar. 18, 1909.	B 6933	Washington Township.	0	0	0	0
Mar. 18, 1909.	B 6936	Washington Twp., E. W. Mayberry.	0	0	0	0
May 4, 1909.	D 90	Washington Twp., Samuel Weller.	0	0	0	0
Aug. 10, 1909.	D 335	Washington Twp., Mrs. Lydia Cafferty.	0	0	0	0
Mar. 15, 1909.	B 6998	West Caldwell, Puritan Dairy Co.	0	0	0	0
Mar. 15, 1909.	B 7000	West Caldwell, Puritan Dairy Co.	0	0	0	0
Feb. 2, 1909.	B 6794	West Hampton, Henry Wright.	0	0	0	0
Feb. 3, 1909.	B 6798	West Hampton, Samuel Dennis.	0	0	0	0
Feb. 3, 1909.	B 6799	West Hampton, Bloomfield Pew.	0	0	0	0
April 7, 1909.	D 53	West Hampton, Bloomfield Pew.	0	0	0	0
Oct. 13, 1909.	D 906	West Hampton, Oscar Pew.	0	0	0	0
Sept. 7, 1909.	A 9692	West Livingston, James H. Brown.	0	0	0	0
May 20, 1909.	B 6377	West Milford, Oscar Smith.	0	0	0	0
June 9, 1909.	D 306	West Milford, Oscar F. Smith.	0	0	0	0
Nov. 17, 1909.	B 6191	West Windsor, Albert Grove.	0	0	0	0
Nov. 17, 1909.	B 6192	West Windsor, G. Vanderbilt.	0	0	0	0
Nov. 17, 1909.	B 6193	West Windsor, Elmer E. Reed.	0	0	0	silt
Dec. 5, 1908.	B 6287	West Windsor, Jacob C. Vreeland.	0	1-off	2-off	25
Dec. 5, 1908.	B 6288	West Windsor, I. S. Mather.	0	0	0	0
Jan. 27, 1909.	B 6173	West Windsor, John Hendrickson.	0	0	0	0
Jan. 27, 1909.	B 6174	West Windsor, Wm. Hendrickson.	0	0	0	0
Jan. 27, 1909.	B 6175	West Windsor, M. B. Reed.	0	1-m	2-m	40
Jan. 27, 1909.	B 6176	West Windsor, M. B. Reed.	0	0	0	0
Feb. 3, 1909.	B 6800	Willingsboro, Howard H. Wills.	0	1-m	2-m	0
Feb. 18, 1909.	B 6979	Willingsboro, L. Warren.	0	0	0	0
Mar. 9, 1909.	B 6913	Woodbury, B. J. Girard.	0	0	0	0

## THE SUPPLY OF DAIRIES—PARTS PER MILLION—(Continued).

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	B. Coll Communia.
				Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.				
.....	.....	.....	.....	.008	.008	0.0	2.0	0.5	.....	.....	Absent.
.....	.....	.....	.....	.016	.020	.008	0.92	73.5	.....	.....	In 0.1 cc.
.....	.....	.....	.....	.004	.016	.006	7.20	26.0	.....	.....	In 0.1 cc.
.....	.....	.....	.....	.004	.008	0.0	14.0	20.5	.....	.....	In 1.0 cc.
.....	.....	.....	.....	.008	.012	0.0	18.0	33.0	.....	.....	In 0.1 cc.
.....	.....	.....	.....	.004	.040	.008	0.80	26.0	.....	.....	In 0.1 cc.
.....	.....	.....	.....	.012	.024	.003	3.60	17.0	.....	.....	In 1.0 cc.
.....	.....	.....	.....	.020	.042	.004	5.60	5.5	.....	.....	Absent.
.....	.....	.....	.....	.036	.060	.012	7.20	29.0	.....	.....	In 0.1 cc.
.....	.....	.....	.....	too high	.176	.004	0.48	75.5	.....	.....	Absent.
.....	.....	.....	.....	.004	.020	.009	2.40	37.0	.....	.....	In 1.0 cc.
.....	.....	.....	.....	.004	.072	.002	4.0	13.5	.....	.....	In 1.0 cc.
.....	.....	.....	.....	.012	.028	0.0	0.48	3.0	.....	.....	Absent.
.....	.....	.....	.....	.018	.060	.008	3.68	18.0	.....	.....	"
.....	.....	.....	.....	0.0	.008	0.0	4.0	6.0	.....	.....	"
.....	.....	.....	.....	.012	.016	.001	1.88	16.5	.....	.....	In 0.1 cc.
.....	.....	.....	.....	0.0	.028	0.0	0.72	4.0	.....	.....	Absent.
.....	.....	.....	.....	.005	.024	0.0	0.0	3.0	.....	.....	"
.....	.....	.....	.....	.004	.018	0.0	10.80	31.0	.....	.....	"
.....	.....	.....	.....	.004	.024	0.0	0.0	3.5	.....	.....	"
.....	.....	.....	.....	.012	.018	0.0	1.28	4.5	.....	.....	"
.....	.....	.....	.....	0.0	.024	0.0	1.20	6.0	.....	.....	"
.....	.....	.....	.....	.008	0.12	0.0	6.40	7.5	.....	.....	In 1.0 cc.
.....	.....	.....	.....	high	.264	.016	32.0	72.0	.....	.....	In 0.1 cc.
.....	.....	.....	.....	.018	.060	.003	1.60	4.0	.....	.....	In 10.0 cc.
.....	.....	.....	.....	.008	.036	0.0	1.60	2.5	.....	.....	In 10.0 cc.
.....	.....	.....	.....	.050	.028	.008	3.40	12.5	.....	.....	In 10.0 cc.
.....	.....	.....	.....	.028	.066	0.0	2.80	8.5	.....	.....	In 10.0 cc.
.....	.....	.....	.....	.024	.040	0.0	3.80	5.0	.....	.....	In 10.0 cc.
.....	.....	.....	.....	.028	.152	.018	1.68	8.5	.....	.....	Absent.
.....	.....	.....	.....	.058	.044	.040	2.60	11.0	.....	.....	In 10.0 cc.
.....	.....	.....	.....	.028	.086	0.0	0.48	2.0	.....	.....	Absent.
.....	.....	.....	.....	.004	.020	0.0	0.24	36.0	.....	.....	"
.....	.....	.....	.....	.146	.138	.032	14.0	51.5	.....	.....	In 1.0 cc.
.....	.....	.....	.....	0.0	.020	0.0	1.60	4.0	.....	.....	Absent.
.....	.....	.....	.....	.004	.018	0.0	8.80	35.0	.....	.....	"
.....	.....	.....	.....	.012	.060	.002	12.0	198.0	.....	.....	"
.....	.....	.....	.....	.008	.012	0.0	0.88	3.0	.....	.....	"

CREAMERY WELLS.

During the year, 80 samples of water from creamery premises have been examined. Of this number, 7 were reported as polluted, 17 suspicious, 24 could be marked as probably safe, and 32

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	No.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.
July 7, 1909.	A 9940	Allamuchy, Alexander Campbell Milk Co.	0	0	0	0
June 18, 1909.	D 405	Allentown, Fulltown Dairy Association.	0	0	0	0
May 24, 1909.	B 5678	Andover, Fulltown Dairy Co.	0	0	0	0
June 28, 1909.	A 9939	Augusta, T. O. Smith's Sons.	0	0	0	0
Feb. 11, 1909.	B 6201	Baleville, Alexander Campbell Milk Co.	0	0	0	0
June 17, 1909.	A 9935	Baptistown, Geo. H. Scott.	0	0	0	0
June 17, 1909.	A 9936	Baptistown, Geo. H. Scott.	0	0	0	0
June 28, 1909.	A 9938	Beermerville, Borden's Cond. Milk Co.	0	0	0	0
May 13, 1909.	A 9918	Belle Mead, Mr. Cook.	0	0	0	0
June 16, 1909.	D 401	Bernardsville, Heenan Childs.	0	0	0	slt
June 16, 1909.	D 403	Bernardsville, Seiler Bros.	0	0	0	0
May 17, 1909.	A 8921	Blairstown, Empire State Dairy Co.	0	0	0	0
Feb. 11, 1909.	B 6202	Branchville, Borden's Cond. Milk Co.	0	0	0	0
July 12, 1909.	A 9948	Broadway, Wm. Provost.	0	0	0	0
Mar. 15, 1909.	B 6999	Caldwell, Harry Baches.	0	0	0	0
June 7, 1909.	D 304	Califon, Samuel A. Tiger.	0	0	0	0
Nov. 11, 1908.	A 9671	Changewater, Taylor Plate Mills Co.	0	0	0	0
July 23, 1909.	A 9947	Changewater, R. F. Stevens Co.	0	0	0	0
Feb. 10, 1909.	B 6203	Chester, Seiler Bros.	5.0	1-off	2-off	50
June 16, 1909.	A 9932	Clover Hill, A. C. Durling.	0	0	0	0
Dec. 22, 1908.	B 6299	Cranbury, Holeman Jordan.	0	0	0	0
June 23, 1909.	D 322	Elmer, O. H. Oliphant.	0	0	0	0
June 23, 1909.	D 323	Elmer, Isaac H. Reeve.	0	0	0	0
Sept. 23, 1909.	D 896	Elmer, Isaac H. Reeve.	0	0	0	slt
Feb. 25, 1909.	B 6985	Flemington, Seiler Bros.	0	1-aro	2-aro	slt
June 3, 1919.	A 9926	Frenchtown, Robt. I. Harbison.	0	0	0	0
Aug. 24, 1909.	A 9688	Glenwood, Daniel Bailey.	0	0	0	0
July 7, 1909.	A 9942	Great Meadows, Sanford Dairy Co.	0	0	0	0
May 17, 1909.	A 9960	Hanoverburg, Fred Water.	0	0	0	slt
May 12, 1909.	B 6379	Hamburg, Diamond Dairy Co.	0	0	0	0
June 17, 1909.	D 124	Hixon, C. Van Herward.	0	0	0	0
June 11, 1909.	B 6976	Hope, Clarence M. Fisher.	0	0	0	0
July 14, 1909.	A 9949	Huntsville, Borden's Cond. Milk Co.	0	0	0	0
July 8, 1909.	A 9943	Lafayette, Newark Milk and Cream Co.	0	0	0	0
Sept. 13, 1909.	A 9701	Lexington, J. Henderson.	0	2-off	3-off	slt
Nov. 6, 1908.	B 9670	Long Bridge, Mutual Milk and Cream Co.	0	1.0	2.0	0
July 7, 1909.	A 9941	Long Bridge, Mutual Milk and Cream Co.	0	0	0	0
June 16, 1909.	D 402	Lyons, Luther Childs.	5	1-e	2-e	0
May 27, 1909.	A 9922	Marksboro, Mutual Milk and Cream Co.	0	0	0	0
May 12, 1909.	A 9912	McAfee, H. S. Charlavoyre.	0	0	0	0
June 3, 1909.	A 9925	Milford, E. C. Hurley.	0	0	0	slt
June 23, 1909.	D 324	Monroeville, Thos. K. Wilson.	0	0	0	0
June 25, 1909.	D 406	Montgomery, Farmer's Exchange.	0	0	0	0
July 14, 1909.	A 9675	Mulford's, Sanford Dairy Co.	0	0	0	0
Oct. 6, 1909.	D 902	Neshanic, Raritan Creamery Co.	0	0	0	slt
Sept. 13, 1909.	A 9928	New Germantown, A. C. Durling.	0	0	0	0
July 2, 1909.	D 410	North Branch, Geo. W. Freed.	0	0	0	0
June 3, 1909.	A 9927	Oak Summit, Henry Sassaman.	0	0	0	0
July 8, 1909.	A 9945	Pellatona, Burtons Cond. Milk Co.	10	0	0	0
June 24, 1909.	D 325	Pemberton, Montgomery & Smith.	60	1-m	2-m	0
June 16, 1909.	D 404	Pluckemin, James Woods.	0	0	0	0
Sept. 13, 1909.	A 9929	Pluckemin, James Woods.	0	0	0	slt
May 11, 1909.	B 6391	Price Crossing, Orange Co. Milk Assoc'n.	0	0	0	0
April 9, 1909.	B 6388	Quarryville, Horton & Lewis Cream Co.	0	0	0	0
Aug. 24, 1909.	A 9689	Quarryville, Horton & Lewis Cream Co.	0	0	0	0

were good and above any suspicion.

The majority of wells which furnish water for use in creameries are driven wells, and ordinarily a safe water may be expected from them.

THE SUPPLY OF CREAMERIES—PARTS PER MILLION.

Ammonia.	Nitrogen as				Chlorine.	B. Coli Communit.
	By Permanganate Solution.	Nitrites.	Nitrates.			
.004	.020	0.0	0.24	2.0		
.008	.006	.005	2.80	11.0	Absent.	
0.0	.020	0.0	1.88	10.5	In 10.0 cc.	
.012	.040	0.0	0.32	0.0	Absent.	
.012	.028	0.0	0.72	1.0	In 10.0 cc.	
.012	.024	0.0	0.72	1.0	Absent.	
.012	.024	.005	0.12	26.0	"	
.008	.032	.006	2.40	9.5	"	
.008	.020	0.0	1.0	11.5	In 10.0 cc.	
.012	.044	.005	1.12	4.5	In 10.0 cc.	
.008	.028	0.0	1.92	2.0	In 1.0 cc.	
.012	.028	0.0	1.08	6.0	In 0.1 cc.	
.012	.012	.000	.000	8.5	In 1.0 cc.	
.012	.028	0.0	2.80	2.0	In 1.0 cc.	
.004	.020	.002	0.72	22.0	Absent.	
.028	.028	.007	1.20	1.0	In 1.0 cc.	
.088	.142	.004	0.24	2.5	Absent.	
.012	.024	0.0	1.92	0.5	In 10.0 cc.	
.028	.036	.004	0.16	22.0	In 10.0 cc.	
.004	.016	0.0	0.16	1.0	Absent.	
.236	.030	.004	1.40	11.5	In 10.0 cc.	
.004	.068	.002	2.80	13.5	In 1.0 cc.	
too high	.028	.004	0.08	13.0	In 1.0 cc.	
.012	.036	.004	2.40	16.5	Absent.	
.008	.060	.005	2.32	176.0	In 10.0 cc.	
.008	.024	0.0	0.08	1.5	In 0.1 cc.	
.008	.028	0.0	0.96	2.0	In 1.0 cc.	
.008	.028	0.0	0.0	0.0	In 10.0 cc.	
.012	.028	0.0	1.0	5.5	Absent.	
.012	.028	.012	0.36	2.0	Absent.	
.296	.052	.000	8.80	30.0	In 1.0 cc.	
.004	.008	.004	0.00	1.00	Absent.	
.076	.008	.004	0.08	2.0	In 1.0 cc.	
.024	.028	0.200	0.72	6.5	In 1.0 cc.	
.008	.020	.001	0.24	1.0	In 0.1 cc.	
.024	.148	0.0	.32	1.5	In 1.0 cc.	
.046	.098	0.0	0.0	1.5	In 0.1 cc.	
.012	.018	.020	0.0	0.0	In 10.0 cc.	
.008	.028	0.0	0.56	2.0	Absent.	
.008	.016	0.0	0.72	1.5	In 1.0 cc.	
Not determined.	0.0	0.0	1.60	17.0	Absent.	
.012	Lost	.002	1.80	9.0	In 1.0 cc.	
0.0	.020	0.0	3.60	4.00	In 0.1 cc.	
.012	.016	0.0	1.00	8.5	In 1.0 cc.	
.012	.020	0.0	2.08	4.0	Absent.	
.008	.028	0.0	1.48	20.0	In 0.1 cc.	
.012	.012	0.0	0.32	4.0	In 0.1 cc.	
.008	.084	0.0	0.0	1.5	In 10.0 cc.	
.012	.042	.004	1.60	58.5	In 0.1 cc.	
.060	.080	.006	4.40	49.0	In 10.0 cc.	
.008	.018	0.0	1.40	2.0	Absent.	
.012	.078	0.0	0.32	0.0	Absent.	
.004	.008	0.0	0.0	0.0	Absent.	

CONTINUOUS RECORD OF ANALYSES OF WATER FROM

DATE.	No.	SOURCE OF SUPPLY.	Color.	Odor, Cold.	Odor, Hot.	Turbidity.
July 2, 1909.	D 409	Raritan, Wm. Arkenburg.	0	0	0	0
June 4, 1909.	A 9929	Readington, Farmers' Exchange.	0	1-m	2-m	0
June 16, 1909.	A 9933	Ringoes, Wm. Strouse.	0	0	0	0
May 27, 1909.	A 9924	Roy's Crossing, Fulbeam Dairy Co.	5	0	0	slt
June 12, 1909.	A 9934	Sergeantsville, Wm. Strouse.	0	0	0	0
June 25, 1909.	D 407	Skillman, J. B. Longshore.	0	0	0	0
Jan. 7, 1909.	B 6542	Skillman, J. B. Longshore.	0	0	0	0
May 27, 1909.	A 9923	Stillwater, McDermott Dairy Co.	0	0	0	0
June 16, 1909.	A 9931	Three Bridges, Somerville Valley Dairy Co.	0	0	0	slt
Sept. 21, 1909.	A 9998	Towaco, Max Wenzel.	0	0	0	0
July 14, 1909.	A 9948	Tranquility, Mutual Milk & Cream Co.	0	0	0	0
Nov. 12, 1908.	A 9672	Troy Hills, Harry Backes.	0	2-off	3-off	slt
Mar. 11, 1909.	A 9994	Troy Hills, H. F. Backes.	0	0	0	0
May 17, 1909.	A 9919	Vails, Fulbeam Dairy Co.	0	0	0	0
May 11, 1909.	B 6390	Vernon, Reid Ice Cream Co.	0	0	0	0
May 4, 1909.	B 6380	Warbasse, Warbasse Creamery.	25	1-0	2-e	slt
.....	A 9940	Warbasse, H. Leffman.	10	1-e	2-e	slt
Mar. 12, 1909.	A 9995	West Caldwell, Harry Backes.	0	0	0	0
April 22, 1909.	D 84	West Orange, Wm. F. Schmidt.	0	0	0	slt
June 4, 1909.	A 9930	White House, A. C. Durling.	0	0	0	0
Sept. 29, 1909.	D 899	West Portal, C. W. Van Natta.	0	0	0	0
.....	.....	Woodruff's Gap, H. S. Chardavoigne.	0	0	0	0
May 19, 1909.	B 6947	Woodstown, James McIntire.	0	0	0	0
Sept. 23, 1909.	D 893	Woodstown, James McIntire.	5	0	0	25

THE SUPPLY OF CREAMERIES—PARTS PER MILLION.—(Continued).

Nitrogen as				Chlorine.	B. Coll Communih.
Ammonia.	By Permanganate in Solution.	Nitrites.	Nitrates.		
.012	.056	0.0	0.34		
.008	.024	.002	2.0	1.5	In 1.0 cc.
.012	.024	0.0	0.88	5.5	In 10.0 cc.
.012	.036	.004	0.0	12.0	Absent.
.004	.032	0.0	0.92	2.0	In 1.0 cc.
.008	.012	0.0	0.60	5.5	Absent.
.012	.028	.004	0.32	3.0	"
.012	.042	.002	0.32	0.0	"
.012	.060	.002	0.24	0.0	"
.016	.056	.003	1.28	2.5	In 1.0 cc.
.004	.016	.000	1.00	2.5	In 0.1 cc.
too high	.100	0.0	0.0	14.0	In 1 cc.
.064	.160	.006	0.38	1.5	In 0.1 cc.
.008	.018	0.0	0.12	0.0	Absent.
.008	.018	.002	2.40	3.5	"
.012	.126	0.0	0.20	2.5	In 10.0 cc.
.018	.112	.006	0.32	8.5	In 1 cc.
.008	.042	0.0	.20	22.0	Absent.
.018	.102	0.0	2.20	8.0	In 10.0 cc.
0.0	.016	.008	1.48	20.0	In 1.0 cc.
.018	.032	.006	2.0	4.5	Absent.
.008	.028	.008	0.88	6.0	Absent.
.....	.....	.008	7.20	.....	"
.032	.020	0.0	0.92	5.0	In 10.0 cc.

## STATE INSTITUTIONS.

It has not been possible to make an inspection of the water

## CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE

DATE.	SOURCE OF SUPPLY.	Color.		Turbidity.
		Cold.	Hot.	
May 18, 1909.	Bordentown Industrial School. Dug well at dairy barn.	0	0	0
May 18, 1909.	Bordentown Industrial School. Tap.	5	1-e	40
Mar. 1, 1909.	Glen Gardner State Sanatorium. Raw water.	0	0	0
Mar. 1, 1909.	Glen Gardner State Sanatorium. Filtered water.	0	0	0
Aug. 25, 1909.	Glen Gardner State Sanatorium. Sample from col. basin.	0	0	0
Aug. 25, 1909.	Glen Gardner State Sanatorium. Filtered water.	0	0	0
April 21, 1909.	Morris Plains State Hospital. Upper reservoir.	0	0	0
April 21, 1909.	Morris Plains State Hospital. Lower Reservoir.	5	0	slt
April 21, 1909.	Morris Plains State Hospital. Klondike reservoir.	0	0	0
April 21, 1909.	Morris Plains State Hospital. Tap.	0	0	0
April 21, 1909.	Morris Plains State Hospital. Ice Pond.	0	0	0
Aug. 5, 1909.	Atlantic County Asylum. Driven well, 800' x 10'.	0	0	0
April 7, 1909.	Rahway Reformatory. Tap. City supply.	0	1-e	2-e
April 7, 1909.	Rahway Reformatory. Driven well, 75' deep.	0	0	0
April 7, 1909.	Rahway Reformatory. Filtered water.	0	0	0
Mar. 4, 1909.	Skillman Village for Epileptics. Rock Brook at ice house.	0	0	0
Mar. 5, 1909.	Skillman Village for Epileptics. Head waters of Rock Brook.	0	0	0
Mar. 5, 1909.	Skillman Village for Epileptics. Cat Tail Brook.	0	0	0
Mar. 5, 1909.	Skillman Village for Epileptics. Feeder No. 4.	0	0	0
Sept. 2, 1909.	Skillman Village for Epileptics. Tap.	0	0	0
June 5, 1909.	Trenton Asylum. Well No. 1, 225' deep.	0	0	0
June 5, 1909.	Trenton Asylum. Well No. 4, 500' deep.	0	0	0
June 5, 1909.	Trenton Asylum. Well No. 5.	0	0	0
June 5, 1909.	Trenton Asylum. Well No. 6.	0	0	0
June 5, 1909.	Trenton Asylum. Tap in Ward 12A.	0	0	0
Oct. 15, 1909.	Trenton Asylum. Driven well, 350' deep.	0	0	0

supply of each State Institution during the year, but the following table gives the analysis of such supplies as the division has been able to examine.

## SUPPLY OF STATE INSTITUTIONS—PARTS PER MILLION.

Total Solids.	Loss on Ignition.	Mineral Residue.	Appearance on Ignition.	Nitrogen as				Chlorine.	Alkalinity.	Iron.	Bacteria per cc. 37°	B. Coli Communis.
				Ammonia.	By Potassium nitrate in Solution.	Nitrites.	Nitrates.					
42	13	29	Slt darkening.	.008	.023	0.0	1.52	22.0	.....	.....	.....	Absent.
47	14	33	No change.	0.0	.008	0.0	0.0	2.0	.....	.....	.....	Present in 1.0 cc.
73	.....	.....	.....	.008	.012	0.0	1.0	11.0	.....	.....	.....	Absent.
51	.....	.....	.....	.008	.036	0.0	0.36	1.0	.....	.....	.....	Present in 0.1 cc.
36	16	20	No change.	.008	.008	.002	0.72	1.5	.....	.....	.....	Present in 10.0 cc.
36	13	23	Slt darkening.	.012	.060	0.0	0.0	1.0	.....	6.0	0.0	Absent.
.....	.....	.....	.....	.008	.073	0.0	0.28	2.0	.....	.....	.....	Present in 10.0 cc.
.....	.....	.....	.....	.004	.042	0.0	0.0	1.0	.....	.....	.....	Absent.
.....	.....	.....	.....	.008	.016	0.0	0.0	1.0	.....	6.0	0.0	.....
.....	.....	.....	.....	.008	.060	.008	1.20	2.5	.....	.....	.....	Present in 10.0 cc.
137	21	116	Slt darkening.	.004	.008	0.0	0.0	2.0	.....	.....	.....	Present in 10.0 cc.
.....	.....	.....	.....	.006	.058	0.0	0.32	6.0	.....	38.0	0.0	Absent.
.....	.....	.....	.....	.004	.016	0.0	0.32	6.0	.....	.....	.....	.....
77	40	37	Slt darkening.	.008	.030	0.0	0.36	.....	.....	72.0	.....	.....
.....	.....	.....	.....	.008	.042	0.0	0.24	2.5	.....	.....	0.4	.....
.....	.....	.....	.....	.018	.042	0.0	0.16	2.5	.....	.....	.....	Present in 10.0 cc.
.....	.....	.....	.....	.008	.042	.004	0.0	2.0	.....	.....	.....	Absent.
.....	.....	.....	.....	.012	.042	0.0	0.0	2.0	.....	.....	.....	.....
.....	.....	.....	.....	.004	.006	0.0	0.40	22.0	136.0	.....	.....	Present in 10.0 cc.
.....	.....	.....	.....	.008	.024	0.0	0.48	4.5	.....	.....	115	.....
.....	.....	.....	.....	.004	.016	0.0	1.60	4.5	.....	.....	65	.....
.....	.....	.....	.....	.008	.012	0.0	0.16	3.0	.....	.....	199	.....
.....	.....	.....	.....	.008	.012	0.0	0.80	5.0	.....	.....	199	.....
.....	.....	.....	.....	.012	.020	0.0	0.80	4.5	.....	.....	117	.....
.....	.....	.....	.....	.008	.012	0.0	0.60	4.5	.....	.....	.....	.....

## SPECIAL REPORT.

At a meeting of the Board held February 2, 1909, the following report in regard to the examination of the watershed from which the West Jersey Pure Water Company contemplates securing a supply, showing that a supply of pure water will probably be obtained from the sources which it is intended to use was submitted:—

Hon. H. M. Herbert, Chief,  
Division of Sewerage and Water Supply,  
Board of Health of the State of New Jersey,  
Trenton, N. J.

Dear Sir:—I have this day made an inspection of the watershed proposed to be utilized by the West Jersey Pure Water Supply Company for supplying the cities and towns throughout western New Jersey with water for domestic and manufacturing purposes.

This watershed comprises 140,000 acres of land extending in a southeasterly direction from Taunton to the coast. This territory is dotted throughout with lakes and comprises the head waters of Rancocas, Pensauken and Cooper's creeks and of the Mullica, Atsion and Wading rivers. The land is practically uninhabited and is covered with a thick growth of young timber. This entire tract is owned by the estate of the late Joseph Wharton of Philadelphia.

The minimum daily supply to be derived from this property, as estimated by Mr. C. C. Vermeule, is shown by the following table:

	Daily supply in Gallons.
Upper waters of Cooper's Creek.....	5,500,000
Rancocas Creek above Jenning's Mill.....	11,000,000
" " " Taunton.....	15,000,000
" " " Medford.....	49,000,000
Mullica River at Shamong.....	18,000,000
Atsion and Wading Rivers.....	229,000,000
Total.....	327,500,000

Of this 328 million gallons, 184 million can be delivered by gravity and the remainder be pumped from the thirty and fifty foot levels.

It is the intention of the company to construct two reservoirs, one at Taunton on the western slope of the shed and the other at Atsion on the eastern slope. A canal will connect the eastern reservoir with that at Taunton, the water flowing by gravity from one reservoir to the other.

There appear to be no possible sources of pollution for the land is practically uninhabited (about seven people to the square mile) and the leases held by the few tenants expire immediately on notice to vacate.

Samples from the proposed main supplies and from streams which may possibly be used as feeders, were collected for analysis.

Respectfully submitted,

H. W. DENNY,

Water Analyst.

This report was filed.

On April 13, 1909, motion was made and carried that the secretary be instructed to ask the attorney general for an opinion in regard to the powers of this Board under the law to take action to prevent the pollution of streams within the radius of the district of the Passaic Valley Sewerage Commission.

On May 18, 1909, the secretary read an opinion from the assistant attorney general in regard to the power of this Board to take action to prevent pollution of streams within the district of the Passaic Valley Sewerage Commission, in which opinion it was stated that this Board has no jurisdiction in this district. Motion was made and carried that the opinion be received and placed on file.

# Report of the Bureau of Vital Statistics.

DAVID S. SOUTH, State Registrar.

The year just closed completes the third decade of official mortality statistics in this state, and while a crude death-rate is hardly a fair example of the healthfulness of any particular locality, however, taking the state as a whole, reference to the charts to be found in this report, showing the decrease in the death-rates from consumption, diphtheria, typhoid fever, scarlet fever, malarial affections and infant mortality, argues well for the methods employed in fighting disease and bespeaks a harmony in public health work throughout the state which will no doubt lead to still better results.

## BIRTHS AND DEATHS.

The growing density of population in this state made it imperative that some immediate action be taken to improve the registration laws, therefore at the last session of the legislature a revision of the law in reference to births and deaths was passed and is now in effect. however, as the law has only been in force a short time, it is impossible at this time to comment on the result of the same, but there is little doubt that a practical test will show its great efficiency. We would request that local registrars of vital statistics and others whose duty it is to transmit certificates of births and deaths to the State Bureau of Vital Statistics to read carefully the provisions of Chapter 109, Laws of 1909. In many instances local registrars have often failed to transmit vital certificates to the State Bureau each month as required under a previous law, and since there was no penalty for neglect of this important duty the work of this department has often been greatly hampered. Under Chapter 109, Laws of 1909, the law above referred to, any assessor or clerk of a township, or registrar of vital statistics, or clerk of a city, borough, town, county or other



local municipal government in this State who shall neglect or fail to transmit to the State Bureau of Vital Statistics at Trenton, on or before the tenth day of each calendar month, all certificates of births and deaths of the *previous calendar month* in his possession, shall be liable to a penalty of fifty dollars.

Attention is also called to the fact that local officers receive twenty cents for each certificate of birth or death which is mailed or otherwise transmitted not later than ten days after the end of the calendar month in which the birth or death occurred.

Local boards of health have full power under the law to compel physicians and midwives to promptly report births, and many times this important duty is neglected. To successfully complete the work of reporting births, local registrars are requested to notify all physicians and midwives in their sanitary district that the registration law will be strictly enforced, and where a physician or midwife refuses to report a birth within five days after such birth, the matter should at once be brought to the attention of the local board of health with recommendation that prosecution be ordered for violation of the law. The State Board of Health also has authority to prosecute those who fail to report births and will give prompt attention to such cases as are brought to their attention, provided the following facts are furnished:

Name of child (if any) .....sex,.....  
 Date of birth,.....Place of birth, (give street and number, if a city),.....  
 Name of father, ..... Name of mother.....  
 Name and address of attending physician or midwife,.....

The matter of issuing burial permits should also be carefully guarded by local registrars. This can be done by requiring a properly filled out certificate of death to be presented *before* the burial permit is granted. The more progressive funeral directors do not object to this legal formality, as such a law is an instrument of defense and protection to the undertaker; no person having charge of the dead desires to help conceal the deeds of the murderer, the abortionist or the suicide.

It is therefore extremely gratifying that undertakers of the United States have clearly expressed themselves in favor of a reasonable vital statistics law for every State, as is shown by the unanimous adoption of the following resolution offered by Dr. Carl L. Barnes at the last annual meeting of the National Association of Funeral Directors, held at Indianapolis, Ind., Oct. 6th to 8th, 1908.

WHEREAS, Rights to pensions and life insurance often depend upon proper evidence of the fact and cause of death; and

WHEREAS, Widows and orphans most frequently need such proofs; and WHEREAS, Titles and the rights to inheritances may be jeopardized by the failure of records of births and deaths; and

WHEREAS, Such records are of the greatest importance to the State, to the individual, to sociology, to hygiene, and to the science of medicine; therefore be it

RESOLVED, That it is the sense of the National Association of Funeral Directors, in annual session at Indianapolis, October, 1908, that every state shall have a reasonable vital statistics law, requiring the accurate reporting and registration of all marriages, births, deaths and cases of infectious diseases; and be it further

RESOLVED, That this association urges all funeral directors to give their influence to further the collection of accurate vital statistics.

MARRIAGES.

Considering the fact that the marriage license laws of New York and Pennsylvania make a Gretna Green of New Jersey for runaway couples from those states, it was thought advisable to recommend a reasonable marriage license law in this state. Such a bill was presented to the legislature during the session of 1909 for consideration and with very little opposition passed both houses unanimously, but upon reaching the Governor was found to be defective in reference to marriages performed by the Society of Friends, which necessitated its disapproval. Governor Fort commented upon the bill as follows:

"This bill is known as the 'marriage license bill.' I am in entire sympathy with the system of marriage licenses, and practically with all the provisions in this law, but I am unable to give it my approval for the reason that by the third section it is required that after the first of October next it shall be necessary for all persons intending to be married in this State to first obtain a marriage license, and 'deliver the same to the clergyman or magistrate who is to officiate before the proposed marriage can be lawfully performed.' This would destroy common law marriages, which are now lawful, and to which I can see no serious objection, if there be a proper number of witnesses. But in addition to that it would make the marriages now performed by the Society of Friends under the ceremony which they observe, also unlawful, because no license which is obtained for a marriage under that society can be delivered to any such person as a clergyman or magistrate, for they have neither clergymen or magistrates in connection with their marriages. Their ceremony is practically the common law ceremony, in their meeting houses, in the presence of a number of persons who make certificate of the fact of such marriages.

"It was thought that the tenth section of the proposed act which reads as follows: 'Nothing in this act contained shall be deemed or taken to render any marriage, otherwise lawful, invalid by reason of failure to take out a license as is herein provided,' might modify the provision quoted from the third section, but I am not inclined to hold that view. But whether that view be correct or not, it is quite clear that the penalty provided in this act

against a marriage not performed in accordance with it, that is by the delivery of the license to the clergyman or magistrate, would still be enforceable against a marriage by the Society of Friends.

"For these reasons I am unwilling to interfere with the marriages which may be solemnized by such a society and am unable to approve this bill. I regret that I have been compelled to reach this conclusion and will be very glad to sign this bill, if opportunity shall be presented another year, after eliminating from the act the features here objected to."

## RECOMMENDATIONS.

We hope that the legislature of 1910 will give favorable consideration to a reasonable marriage license bill. The measure which was passed last year with the amendments suggested by the Governor will no doubt meet with popular approval. It is a fact that New Jersey is a haven for those in haste to wed, and that in a majority of hasty marriages there follows unhappiness and divorce. The growing demand for certified copies of the records of births, marriages and deaths on file in this department shows the importance of properly indexing all records; this can only be done by additional clerical assistance. The uniformity of mortality statistics in the registration area of this country is about to be realized and in order that New Jersey may not be the weak link in this strong chain of statistical data, it is suggested that the international classification of causes of death (revision of 1909) be used hereafter in the Bureau of Vital Statistics. It is also important that the standard certificate of death as recommended by the American Public Health Association and the Bureau of the Census at Washington, D. C., be adopted in this State. The full value of statistical data in reference to causes of death for comparative purposes and their further usefulness in showing the diseases prevailing amongst the various trades and occupations, will not be realized until each registration state or unit thereof agrees upon a uniform classification for causes of death.

Table 1—Births, Marriages and Deaths, by Counties, Cities, Boroughs and Townships for the five years ending December 31, 1908.

## ATLANTIC COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Absecon.....	9	11	15	5	8	8	7	7	2	8	11	18	14	8	8
**Atlantic City.....	575	527	584	797	724	388	437	502	442	562	529	630	710	699	656
Buena Vista.....	50	58	73	66	78	27	28	24	22	18	31	33	41	29	43
Brigantine.....	1	2	0	1	1	0	0	0	0	0	0	0	0	2	2
Egg Harbor City.....	59	57	57	65	60	24	24	20	23	28	45	35	24	43	34
Egg Harbor Twp.....	35	28	23	14	23	11	5	6	12	6	49	44	18	26	22
Folsom Borough.....	.....	.....	0	5	5	.....	.....	0	3	2	.....	.....	2	0	0
Galloway.....	26	25	10	21	14	6	9	8	4	4	20	33	21	22	23
Hamilton Twp.....	42	36	32	26	37	11	10	16	14	10	29	27	31	23	23
Hammonton.....	1	109	111	113	101	1	44	49	45	34	2	62	66	64	68
Lawood.....	7	9	31	0	9	5	3	1	0	0	11	4	8	4	0
Longport Borough.....	.....	.....	0	0	0	.....	.....	0	0	2	.....	.....	1	3	2
Mullica.....	10	12	11	12	14	4	1	3	3	3	12	10	6	11	14
North Field City.....	.....	4	9	11	11	.....	.....	0	0	1	.....	12	25	27	26
Pleasantville.....	63	55	65	83	66	20	46	21	27	37	46	47	44	47	41
Port Republic City.....	.....	5	3	3	4	.....	.....	6	2	6	3	.....	6	2	5
Somers Point.....	5	8	7	9	8	4	6	7	2	4	5	6	8	11	11
South Atlantic City.....	1	1	2	0	0	0	0	0	0	0	1	1	1	0	2
Ventnor.....	1	0	1	1	0	0	0	0	0	1	1	1	6	5	6
Weymouth.....	17	18	12	11	10	4	3	0	0	7	9	6	4	7	8

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

\*\*The death-rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger, and on account of this floating population and the large number of invalids included in it, the death-rate is not a criterion of health conditions.

BERGEN COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Allendale.....	7	8	9	9	15	3	7	1	6	2	8	12	6	8	13
Alpine Borough.....	7	5	2	6	8	2	2	1	6	3	4	4	7	3	
Bergenfield.....	17	12	29	33	52	5	3	5	11	8	7	16	18	21	
Bogota.....	10	14	19	26	19	2	6	2	5	4	10	8	10	43	
Carlstadt.....	6	7	7	72	68	23	4	9	26	24	37	46	40	36	
Cliffside Park.....	31	46	68	73	80	4	6	11	13	16	21	26	28	33	
Closter Borough.....	9	3	23	20	18	1	2	7	6	7	2	2	10	11	
Cresskill.....	6	12	16	14	10	3	1	1	2	2	6	7	5	10	
Delford.....	26	16	21	13	13	3	7	5	2	15	16	21	14	14	
Demarest Borough.....	11	5	3	3	10	1	3	1	1	1	1	3	6	10	
Dumont.....	18	21	30	29	41	4	7	6	6	16	10	13	13	17	
East Rutherford.....	44	69	76	71	72	22	18	21	15	21	37	38	46	52	
Edgewater.....	23	28	27	41	59	3	3	12	10	44	17	33	21	37	
Englewood City.....	118	125	137	166	174	55	67	59	79	79	130	118	141	143	
Englewood Cliffs.....	11	5	8	5	4	2	3	1	1	1	3	6	6	11	
Etan.....	14	26	19	17	17	1	2	3	7	9	11	10	8	10	
Fairview.....	49	39	54	56	88	1	2	5	2	9	14	25	15	23	
Fort Lee.....	29	7	44	18	25	7	22	16	14	38	28	33	45	47	
Franklin.....	25	22	28	24	31	15	8	16	9	11	19	18	19	23	
Glen Rock.....	109	123	137	165	236	50	31	56	49	44	21	68	76	91	
Glen Ridge.....	13	15	12	19	16	1	1	1	1	1	1	1	1	1	
Hackensack City.....	249	306	290	343	331	129	121	152	122	152	154	194	183	218	
Harrington.....	29	30	8	12	4	5	8	4	1	24	15	5	9	3	
Harrington Park Boro.....	2	4	8	5	4	3	3	2	1	1	1	1	1	1	
Hackensack Heights.....	35	36	30	22	24	5	3	3	10	10	3	13	12	12	
Haworth Borough.....	6	6	9	6	10	1	1	1	1	1	1	1	1	1	
Hillsdale.....	23	10	12	10	17	8	8	4	3	5	17	7	6	9	
Hobokus.....	28	27	42	43	14	16	19	16	14	16	48	28	41	34	
Leonia.....	14	1	2	1	1	1	1	1	1	1	1	1	1	1	
Little Ferry.....	45	42	33	68	43	3	2	6	1	15	15	23	25	18	
Lodi Borough.....	56	58	76	61	100	17	15	18	31	12	26	33	32	44	
Lodi Township.....	34	22	21	15	14	2	1	1	1	15	10	5	10	8	
Maywood.....	13	12	19	23	14	2	1	1	3	4	15	5	9	6	
Midland.....	19	22	21	16	25	5	7	9	7	45	41	37	54	61	
Midland Park.....	32	37	54	46	54	13	16	9	7	14	19	22	25	15	
Montvale.....	7	9	12	6	11	3	2	5	6	6	6	5	8	3	
North Arlington.....	3	2	4	4	4	2	2	1	3	3	1	4	8	5	
Northvale.....	10	12	16	12	13	1	2	4	1	5	7	7	1	12	
Northvale Borough.....	11	13	13	21	11	3	6	3	2	6	7	8	6	3	
Oakland.....	3	2	1	3	2	1	1	1	1	1	1	1	1	1	
Old Tappan.....	9	11	11	12	7	7	8	7	7	10	12	12	9	14	
Orvil Borough.....	39	37	35	95	81	12	14	16	10	16	27	33	25	35	
Orvil Township.....	22	15	22	25	33	4	6	7	4	8	16	16	17	23	
Overpeck.....	16	24	23	36	41	2	4	2	2	2	17	14	14	15	
Palisade Park.....	27	15	34	28	21	8	7	4	8	8	13	24	15	19	
Park Ridge.....	3	10	8	2	22	3	2	5	5	8	5	8	5	9	
Ramsey.....	1	4	10	3	3	3	3	1	1	25	5	5	1	4	
Ridgefield Borough.....	73	68	68	55	82	20	24	28	22	28	53	48	49	46	
Ridgefield Township.....	11	11	19	12	12	5	8	7	4	7	7	6	5	9	
Ridgewood.....	81	91	87	85	87	24	30	33	39	41	50	38	62	52	
Riverside.....	14	6	6	3	11	3	2	6	5	2	6	1	8	4	
Riverside Township.....	40	39	62	43	25	5	1	4	5	4	30	28	43	31	
Rutherford.....	11	8	15	28	21	3	2	1	2	4	17	10	11	10	
Saddle River Borough.....	37	32	43	43	42	9	10	6	8	8	25	16	23	32	
Saddle River Township.....	29	24	42	63	64	5	4	9	8	8	28	30	37	53	
Teaneck.....	2	2	1	4	3	1	1	1	1	1	4	1	4	2	
Tenafly.....	6	5	6	1	1	1	1	1	1	1	1	1	1	1	
Union.....	16	14	28	31	37	6	11	10	7	17	11	10	15	21	
U. Saddle River Boro.....	5	12	7	12	9	1	1	1	2	3	8	13	10	7	
Walington.....	19	21	17	35	26	7	4	4	4	10	7	9	8	10	
Washington.....	6	5	6	1	1	1	1	1	1	1	1	1	1	1	
Westwood.....	18	14	28	31	37	6	11	10	7	17	11	10	15	21	
Woodcliffs.....	5	12	7	12	9	1	1	1	2	3	8	10	17	6	
Wood Ridge.....	19	21	17	35	26	7	4	4	4	10	7	9	8	10	

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

BURLINGTON COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Bass River.....	12	11	7	2	10	4	8	5	3	6	10	10	10	7	9
Beverly City.....	23	34	30	46	57	17	23	18	23	26	78	60	59	53	48
Beverly Township.....	30	33	22	28	36	18	15	10	16	16	16	24	22	41	23
Bordentown City.....	48	57	60	65	64	45	37	52	38	42	81	54	70	65	71
Bordentown Township.....	4	7	1	5	6	2	1	1	1	1	4	6	6	9	4
Burlington City.....	114	8	117	129	127	95	62	56	100	82	165	131	146	155	157
Burlington Township.....	4	8	2	5	8	2	2	2	2	2	7	13	12	15	23
Chester.....	83	95	106	125	81	37	49	39	36	39	65	54	77	68	74
Chesterfield.....	14	10	20	11	16	5	7	15	5	7	11	14	29	9	16
Cinnaminson.....	26	14	19	12	13	5	8	3	8	7	12	16	12	14	14
Delran.....	22	26	24	11	21	4	1	1	1	1	3	15	22	13	16
Eastampton.....	4	5	6	6	11	1	2	1	2	1	4	4	4	2	5
Evesham.....	24	31	20	27	29	9	6	3	4	4	17	8	9	13	19
Fieldsboro.....	9	12	7	8	8	6	4	2	7	1	5	8	5	8	11
Florence.....	49	56	50	94	89	11	16	6	11	15	30	27	31	43	81
Lumberton.....	16	12	19	18	17	3	9	5	4	5	22	22	29	19	20
Mansfield.....	9	15	11	7	13	14	7	4	4	6	21	14	16	18	27
Medford.....	31	29	26	29	41	21	13	10	13	18	24	33	33	59	38
Mount Laurel.....	42	35	30	36	28	1	1	4	2	7	22	34	12	21	24
North Hanover.....	22	19	15	8	12	9	9	3	3	7	22	34	12	21	24
Northampton.....	64	83	82	113	115	51	71	70	77	71	132	103	133	120	129
North Hanover Twp.....	2	6	2	2	1	1	4	9	5	1	4	9	5	7	8
Palmyra.....	62	21	65	55	39	24	20	35	33	15	38	25	30	37	46
Pemberton Borough.....	10	12	10	10	16	21	20	13	11	18	14	14	12	13	14
Pemberton Township.....	8	8	5	8	5	2	8	6	2	49	60	46	40	71	7
Riverside.....	70	68	90	67	86	16	30	24	33	26	39	45	48	67	47
Riverton Borough.....	35	32	25	34	37	5	3	11	8	10	26	12	22	20	23
Shamong.....	1	1	1	1	5	1	2	2	6	3	7	3	4	7	10
Southampton.....	8	8	5	10	3	7	6	8	7	11	16	13	17	13	18
Springfield.....	6	9	3	9	14	2	2	2	5	1	6	10	11	17	18
Tabernacle.....	3	2	4	7	6	2	1	1	1	1	1	1	1	1	1
Washington.....	9	10	9	13	8	3	1	1	3	4	5	7	7	7	5
Westampton.....	3	10	7	6	8	2	1	1	2	2	6	11	4	1	10
Willingsboro.....	2	3	8	2	1	1	2	1	3	1	4	7	8	4	4
Woodland.....	2	7	7	12	16	1	1	1	1	1	1	1	1	1	1

\*Marriage certificate received from County Clerk in which the place where the marriage was performed is not stated.

CAMDEN COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Audubon Borough.....		6	4	11	22		1	2		5		1	3	7	9
Camden City.....	1406	1525	1658	1643	1866	1973	2462	2831	2919	2709	1547	1347	1565	1506	1471
Centre.....	58	44	52	56	46	6	5	11	14	4	41	48	42	51	48
Chesilhurst.....	2	3	6	7	6						2	1	4	3	5
Clementon.....	45	47	48	47	40	9	10	10	12	34	33	31	32	47	
Collingswood.....	37	41	26	63	74	24	20	28	24	19	26	22	28	53	43
Delaware.....	24	17	24	29	20		2	1			23	21	16	15	8
Gloucester City.....	160	125	192	181	219	66	89	94	87	78	127	148	153	167	172
Gloucester Township.....	32	37	42	45	42	14	17	13	20	16	79	88	85	101	120
Haddon.....	36	36	16	24	23	6	1	5	12	9	15	15	15	14	
Haddonfield.....	55	27	46	56	62	28	38	30	25	30	35	37	31	49	44
Haddon Heights Boro.....	3	9	20	16	20	2	2	6	8	4	3	2	7	11	
Merchantville Borough.....	31	32	24	29	38	40	27	33	36	30	27	35	24	16	38
Oaklyn Borough.....		5	10	5	8		4	1	3		6	6	7	7	
Pensauken.....	31	35	45	37	48	9	9	8	11	7	38	36	46	51	48
Voorhees.....	19	14	16	24	17	5	5	12	7	6	9	8	11	14	16
Waterford.....	63	54	55	68	75	14	11	24	18	19	29	35	42	34	40
Winslow.....	29	43	25	34	41	4	5	10	14	4	31	33	33	38	36
Wood Lynne Borough.....	3	9	6	11	11		5	2	3	2	1	3	4	3	3

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

CAPE MAY COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Anglesea Borough.....	6	11	8	9	10	2		3	1		4	2	17	5	13
Avonlon.....	2	1	3	1	3	1					2	3	2		2
*Cape May City.....	43	25	36	37	27	27	23	27	30	33	49	46	42	50	32
Cape May Point.....						16	6	9	13	16	11	22	22	21	
Dennis.....	15	22	24	30	24	10	16	6	1	13	16	11	22	22	21
Holly Beach Borough.....	22	30	32	35	45	3	1	7	9	16	23	24	17	17	17
Lower.....	14	18	27	16	13	12	14	10	10	4	11	5	19	5	7
Middle.....	45	50	29	45	55	16	28	17	24	24	40	33	37	33	32
Ocean City.....	27	41	35	26	35	10	16	15	8	13	50	31	29	28	41
Sea Isle City.....	8	3	6	3	15						11	12	9	6	11
Upper.....	14	19	16	23	20	6	3	12	11	9	14	14	21	22	19
West Cape May.....	16	7	10	5	19	2			3	1	7	7	8	9	8
Wildwood.....	7	1	23	7	14	4	3	13	11	8	3	0	9	6	13
Woodbine.....	47	58	65	80	79	6	14	13	15	9	5	10	7	11	7

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

\*\*The death-rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger and on account of this floating population and the large number of invalids included in it, the death-rate is not a criterion of health conditions.

CUMBERLAND COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Bridgeton.....	244	217	223	213	207	105	117	118	116	111	240	192	195	239	180
Commercial.....	47	49	36	52	42	17	13	17	24	21	27	22	25	34	21
Deerfield.....	48	53	82	50	56	20	15	17	12	13	43	22	27	27	27
Downe.....	19	21	30	32	7	17	17	12	5	23	22	12	19	18	
Fairfield.....	22	11	27	29	37	2	5	8	10	5	17	16	14	15	32
Greenwich.....	20	30	19	28	17	6	5	6	4	2	20	14	12	15	11
Hopewell.....	23	21	3	12	17	11	10				5	45	38	6	27
Landis.....	80	67	91	60	79	10	15	15	10	8	72	77	94	69	81
Lawrence.....	21	25	29	18	29	15	17	15	7	15	36	26	15	24	19
Maurice River.....	35	5	7	16	27	14	15	13	9	6	12	26	12	31	23
Millville City.....	254	319	281	291	266	122	115	108	129	94	178	163	166	174	187
Stow Creek.....	17	18	14	8	5	3	2		3	2	14	9	9	7	
Vineland.....	106	100	104	145	100	91	74	77	79	82	68	98	83	77	97

\*Marriage certificates received from the County Clerk in which the places where the marriages were performed are not stated.

ESSEX COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Belleville.....	109	116	146	141	172	32	40	33	46	46	116	110	117	133	116
Bloomfield City.....	203	203	211	221	246	80	58	67	58	65	160	133	170	145	153
Caldwell Borough.....	18	29	26	21	39	7	10	13	12	9	35	27	32	28	38
Caldwell Township.....	9	13	5	4	8	2	2	3	3	6	9	12	7	10	21
Cedar Grove.....					5					4					30
East Orange City.....	434	275	489	490	505	147	159	183	166	145	295	270	269	297	278
Essex Falls.....	7	6	2	2	6	2	1	1	2	1	7	2	4		2
Glen Ridge.....	26	28	35	21	32	9	4	10	9	11	24	19	26	25	22
Irvington.....	123	202	215	136	188	57	34	37	38	38	72	90	101	114	99
Livingston.....	3	26	19	23	6	3	13	8	6	3	7	21	18	16	11
Millburn.....	51	58	59	61	58	8	9	12	11	12	45	33	35	36	40
Montclair City.....	324	338	369	410	449	113	138	149	133	156	319	295	261	291	235
Newark City.....	6798	6957	7829	8105	8613	2712	3129	3382	3660	3473	3301	4943	5347	5736	5198
North Caldwell Borough.....	1	1	3		2	2		1	2	8	6	3	4		4
Nutley Borough.....	76	72	53	74	65	25	18	35	28	20	42	48	44	51	57
Orange City.....	735	743	811	813	830	183	184	190	243	244	551	534	539	513	525
Roseland Borough.....	95	80	92	79	77	8	50	34	28	56	33	43	58	45	65
South Orange Borough.....	19	23	30	23	46	8	9	4	8	16	25	25	21	24	19
South Orange Township.....					22	33				14	8			49	18
Verona Borough.....	25	24	26		8	15	9	8	4		47	45	40		4
Verona Township.....	6	7	8		6					1		4	5	7	7
West Caldwell Borough.....	173	187	178	190	220	19	42	50	20	34	85	107	86	93	106
West Orange City.....										12					

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

GLOUCESTER COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Clayton.....	48	31	33	38	42	18	9	5	7	9	27	29	28	30	18
Deptford.....	26	43	29	25	40	6	2	11	10	9	40	31	30	33	32
East Greenwich.....	20	23	25	19	26	12	14	15	11	10	28	27	31	27	20
Elk.....	9	10	19	9	15	2	3	13	1	4	13	7	11	13	7
Franklin.....	56	34	55	46	35	11	11	13	9	5	32	27	24	27	34
Glassboro.....	58	60	65	49	63	32	31	29	38	26	35	36	35	11	29
Greenwich.....	28	14	17	12	13	7	1	4	3	3	14	6	14	14	4
Harrison.....	15	29	21	21	30	10	6	4	11	6	25	19	16	25	19
Logan.....	29	31	24	29	28	3	7	7	7	7	18	20	14	14	21
Mantua.....	41	31	19	22	30	22	10	2	11	11	34	23	13	19	20
Monroe.....	21	25	27	24	38	8	26	6	21	13	37	21	35	32	33
National Park Borough.....	1	2	1	5	5			2	7	1					3
Paulsboro Borough.....	23	37	51	40	50	9	13	10	3	15	20	40	27	25	25
Pitman Grove Borough.....	7	8	9	19	24	4	4	4	13	17	6	9	14	16	20
South Harrison.....	7	9	9	5	6	4	1	3	5	7	4	4	4	3	
Swedesboro.....	25	23	26	18	38	13	13	11	15	17	23	30	29	26	28
Washington.....	19	22	17	21	23	1	4	3	1	2	19	14	16	19	19
Wenonah.....	10	6	2	5	3	3	5	3	2	4	5	6	8	4	3
West Deptford.....	39	44	39	32	36	11	10	13	14	14	24	21	24	40	24
Woodbury.....	78	73	42	62	68	55	62	48	68	49	51	55	81	72	75
Woolwich.....	17	23	17	23	25	2	1		2		17	11	6	8	12

\*Marriage certificate received from County Clerk in which the place where the marriage was performed is not stated.

HUDSON COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Bayonne.....	1340	1324	1650	1668	1719	356	396	344	432	524	714	666	759	763	722
East Newark.....	33	27	29	29	35	14	8	3	10	9	50	48	36	42	45
Guttenburg.....	146	139	172	164	144	24	29	12	20	25	89	67	57	65	74
Harrison.....	226	208	272	224	236	85	108	117	123	127	196	242	233	264	223
Hoboken.....	1846	1814	1719	1787	1978	823	886	911	1136	2398	1420	1382	1431	1536	1266
Jersey City.....	4192	4472	4408	4794	4603	2248	2279	2165	2371	4312	4699	4394	4607	4723	4423
Kearney.....	243	282	261	326	317	85	68	74	103	95	266	234	248	213	237
North Bergen.....	255	234	343	347	350	48	63	57	63	81	178	174	173	183	195
Secaucus.....	35	39	38	49	53	3	1	7	7	239	227	173	206	212	
Town of Union.....	368	409	495	496	467	207	232	231	222	276	296	220	287	291	294
Weehawken.....	122	149	143	146	155	19	26	21	50	40	106	98	130	141	105
West Hoboken.....	749	727	715	751	832	259	232	280	357	388	390	418	385	371	401
West York.....	197	175	218	284	265	48	31	95	116	123	85	111	104	136	141

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

## HUNTERDON COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Alexandria.....	12	8	7	15	9	2	4	2	3	12	13	15	14	14	
Bethlehem.....	29	14	10	16	20	10	4	1	4	10	35	15	23	17	
Bloomsbury Borough.....	7	3	3	2	2	11	2	8	6	4	16	7	7	3	
Clinton Borough.....	32	25	22	35	28	6	15	11	8	12	33	32	35	30	
Clinton Township.....	18	24	19	21	28	17	11	8	5	10	19	14	19	26	
Delaware.....	12	13	7	11	16	7	9	10	4	8	10	11	14	20	
Franklin.....	12	11	16	15	8	10	14	10	4	8	10	11	14	20	
Frenchtown.....	13	10	6	11	7	11	6	6	13	10	19	30	32	22	
High Bridge.....	34	31	31	27	23	13	3	11	11	11	18	19	30	32	
Holland.....	10	14	11	17	16	9	10	6	10	12	17	21	22	15	
Holland.....	13	22	8	10	19	4	2	2	5	2	17	23	10	22	
Junction.....	24	17	24	12	18	4	2	2	5	2	17	23	10	22	
Kingwood.....	97	104	109	126	84	56	47	27	33	34	68	72	80	76	
Lambertville.....	29	32	19	23	33	8	10	14	15	11	30	25	27	36	
Lebanon.....	45	42	36	31	41	33	23	26	20	24	59	35	55	52	
Readington.....	28	12	28	40	31	13	12	11	20	7	41	31	36	41	
Stockton.....	6	9	13	14	3	3	2	3	4	3	15	8	13	8	
Tewksbury.....	36	33	32	17	21	17	13	15	13	10	21	18	21	26	
Union.....	16	13	16	12	23	2	1	4	3	3	11	18	7	13	
West Amwell.....	7	9	13	13	11	1	4	2	1	1	7	6	13	5	

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

## BUREAU OF VITAL STATISTICS.

## MERCER COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
East Windsor.....	5	20	13	8	10	4	1	1	15	12	10	18	13		
Ewing.....	6	11	14	3	15	6	3	11	5	3	11	10	8	18	
Hamilton.....	26	27	37	43	58	18	42	26	30	19	61	57	72	44	
Hightstown.....	20	38	12	23	28	24	17	19	32	22	23	43	25	24	
Hopewell Borough.....	9	21	24	34	23	18	13	15	4	14	13	10	13	18	
Hopewell Township.....	26	18	31	17	18	3	7	5	14	6	28	31	32	44	
Lawrence.....	17	24	27	31	26	7	4	3	6	10	9	20	28	25	
Pennington Borough.....	39	76	78	88	106	13	12	6	5	9	7	13	18	10	
Princeton Borough.....	16	30	6	15	9	3	5	4	5	4	5	12	16	17	
Princeton Township.....	1017	952	1150	1088	1139	858	804	954	984	865	1482	1484	1493	1599	
Trenton.....	16	30	6	15	9	3	5	4	5	13	5	12	16	17	
Washington.....	10	12	9	25	19	2	6	5	2	4	3	5	11	12	
West Windsor.....	7	8	9	14	17	1	3	5	4	5	13	5	11	12	

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

## MIDDLESEX COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.				
	YEARS.					YEARS.					YEARS.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Cranbury.....	19	24	16	23	30	18	9	8	7	11	23	23	26	23	38
Dunellen.....	23	35	21	29	40	6	6	8	9	9	25	24	19	14	31
East Brunswick.....	26	8	32	17	20	6	8	7	13	9	18	14	32	30	
Helmetta.....	14	11	2	10	7	1	2	5	2	5	5	1	5	1	
Highland Park Borough.....	1	6	11	11	11	1	5	3	8	.....	5	13	16	8	8
Jamesburg.....	15	13	28	12	28	15	8	18	14	22	4	7	5	5	3
Madison.....	23	14	5	15	30	4	2	1	10	11	10	8	12	12	12
Metuchen.....	37	20	29	31	27	12	19	16	14	22	28	24	22	28	26
Milltown.....	17	19	15	19	26	11	7	11	8	14	11	23	11	17	20
Monroe.....	11	9	15	16	11	4	6	5	12	6	22	7	11	13	9
New Brunswick.....	358	351	299	375	426	193	264	309	302	336	445	434	422	468	454
North Brunswick.....	316	303	346	447	427	335	320	419	492	358	294	316	355	399	395
Perth Amboy.....	42	54	29	52	56	9	4	6	10	8	56	51	36	46	37
Piscataway.....	31	22	46	9	17	6	2	12	8	3	30	30	48	46	37
Raritan.....	142	130	29	115	157	19	14	15	35	.....	68	52	65	80	81
Rosevelt Borough.....	89	79	50	52	71	37	72	15	55	27	112	125	137	105	90
Sayreville.....	34	35	26	39	27	10	9	7	9	13	22	34	36	44	32
South Amboy.....	83	87	107	80	134	53	65	86	53	82	53	47	76	69	80
South Brunswick.....	136	98	83	87	107	34	51	37	30	30	176	169	123	109	103
Woodbridge.....	136	98	83	87	107	34	51	37	30	30	176	169	123	109	103

## MONMOUTH COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.					
	YEARS.					YEARS.					YEARS.					
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	
Allenhurst.....	3	10	2	11	2	2	3	1	6	3	2	1	4	4	9	9
Allentown.....	4	9	6	1	1	13	11	6	5	9	20	11	10	9	15	15
Asbury Park.....	25	36	90	166	174	78	47	87	128	146	53	68	131	140	177	177
Atlantic.....	11	12	8	4	12	3	3	6	1	7	9	15	16	13	12	12
Atlantic Highlands.....	17	22	29	16	27	9	6	6	14	18	18	8	28	21	19	19
Avon.....	4	4	4	2	12	1	1	7	10	8	5	2	7	15	11	11
Belmar.....	17	12	9	20	23	17	19	15	23	33	29	26	26	20	22	22
Bradley Beach Borough.....	16	11	11	4	18	6	10	6	1	14	12	12	13	13	20	20
Deal.....	8	1	2	2	6	3	4	4	4	4	4	4	5	4	4	4
Eatontown.....	31	33	41	32	29	20	19	17	20	20	41	40	42	24	17	17
Englishtown.....	4	3	3	1	6	7	5	11	4	2	6	4	1	1	6	6
Farmingdale.....	8	8	6	9	13	9	7	11	14	2	3	10	10	6	6	6
Freehold Borough.....	73	80	109	12	10	62	38	47	7	104	72	72	25	24	24	24
Freehold Township.....	9	3	17	11	32	6	7	9	7	10	20	21	19	22	25	25
Highlands Borough.....	14	15	23	8	17	4	4	5	4	3	11	15	8	16	10	10
Holmdel.....	58	43	32	20	38	21	26	17	15	7	36	29	21	35	22	22
Howell.....	150	160	156	180	149	132	85	107	121	120	226	262	233	288	227	227
**Long Branch.....	21	13	14	14	21	11	7	9	11	16	13	9	9	8	3	3
Manasquan.....	26	8	21	11	8	15	12	15	20	12	21	21	13	15	16	16
Marlboro.....	12	10	9	3	12	8	6	11	5	8	24	20	25	19	16	16
Matawan Borough.....	42	36	27	15	26	15	18	7	16	6	42	33	29	19	17	17
Matawan Township.....	13	17	11	6	22	4	1	2	2	2	10	14	13	26	16	16
Midletown.....	66	82	66	54	86	31	23	31	30	18	70	65	51	77	82	82
Millstone.....	12	14	16	8	6	2	5	2	1	7	12	10	7	13	9	9
Monmouth Beach Boro.....	156	140	115	72	98	2	62	58	13	41	51	134	181	108	99	98
Neptune City Borough.....	7	8	7	5	6	2	2	2	1	2	2	3	10	5	5	5
Ocean.....	17	14	10	6	17	2	2	2	3	1	15	2	9	8	10	10
Earlian.....	98	99	91	76	80	24	20	37	44	39	82	72	67	89	67	67
Red Bank City.....	89	88	129	111	122	55	53	80	69	77	93	100	92	91	83	83
Rumson Borough.....	8	15	33	24	31	2	2	2	6	2	6	8	12	11	11	12
Seabright.....	58	73	75	53	50	18	23	27	23	15	54	35	48	42	39	39
Shrewsbury.....	8	7	16	18	30	2	2	4	6	7	10	19	27	26	26	26
Spring Lake Borough.....	36	43	36	27	44	4	12	14	12	4	12	32	33	27	30	21
Upper Freehold.....	37	35	40	39	30	29	24	25	21	12	44	41	38	42	38	38
Wall.....					4					6						5
West Long Branch.....																

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

\*\*The death-rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger, and on account of this floating population and the large number of invalids included in it, the death-rate is not a criterion of health conditions.

## MORRIS COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.					
	YEARS.					YEARS.					YEARS.					
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	
Boonton City.....	59	61	55	52	86	35	40	29	39	44	63	75	68	77	73	73
Boonton Township.....	1	1	1	2	4	7	8	14	14	14	16	18	20	19	17	20
Butler.....	35	28	39	25	43	13	20	9	14	15	4	3	2	6	4	4
Chatham Borough.....	4	4	4	11	3	6	6	6	5	20	21	14	18	12	12	12
Chatham Township.....	13	21	17	9	12	7	5	10	6	6	5	20	14	12	13	12
Chester.....	125	143	184	125	138	43	62	58	60	66	94	99	72	104	88	88
Dover City.....	34	33	31	38	56	19	20	16	20	15	216	176	208	221	197	197
Florham Park Borough.....	4	5	7	8	14	6	7	7	7	4	22	15	24	15	16	16
Hanover.....	95	83	114	76	90	26	26	36	34	38	58	58	85	74	45	45
Jefferson.....	4	5	7	8	14	6	7	7	7	4	11	1	1	15	15	15
Madison.....	25	31	26	18	7	9	11	3	1	1	19	21	15	21	11	11
Mendham Borough.....	11	10	15	14	13	4	3	6	2	2	8	15	14	25	17	17
Mendham Township.....	19	11	12	18	14	1	1	1	2	2	14	17	18	16	13	13
Montville.....	175	173	168	211	224	110	102	80	100	102	227	248	260	281	267	267
Morris Township.....	2	1	1	1	1	1	1	1	1	1	4	3	9	7	7	6
Mount Arlington.....	18	13	11	12	7	9	9	11	5	7	18	13	9	13	15	15
Mount Olive.....	18	9	12	8	19	4	3	2	2	6	4	23	29	23	8	15
Netcong.....	33	40	23	40	27	6	10	10	15	4	24	18	17	21	20	20
Passaic.....	23	26	20	24	12	9	8	6	5	4	17	27	36	36	34	34
Pequanock.....	14	6	8	7	7	9	8	6	5	4	17	27	36	36	34	34
Randolph.....	28	27	50	44	48	16	22	16	15	14	23	20	40	24	29	29
Rockaway Borough.....	52	37	52	57	46	2	14	7	10	18	77	69	51	96	65	65
Rockaway Township.....	29	32	35	29	26	19	27	15	30	21	29	31	22	28	37	37
Roxbury.....	30	17	18	16	34	10	6	15	13	18	20	15	18	29	20	20
Washington.....	38	7	13	34	27	11	23	12	25	11	29	23	42	34	34	34
Wharton Borough.....																

\*Marriage certificate received from County Clerk in which the place where the marriage was performed is not stated.

OCEAN COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.									
	YEARS.					YEARS.					YEARS.									
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908					
Barnegat City.....																				
Bay Head.....	5	7	5	7	13	2	2	3	1	5	1	1	2	1	17					
Beach Haven.....		1	1	1	2	3	4	2	2	6	5	2	6	1	6					
Berkeley.....	8	7	5	5	1	1	1	1	1	1	1	1	1	1	3					
Brick.....	42	24	31	25	25	10	10	10	16	9	17	15	32	30	13					
Dover.....	43	43	26	20	38	21	8	9	16	12	33	40	33	31	32					
Eagleswood.....	2	1	3	2	2	3	4	1	2	5	1	2	3	9	5					
Island Heights.....						2	5	4	5	5	18	18	22	12	17					
Jackson.....	15	9	14	27	21	4	8	4	5	5	8	3	9	5	5					
Lacey.....	14	10	6	6	6	5	8	5	1	3	2	6	8	13	9					
Lakewood.....	51	80	66	66	97	38	22	41	47	43	59	64	60	82	74					
Lavalette.....																				
Little Egg Harbor.....	3	3	3		6	1	2	1	1	1	2	9	4	2	8					
Long Beach.....		4	21	13	17	6	10	5	2	5	10	9	10	20	23					
Manchester.....	11	4	2	5	3	1	1	1	1	1	5	10	2	2	7					
Ocean.....	26	18	20	13	16	9	8	14	13	7	20	12	27	20	21					
Plumstead.....	3	16	11	3	14	6	10	7	13	14	15	1	11	8	13					
Point Pleasant Beach Bor.....	12	1	1	1	3	3	3	3	3	3	3	3	3	3	3					
Sea Side Park Borough.....	17	22	13	10	10	4	9	8	9	2	18	11	10	20	4					
Stafford.....	12	11	5	10	3	16	10	9	11	6	16	16	7	8	15					
Tuckerton.....	17	22	13	14	19	7	9	11	10	2	18	11	10	20	4					
Union.....	12	11	5	10	3	*1	*2	*2	*1	*2	17	10	7	2	3					

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

PASSAIC COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.									
	YEARS.					YEARS.					YEARS.									
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908					
Acquackanonk.....	123	125	131	202	237	25	17	27	15	56	89	65	83	71	99					
Hawthorne.....	30	10	33	29	11	13	8	4	6	5	22	16	26	22	27					
Little Falls.....	49	44	22	35	41	20	12	13	14	9	48	54	50	42	41					
Manchester.....	34	35	31	20	19	10	10	12	9	7	28	26	27	26	14					
North Haledon.....	3	5	1	1	2	2	2	2	2	2	3	7	5	3	9					
Passaic City.....	1303	1335	1526	1274	1627	783	884	934	1068	966	661	691	653	808	782					
Paterson.....	1590	2269	2026	2491	2634	1024	1103	993	1233	1160	1958	1841	1992	1839	1567					
Pompton.....	39	58	57	65	90	10	29	34	25	26	54	31	32	43	50					
Pompton Lakes Boro.....	16	16	21	7	10	9	6	8	8	14	11	4	7	7	4					
Prospect Park Borough.....	12	22	10	15	9	2	3	4	11	24	9	16	16	13	8					
Totowa.....	7	7	8	6	3	8	11	1	4	20	31	26	17	19						
Wayne.....	16	16	16	8	3	8	11	1	4	20	31	26	17	19						
West Milford.....	38	26	40	22	30	11	11	12	17	17	22	30	17	29	22					

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

SALEM COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.									
	YEARS.					YEARS.					YEARS.									
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908					
Alloway.....	22	25	25	27	30	13	6	3	7	5	16	21	14	13	24					
Elmer Borough.....	31	24	22	12	27	15	30	14	15	6	20	17	15	8	15					
Lower Alloways Creek.....	17	19	19	27	18	7	8	11	6	1	22	17	20	17	14					
Mannington.....	12	22	14	15	21	7	15	10	8	8	38	29	33	28	26					
Oldmans.....	11	18	16	25	23	9	7	15	10	10	25	30	15	17	6					
Penns Grove Borough.....	51	53	43	27	48	20	20	15	28	17	36	19	20	28	27					
Pilesgrove.....	38	28	29	38	43	8	3	4	10	7	6	18	19	10	13					
Quinton.....	25	42	38	35	48	3	9	9	9	4	10	7	31	20	24					
Pittsgrove.....	17	23	16	11	8	6	7	3	4	3	22	9	11	14	14					
Salem City.....	99	74	90	76	80	70	55	73	59	50	118	109	111	109	118					
Upper Penns Neck.....	16	15	13	18	10	5	4	14	11	6	27	16	25	14	19					
Upper Pittsgrove.....	19	8	17	19	23	7	19	21	19	17	17	29	14	18	27					
Woodstown.....	17	12	19	21	19	17	17	29	14	18	27	42	18	37	21					

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

SOMERSET COUNTY.

NAME OF PLACE.	BIRTHS.					MARRIAGES.					DEATHS.									
	YEARS.					YEARS.					YEARS.									
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908					
Bedminster.....	20	18	28	34	41	6	12	11	13	7	29	21	21	27	22					
Bernards.....	29	67	50	57	43	7	31	31	25	29	44	56	42	33	50					
Bound Brook Borough.....	65	37	85	87	84	36	36	43	37	46	40	51	53	43	56					
Branchburg.....	14	7	13	13	16	2	2	5	7	3	10	12	10	6	5					
Bridgewater.....	21	12	27	28	18	2	5	4	7	6	14	18	18	17	17					
Franklin.....	37	29	37	33	42	12	7	20	16	10	47	48	35	31	31					
Hillsborough.....	25	16	20	38	28	17	10	10	13	26	33	29	21	20						
Millstone.....	1	1	1	1	1	1	1	1	1	1	6	8	5	3	1					
Montgomery.....	11	10	14	14	23	6	9	11	9	2	12	25	17	25	24					
North Plainfield City.....	110	126	83	84	109	26	33	26	26	37	65	97	35	87	54					
North Plainfield Twp.....	13	4	10	4	11	1	2	4	4	3	11	7	13	7	7					
Raritan.....	16	31	58	45	38	9	33	18	17	23	33	30	58	48	22					
Rocky Hill.....	13	8	9	19	8	1	4	4	4	1	5	2	5	5	9					
Somerville.....	76	44	91	76	70	43	41	41	48	50	72	86	86	106	95					
South Bound Brook.....	10	15	10	15	10	5	3	4	2	4	12	12	17	14	12					
Warren.....	14	10	13	7	25	5	3	4	2	4	12	12	17	14	12					



SUSSEX COUNTY.

WARREN COUNTY.

Table for SUSSEX COUNTY showing Births, Marriages, and Deaths by Name of Place from 1904 to 1908.

Table for WARREN COUNTY showing Births, Marriages, and Deaths by Name of Place from 1904 to 1908.

\*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

UNION COUNTY.

SUMMARY.

Table for UNION COUNTY showing Births, Marriages, and Deaths by Name of Place from 1904 to 1908.

Table for SUMMARY showing Births, Marriages, and Deaths by Name of Place from 1904 to 1908.

TABLE 2.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR ENDING DECEMBER 31, 1908.

	Atlantic	Bergen	Burlington	Camden	Cape May	Cumberland	Essex	Gloucester	Hudson	Hunterdon	Mercer	Middlesex	Monmouth	Morris	Ocean	Passaic	Salem	Somerset	Sussex	Tainon	Warren	Total
Typhoid Fever.....	11	8	26	36	1	6	51	5	54	2	53	18	22	5		20	7	0	0	28	3	307
Typhus.....	1	1	1	3		1	1		3		1	1	1			1			1	1	1	16
Scoury.....	3	1	3	3		1	1		3		1	1	1			2			1	1	1	10
Malaria.....	3	1	1	1		1	1		1		1	1	1			1			1	1	1	10
Measles.....	6	4	12	5		2	102	3	33	1	27	15	1			13			1	1	1	196
Whooping Cough.....	6	14	10	15		4	103	1	52	1	12	12	5			68			1	1	1	396
Diphtheria and Group.....	7	4	6	10		4	44	1	52	1	12	12	5			68			1	1	1	306
Scarlet Fever.....	8	10	10	62		6	96	10	156	11	22	32	8			22			5	12	6	237
Influenza.....	10	5	12	12		5	18	3	15	4	17	2	2			10			4	3	3	545
Miliary Fever.....	5	2	2			1	1	1			1	2				1			2	1		148
Septic Cholera.....	1																					1
Cholera Nostris.....																						
Other																						
{ Yellow Fever.....																						
{ Feef.....																						
Epidemic Diseases.....																						
{ Diphtheria.....	15																					
{ Meningitis.....																						
{ Typhoid.....																						
{ Typhus.....																						
{ Cholera.....																						
{ Other.....																						
Pneumonia and Bronchitis.....																						
Glands and Larynx.....																						
Anthrax.....																						
Icteria.....																						
Relapsing Fever.....																						
Relapsing Fever.....																						
Malaria.....																						
Malaria.....																						
Polio.....																						
{ Of the Lungs.....	1	192	55	259	12	63	656	41	943	37	183	130	116	92	30	257	41	54	25	177	43	3,616
{ Of the Meninges.....	1	6	6	6	3	5	106	1	75	1	13	9	5	3	3	32	1	5	2	5	1	316
{ Of the Brain.....	5	4	6	6	3	5	22	2	25	1	5	2	4	5	3	9	1	1	1	1	1	102
{ Of Other Organs.....	2	5	8	7	1	2	23	2	30	1	6	5	6	2	1	5	3	1	1	12	1	127
{ (General).....	23	2	2	2																		54
{ Of the Mouth.....	24	2	2	2																		64
{ Of the Stomach and Liver.....	A	3	5	3																		11
{ Of the Intestines and Rectum.....	C	12	21	34	4	17	135	8	135	11	26	32	27	7	16	4	12	6	4	12	60	
{ Of the Female Genital Org's.....	D	10	12	6	20	4	45	1	25	4	20	10	15	3	4	15	4	4	4	4	50	
{ Of the Skin.....	E	3	6	3	10	2	32	7	43	1	8	2	5	3	4	11	4	5	2	10	172	
{ (Others).....	F	1	3	2	2																2	
Rheumatism.....	36	3	4	8		8	47	2	39	7	13	10	8	13	2	17	3	7	2	22	2	218
{ Gout.....	37																					97
{ Exophtalmic Goitre.....	38																					
{ Addison's Disease.....	39																					
{ Leukemia.....	40																					
{ Other Chronic Diseases.....	41	2	5	3		2	11	1	19	1	3	2	3	3	3	6	1	1	1	1	1	21
{ Alcoholism (Acute or Chronic).....	42	4	2	6		4	65	4	46	1	3	9	6	3	15	2	2	2	5	5	4	167
{ Lead Poisoning.....	43																					4
{ Other Chronic Poisonings.....	44																					16
{ Syphilis.....	45																					16
{ Simple Meningitis.....	46	2	1	24		2	79	8	129	3	10	12	10	13	4	1						4
{ Progressive Locomotor Ataxia.....	47																					4
{ Progressive Muscular Atrophy.....	48																					4
{ Progressive Paralysis.....	49																					4
{ Softening of the Brain.....	50	63	97	198	23	60	416	30	309	51	138	72	89	71	24	155	14	37	34	125	47	2,176
{ Tubercular Meningitis.....	51	4	6	10	9	17	37	1	17	4	3	1	3	2	2	3	2	2	15	2	6	171
{ Other Chronic Diseases.....	52	4	5	15		10	23	1	4	1	16	17	21	20	22	11	11	13	12	12	6	191
{ Paralysis Without Intoxicated Cause.....	53	4	1	6		4	33	1	40	1	13	17	21	21	23	11	11	13	13	8	30	380
{ General Paralysis.....	54	1	2	3		3	32	3	32	3	6	11	11	11	11	6	5	5	5	5	5	262
{ Epilepsy.....	55	2	2	2		2	7	3	17	2	6	3	6	6	1	4	3	0	1	1	1	79
{ Epilepsy.....	56	3	2	2		2	7	3	17	2	6	3	6	6	1	4	3	0	1	1	1	79
{ Non-Febrile Epilepsy.....	57	3	2	2		2	7	3	17	2	6	3	6	6	1	4	3	0	1	1	1	79
{ Non-Febrile Epilepsy.....	58	3	2	2		2	7	3	17	2	6	3	6	6	1	4	3	0	1	1	1	79
{ Convulsions of Infants.....	59	6	10	19		13	76	5	136	3	16	31	12	13	4	22	1	1	5	13	4	462
{ Convulsions of Infants.....	60	40	40	92		41	193	11	1	1	19	12	12	13	4	32	1	1	1	1	3	617
{ Convulsions of Infants.....	61	5	5	11		5	22	1	1	1	6	3	3	3	1	3	1	1	1	1	1	7
{ Convulsions of Infants.....	62	5	5	11		5	22	1	1	1	6	3	3	3	1	3	1	1	1	1	1	7
{ Convulsions of Infants.....	63	5	5	11		5	22	1	1	1	6	3	3	3	1	3	1	1	1	1	1	7
{ Convulsions of Infants.....	64	5	5	11		5	22	1	1	1	6	3	3	3	1	3	1	1	1	1	1	7
Other Diseases of the																						
{ Hysteria.....	A	6	3	2		7	1	5	22	1	27	6	6	3	1	6						121
{ Others.....	B	6	3	2		7	1	5	22	1	27	6	6	3	1	6						121
Diseases of the Eyes.....	C	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13
{ Cataract.....	65	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13
{ Other.....	66	1	1	1		1	1	1	1	1												

TABLE 2.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR ENDING DECEMBER 31, 1908.—(Continued).

	Atlantic	Bergen	Burlington	Camden	Cape May	Cumberland	Essex	Gloucester	Hudson	Hunterdon	Merer	Middlesex	Monmouth	Morris	Ocean	Passaic	Salem	Somerset	Sussex	Union	Warren	Total
Heart-disease	96																					33
Other Diseases of the Circulatory System	46																					24
Diseases of the Nasal Passage	67																					04
Diseases of the Larynx and Thyroid Body	68																					04
Cerebro-meningitis	46																					10
Chorea	16																					133
Chronic Rheumatism	71																					8
Broncho-Pneumonia	72																					899
Pneumonia	73																					2,133
Concussion and Apoplexy of Lungs	74																					42
Empyema	33																					2,133
Consumption	74																					42
Whooping Cough	13																					126
Adenoids	70																					102
Pulmonary Empyema	A																					10
Other Diseases of the Respiratory Syst.	77																					246
Other Diseases of the Nose and Adnexa	74																					10
Diseases of the Pharynx	75																					21
Diseases of the Esophagus	70																					86
Ulcer of Stomach	80																					6
Other Diseases of Stomach (Cancer Excepted)	81																					429
Other Diseases of the Small Intestine	84																					2,475
Duodenitis and Enteritis	85																					920
Dysentery	85																					125
Intestinal Parasites	94																					56
Ileitis and Intestinal Obstructions	86																					55
Disease of Anus Fecul Fistulas	B																					2
Acute Yellow Atrophy of the Liver	89																					6
Hepatic Tumor of the Liver	89																					6
Hepatitis of all kinds	90																					10
Other Diseases of the Liver	92																					11
Other Diseases of the Gall-bladder	92																					11
Inflammatory Peritonitis (Non-Puerperal)	93																					166
Other Diseases of the Peritoneum	94																					32
Other Diseases of the Digestive System (Cancer Excepted)	96																					920
Appendicitis	96																					56
Acute Nephritis	98																					2
Bright's Disease	98																					10
Chronic Nephritis	97																					193
Renal Calculi	98																					151
Other Diseases of the Kidneys and Adnexa	100																					1,609
Other Diseases of the Bladder	101																					2
Stricture of the Urethra	102																					2
Other Diseases of the Urinary System	103																					10
Other Diseases of the Genitalia	104																					10
Other Diseases of the Male Genital Organs	105																					10
Abscess of the Pelvis	107																					20
Purpurine Hematocele	107																					3
Metric	109																					6
Metritis	109																					2
Uterine Tumors (Non-Cancerous)	111																					18
Uterine Tumors (Non-Cancerous)	112																					21
Other Diseases of the Uterus	113																					10
Ovarian Cysts and other Ovarian Tumors	113																					10
Other Diseases of the Female Genitalia	114																					24
Accidents of Pregnancy	115																					10
Non-Puerperal Diseases of Breast (Cancer ex.)	115																					3
Puerperal Hemorrhage	117																					99
Other Accidents of Labor	117																					6
Puerperal Phlebitis	118																					2
Puerperal Pyelitis	118																					3
Puerperal Phlegmon	119																					47
Puerperal Metropurpitis	120																					6
Puerperal Phlegmon and Eclampsia	121																					3
Puerperal Albuminuria and Eclampsia	121																					3
Puerperal Albuminuria and Eclampsia	122																					3
Puerperal Hemorrhage and Eclampsia	124																					3
Puerperal Diseases of the Breast	125																					2
Erysipelas	125																					3
Gonorrhoea	129																					32
Gonorrhoea of the Eye	129																					33
Phlegmon, Ac. Abscess	129																					29
Soft Chancere	A																					1
Other Diseases of the Genitalia (Soft Chancere excepted)	129																					1
Other Diseases of the Skin and Adnexa	B																					1
Tinea Favosa	C																					1
Other Diseases of the Skin and Adnexa (Soft Chancere excepted)	D																					1
Other Diseases of the Skin and Adnexa (Soft Chancere excepted)	E																					1
Other Diseases of the Skin and Adnexa (Soft Chancere excepted)	F																					1
Other Diseases of the Skin and Adnexa (Soft Chancere excepted)	G																					1
Other Diseases of the Skin and Adnexa (Soft Chancere excepted)	H																					1
Other Diseases of the Skin and Adnexa (Soft Chancere excepted)	I																					1
Pott's Disease	130																					63
Cold Abscess	131																					9
Other Diseases of Bones	132																					43
White Swellings	133																					43
Other Diseases of the Joints	134																					1

TABLE 2.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR ENDING DECEMBER













TABLE 5.—SHOWING NUMBER OF DEATHS FROM BRIGHT'S DISEASE IN NEW JERSEY, IN COUNTIES, EXCLUSIVE OF CITIES, AND IN CITIES OF OVER 5,000 INHABITANTS, FOR NINE YEARS.

NAMES OF COUNTIES AND CITIES	DEATHS FROM BRIGHT'S DISEASE.								
	1900	1901	1902	1903	1904	1905	1906	1907	1908
Atlantic County.....	17	13	14	15	21	25	21	26	25
Atlantic City.....	28	36	32	34	38	60	66	66	51
Bergen County.....	27	25	22	31	47	36	61	49	50
Englewood.....	5	2	5	7	5	7	5	7	11
Garfield.....									4
Hackensack.....	11	8	3	8	8	16	12	9	8
Burlington County.....	25	40	28	39	47	46	46	44	75
Borlontown.....					5	3	11	14	2
Burlington.....	10	9	10	12	10	13	10	14	2
Camden County.....	13	12	17	29	20	27	25	31	10
Camden.....	99	64	87	84	106	113	113	131	38
Gloucester City.....			5	11	6	6	7	7	14
Cape May County.....	8	2	7	7	10	12	12	18	15
Cumberland County.....	13	15	16	22	27	19	22	21	15
Bridgeton.....	16	11	22	24	24	13	15	19	24
Millville.....	6	7	5	3	8	12	8	9	12
Essex County.....	48	17	15	19	23	21	26	26	28
Bloomfield.....		5	6	1	5	7	9	11	23
East Orange.....	14	11	20	20	20	15	13	11	10
Irvington.....		1	4	8	6	2	11	7	24
Montclair.....	10	11	5	9	12	11	19	14	6
Newark.....	280	249	253	308	287	279	359	403	12
West Orange.....	35	19	20	38	20	18	34	36	32
West Orange.....			2	7	5	7	7	7	30
Gloucester County.....	20	17	12	32	23	25	38	32	4
Hudson County.....	69	39	13	22	29	36	27	49	53
Bayonne.....	28	16	21	25	23	29	31	38	36
Harrison.....	5	3	2	7	9	9	13	12	39
Hoboken.....	55	41	57	78	80	75	112	111	12
Jersey City.....	188	140	158	179	194	236	279	293	67
Kearny.....				7	10	6	10	8	266
Town of Union.....	11	14	12	19	15	14	16	24	15
West Hoboken.....			21	14	12	8	28	27	20
West New York.....			4	9	5	8	8	8	40
Hunterdon County.....	17	17	12	22	26	28	43	42	5
Lambertville.....								3	31
Mercer County.....	15	6	13	9	9	8	24	18	1
Princeton.....								8	15
Trenton.....	73	3	54	60	71	74	87	103	4
Middlesex County.....	20	22	18	20	18	25	25	41	88
New Brunswick.....	23	18	19	26	19	28	13	23	32
Perth Amboy.....	18	9	11	9	5	7	23	22	19
South Amboy.....	18	2	5	3	4	1	7	4	20
Monmouth County.....	48	42	50	55	57	48	62	56	8
Asbury Park.....								11	59
Louise Branch.....	11	13	10	13	8	13	23	23	17
Red Bank.....			2	4	3	4	4	8	19
Morris County.....	34	30	26	44	35	36	38	47	7
Dover.....	3	4	4	6	7	9	4	13	42
Morristown.....	14	8	12	8	13	10	10	13	6
Ocean County.....	17	11	12	14	13	16	16	23	14
Passaic County.....	17	7	6	11	9	17	14	24	12
Passaic City.....	10	11	15	12	21	20	31	33	20
Paterason.....	94	44	60	75	70	84	125	168	45
Salem County.....	7	14	11	16	14	9	13	16	183
Salem City.....			4	5	7	9	5	7	15
Somerset County.....	31	17	22	17	17	19	26	21	7
North Plainfield.....		3		4	2	4	3	12	2
Sussex County.....	10	6	8	13	9	12	14	16	20
Union County.....	10	10	9	15	11	17	17	16	17
Elizabeth.....	50	48	28	45	50	51	73	67	59
Plainfield.....	11	14	15	9	15	13	22	29	20
Rahway.....	14	9	14	12	9	6	7	12	9
Summit.....		1	4	7	5		2	3	5
Westfield.....								4	4
Warren County.....	13	14	16	17	24	21	19	37	17
Phillipsburg.....	6	5	4	4	8	5	14	13	8
Total.....	1,620	1,246	1,371	1,686	1,722	1,840	2,238	2,518	2,200



TABLE 6—SHOWING AGES AT DEATH AND OCCUPATIONS OF DECEDENTS IN DECEMBER

	Housekeepers and housewives.	Women.	Janitors and waitresses.	Jewelers and watchmakers.	Laborers.	Landresses.	Laundresses.	Lawyers.	Leatherworkers.	Letter-carriers.	Janemen.	Locksmiths.	Mechanics.	Masters and superintendents.	Manufacturers.	Minors.	Merchants.	Millmen.	Millers.		
Consumption.	10 to 15. 30					17	122														
15 to 20. 245						131	121														
20 to 30. 302						121	121														
30 to 40. 134						89	89														
40 to 50. 42						60	60														
50 to 60. 92						46	46														
60 to 70. 27						25	25														
70 to 80. 3																					
80 to 90. 3																					
Over 90. 3																					
Totals. 879	1	15	15	442	6	3	224	4	3	1	10	16	1	5	3	24	22	1			
Cancer.	10 to 15. 9					1															
15 to 20. 55						1															
20 to 30. 122						1															
30 to 40. 139						1															
40 to 50. 142						1															
50 to 60. 50						1															
60 to 70. 10						1															
70 to 80. 2						1															
80 to 90. 2						1															
Over 90. 2						1															
Totals. 539		9	5	73		1	1	1	1	1	14	3	9	13	18						
Suicide.	10 to 15. 5					2															
15 to 20. 11						11															
20 to 30. 11						14															
30 to 40. 13						1															
40 to 50. 6						4															
50 to 60. 4						1															
60 to 70. 3						1															
70 to 80. 3						1															
80 to 90. 1						1															
Over 90. 1						1															
Totals. 54	1	7	6	57		1	2	2			12	3	8	5	1						
Diseases of the nervous system and of the organs of sense.	10 to 15. 4					2															
15 to 20. 15						13															
20 to 30. 162						36															
30 to 40. 104						34															
40 to 50. 157						42															
50 to 60. 225						68															
60 to 70. 198						49															
70 to 80. 71						10															
80 to 90. 10						1															
Over 90. 4						1															
Totals. 840		17	8	231	4	1	4	8	2		19	9	16	17	33						
Diseases of the circulatory system.	10 to 15. 13					4															
15 to 20. 53						18															
20 to 30. 95						33															
30 to 40. 139						53															
40 to 50. 160						75															
50 to 60. 139						59															
60 to 70. 194						75															
70 to 80. 173						40															
80 to 90. 61						15															
Over 90. 3						1															
Totals. 851	3	21	7	298	7	5	17	11	3		27	19	14	22	48						

NEW JERSEY FROM CERTAIN SELECTED DISEASES FOR THE YEAR ENDING 31, 1908—(Continued).

Miners.	Musicians.	Nurses.	Paintors.	Paperhangers.	Photographers.	Physicians.	Plumbers.	Porters.	Potters.	Printers.	Railroad employes.	Real estate and insurance.	Rubberworkers.	Sailors.	Saltmen.	Shoemakers.	Silkworkers and silkwormers.	Stonecutters.	Tailors.	Teachers.	Telegraphers.	Tinsmiths.	Undertakers.	Upholsters.	Waiters.	Weavers.	Whewrights.	Wireworkers.	All other occupations.	All other trades.	
4	7	480				2	31	7	23	21	46	10	5	3	24	17	23	8	10	2	7	3	11	1	3	14	18	4	95	9	
1	2	5	10			3	4	2	1	1	8	9	1	11	8		3	4	5	1	8	1	1	1	1	5	4	1	18	2	
2	2	6	1			1	1	1	3	3	3	3					3	1	2	1					3	1			23	1	
1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	3	27				1	7	7	1	6	11	21	14	2	4	22	23	9	3	13	1	6	3	1	3	7	3	4	1	65	6
1	5	6	35			13	11	4	2	8	21	12	1	4	22	13	13	4	13	8	1	10	2	2	5	10	1	3	67	6	







TABLE 8.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN ATLANTIC CITY	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
	A	B	C	D	E	F	G	H	I	J	K	
Typhoid Fever.	1											
Scarlet Fever.	6											
Whooping Cough.	2	1										
Diphtheria and Croup.	2	1										
Influenza.	8	2	1									
Pyæmia and Septicæmia.	3											
Rabies.	17	1										
Tuberculosis.	22	1	1	2	2	5	5	3	3	6	1	
Of the Lungs.	A	1	1	2	2	5	5	3	3	6	1	
Of the Meninges.	B											
Of the Peritoneum.	C											
Of Other Organs.	D											
General.	E											
Syphilis.	24	1										
Of the Mouth.	A											
Of the Stomach and Liver.	B											
Of the Intestines and Rectum.	C											
Of the Female Genital Organs.	D											
Of the Breast.	E											
Of the Skin.	F											
Others.	G											
Cancer.	25											
Diabetes.	A											
Addison's Disease.	B											
Leukæmia.	C											
Anæmia Chlorosis.	D											
Other General Diseases.	E											
Alcoholism (Acute or Chronic).	F											
Encephalitis.	G											
Simple Meningitis.	H											
Cerebral Hemorrhage and Congestion.	I											
Softening of the Brain.	J											
General Paralysis.	K											
Other Forms of Insanity.	L											
Convulsions of Infants.	M											
Other Diseases of the Nervous System.	N											
Diseases of the Ears.	O											
Pericarditis.	P											
Endocarditis.	Q											
Organic Diseases of the Heart.	R											
Angina Pectoris.	S											
Diseases of Arteries, Atheroma, Aneurism, etc.	T											
Embolism.	U											
Phlebitis and Other Diseases of the Veins.	V											
Diseases of the Larynx and Thyroid Body.	W											
Acute Bronchitis.	X											
Chronic Bronchitis.	Y											
Broncho-Pneumonia.	Z											
Pneumonia.	AA											
Pleurisy.	AB											
Congestion and Apoplexy of Lungs.	AC											
Asthma.	AD											
Other Diseases of the Respiratory System.	AE											
User of Stomach.	AF											
Other Diseases of Stomach (Cancer excepted).	AG											
Infantile Diarrhoea, Athrepsia.	AH											
Diarrhoea and Enteritis.	AI											
Dysentery.	AJ											
Hernia and Intestinal Obstructions.	AK											
Other Diseases of the Intestines.	AL											
Cirrhosis of the Liver.	AM											

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908.

AGE PERIODS.	SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.							
			United States.										Married.	Single.	Widowed.	Not stated.				
			Foreign-born.	White.	Colored.	Other.	Not stated.	Foreign-born.	White.	Colored.	Other.	Not stated.								
Fifty-five to sixty.			Male.	Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
Sixty to seventy.			6	2	3	4	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Seventy to eighty.			2			2	1	1	1	1	1	1	1	1	1	1	2	2	2	1
Eighty to ninety.			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Over ninety.			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Not stated.			20	22	19	37	1	1	1	1	1	1	1	1	1	1	25	14	3	
Male.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Female.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Color of decedent white unless designated by mark.			20	22	19	37	1	1	1	1	1	1	1	1	1	1	25	14	3	
United States.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
England.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
France.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Germany.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Ireland.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Italy.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Scotland.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Hungary.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Sweden.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Other foreign.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Not stated.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Married.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Single.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Widowed.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1
Not stated.			3	1	1	3	1	1	1	1	1	1	1	1	1	1	4	4	4	1





TABLE 9.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1903.

DEATHS IN BAYONNE	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
	A	B	C	D	E	F	G	H	I	J	K	
Typhoid Fever.....	1											
Measles.....	1											
Scarlet Fever.....	1											
Whooping Cough.....	7											
Diphtheria and Croup.....	7											
Influenza.....	8											
Tuberculosis. { Of the Lungs.....	22											
{ Of the Meninges.....												
{ Of the Peritoneum.....												
{ Of Other Organs.....												
{ General.....												
Cancer. { Of the Stomach and Liver.....	23											
{ Of the Intestines and Rectum.....												
{ Of the Female Genital Organs.....												
{ Of the Skin.....												
{ Others.....												
Rheumatism.....	26											
Diabetes.....	28											
Other General Diseases.....	33											
Alcoholism (Acute or Chronic).....	34											
Simple Meningitis.....	39											
Cerebral Hemorrhage and Congestion.....	42											
Other Forms of Insanity.....	46											
Epilepsy.....	47											
Convulsions of Infants.....	47											
Other Diseases of the Nervous System.....	49											
Diseases of the Eyes.....	52											
Endocarditis.....	53											
Organic Diseases of the Heart.....	56											
Angina Pectoris.....	57											
Diseases of Arteries, Atheronia, Aneurism, etc.....	58											
Embolism.....	59											
Hemorrhage.....	60											
Acute Bronchitis.....	65											
Chronic Bronchitis.....	69											
Broncho-Pneumonia.....	70											
Pneumonia.....	72											
Pleurisy.....	71											
Congestion and Apoplexy of Lungs.....	73											
Other Diseases of the Respiratory System.....	77											
Diseases of Stomach (Cancer excepted).....	81											
Infantile Diarrhoea, Athrepsia.....	82											
Diarrhoea and Enteritis.....	83											
Dysentery.....	84											
Hernia and Intestinal Obstructions.....	86											
Cirrhosis of the Liver.....	87											
Other Diseases of the Liver.....	92											
Inflammatory Peritonitis (Non-Puerperal).....	93											
Appendicitis.....	96											
Acute Nephritis.....	97											
Bright's Disease.....	100											
Other Diseases of the Kidneys and Adnexa.....	102											
Diseases of the Bladder.....	114											
Other Diseases of the Female Genital Organs.....	116											
Accidents of Pregnancy.....	119											
Puerperal Septicæmia.....	121											
Puerperal Albuminuria and Eclampsia.....												

AGE PERIODS.	SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.						
			United States.										Married.	Single.	Widowed.	Not stated.			
			England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.							
Fifty-five to sixty.	Male.	Female.	White.	Color of descent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
Sixty to seventy.	1	3	1		3											3	1	4	3
Seventy to eighty.	1	1	1		2											1	1	14	1
Eighty to ninety.	1	3	3		4											4	2	3	3
Over ninety.	1	10	10		6											2	1	1	1
Not stated.	1	1	1		1											1	1	1	1
Male.	1	1	1		1											2	1	1	1
Female.	1	2	2		1											1	1	1	1
White.	1	1	1		1											1	1	1	1
Color of descent white unless designated by mark.	1	1	1		1											1	1	1	1
United States.	1	1	1		1											1	1	1	1
England.	1	1	1		1											1	1	1	1
France.	1	1	1		1											1	1	1	1
Germany.	1	1	1		1											1	1	1	1
Ireland.	1	1	1		1											1	1	1	1
Italy.	1	1	1		1											1	1	1	1
Scotland.	1	1	1		1											1	1	1	1
Hungary.	1	1	1		1											1	1	1	1
Sweden.	1	1	1		1											1	1	1	1
Other foreign.	1	1	1		1											1	1	1	1
Not stated.	1	1	1		1											1	1	1	1
Married.	1	1	1		1											1	1	1	1
Single.	1	1	1		1											1	1	1	1
Widowed.	1	1	1		1											1	1	1	1
Not stated.	1	1	1		1											1	1	1	1



TABLE 10.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908.

DEATHS IN BLOOMFIELD.

	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
	Scarlet Fever.	6											
Diphtheria and Croup.	8												
Tuberculosis. {													
Of the Lungs.	22	A											
Of the Peritoneum.		B											
Of the Stomach and Liver.		C											
Of the Intestines and Rectum.		D											
Cancer. {	25	E											
Of the Female Genital Organs.		F											
Of the Breast.		G											
Others.													
Rheumatism.	26												
Diabetes.	28												
Simple Meningitis.	39												
Cerebral Hemorrhage and Congestion.	42												
Other Forms of Insanity.	46												
Convulsions of Infants.	49												
Diseases of the Ears.	54												
Endocarditis.	56	1											
Organic Diseases of the Heart.	57												
Angina Pectoris.	58												
Diseases of Arteries, Atheroma, Aneurism, etc.	59												
Acute Bronchitis.	69	1											
Chronic Bronchitis.	70												
Pneumonia.	71	3											
Other Diseases of the Respiratory System.	77	1											
Other Diseases of Stomach (Cancer excepted).	81	2											
Infantile Diarrhoea, Athrepsia.	82	4											
Diarrhoea and Enteritis.	83	1											
Hernia and Intestinal Obstructions.	86	1											
Other Diseases of the Intestines.	87	1											
Cirrhosis of the Liver.	90												
Other Diseases of the Liver.	92												
Inflammatory Peritonitis (Non-Puerperal).	93												
Acute Nephritis.	96												
Bright's Disease.	97												
Diseases of the Bladder.	102												
Uterine Hemorrhage (Non-Puerperal).	110												
Erysipelas.	125	1											
Malformations.	137	1											
Congenital Debility Icterus and Sclerema.	138	14											
Infantile Inanition, Want of Care.	139	1											
Senile Debility.	141												
Burns by Fire.	146	A											
Accidental Drowning.	148												

Total deaths, 158. Death-rate, 12.28.

AGE PERIODS.	SEX.	COLOR.	NATIVITY.												SOCIAL CONDITION.								
			Color of decedent white unless designated by mark.												Social Condition.								
Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.	
1	1					10	3		4											11	4		4
1	1					1	5		2											1	4		
1	1					3	1		4											3	1	2	
1	1					1	1		3			1	1							1	2	1	
1	1					1	1		3											1	1		
1	1					1	2		2											1	1	1	
1	1					1	1		1											1	1	1	
1	1					2	2		2											2	1	3	
1	1					1	1		1											1	1	1	
1	1					1	2		3											4	3	3	
1	1					1	1		3											3	5	3	
1	1					1	1		3											5	1	1	
1	1					1	1		4											8	2		
1	1					1	1		4											3	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	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	
1	1					1	1		1											1	1	1	







TABLE 14.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,  
THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR  
DECEMBER 31, 1908.

DEATHS IN CAMDEN.	AGE PERIODS.										
	Under one month.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Fifty to fifty-five.
	Under one month.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Fifty to fifty-five.
Typhoid Fever.....	1										
Measles.....	5										
Saslet Fever.....	6										
Whooping Cough.....	7										
Diphtheria and Croup.....	7										
Influenza.....	9										
Mumps.....	13										
Pyæmia and Septicæmia.....	14										
Rabies.....	17										
Tuberculosis.....											
Of the Lungs.....	22										
Of the Meninges.....											
Of the Peritoneum.....											
Of Other Organs.....											
Cancer.....											
Of the Mouth.....											
Of the Stomach and Liver.....											
Of the Intestines and Rectum.....											
Of the Female Genital Organs.....											
Of the Breast.....											
Of the Skin.....											
Others.....											
Rheumatism.....	26										
Diabetes.....	28										
Addison's Disease.....	30										
Leukæmia.....	31										
Anæmia Chlorosis.....	32										
Alcoholism (Acute or Chronic).....	34										
Simple Meningitis.....	39										
Progressive Locomotor Ataxia.....	42										
Cerebral Hemorrhage and Congestion.....	42										
Softening of the Brain.....	43										
Paralysis Without Indicated Cause.....	44										
General Paralysis.....	45										
Other Forms of Insanity.....	46										
Convulsions of Infants.....	49										
Tetanus.....	50										
Chorea.....	51										
Other Diseases of the Nervous System.....	52										
Pericarditis.....	54										
Endocarditis.....	54										
Organic Diseases of the Heart.....	57										
Angina Pectoris.....	58										
Diseases of Arteries, Atheroma, Aneurism, etc.....	59										
Varices, Varicose Ulcers, Hemorrhoids.....	61										
Other Diseases of the Circulatory System.....	66										
Acute Bronchitis.....	66										
Chronic Bronchitis.....	70										
Broncho-Pneumonia.....	71										
Pneumonia.....	71										
Pleurisy.....	73										
Congestion and Apoplexy of Lungs.....	74										
Asthma.....	76										
Other Diseases of the Respiratory System.....	77										
Diseases of the Mouth and Adnexa.....	78										
Diseases of the Pharynx.....	79										
Ulcer of Stomach.....	80										
Other Diseases of Stomach (Cancer excepted).....	81										
Infantile Diarrhoea, Atresia.....	82										

AGE PERIODS.	SEX.	COLOR.	NATIVITY.														SOCIAL CONDITION.			
			Color of decedent white unless designated by mark.														Married.	Single.	Widowed.	Not stated.
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.							
Fifty-five to sixty.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Sixty to seventy.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Seventy to eighty.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Eighty to ninety.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Over ninety.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Not stated.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Color of decedent white unless designated by mark.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
United States.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
England.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
France.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Germany.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Ireland.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Italy.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Scotland.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Hungary.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Sweden.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Other foreign.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Not stated.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Married.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Single.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Widowed.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Not stated.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			

TABLE 14.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,  
THE YEAR ENDING

DEATHS IN CAMDEN.	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Diarrhoea and Enteritis.....	83			1	1				1	1	1		
Dysentery.....	84								1	1	1		
Hernia and Intestinal Obstructions.....	86								1	1	1		
Other Diseases of the Intestines.....	87 A								1	1	1		
Cirrhosis of the Liver.....	90								1	1	1		
Other Diseases of the Liver.....	92								1	1	1		
Inflammatory Peritonitis (Non-Puerperal).....	93		2	1	1	1	1	1	1	1	1	3	1
Other Diseases of Digestive System (Cancer and Tuberculosis excepted).....	94								1	1	1	1	1
Appendicitis.....	95				1	4	2	2	3	2	2	1	
Acute Nephritis.....	96		1	1	1								
Bright's Disease.....	97		1	4	1		2	5	4	3	6	8	3
Diseases of the Bladder.....	102												
Diseases of the Prostate.....	104												1
Diseases of the Testicle and its Envelopes, Orchitis.....	103												
Other Diseases of the Uterus.....	112												1
Ovarian Cysts and Other Ovarian Tumors.....	113												
Other Diseases of the Female Genital Organs.....	114 C												
Accidents of Pregnancy.....	116												
Other Accidents of Labor.....	118												
Puerperal Septicemia.....	119 A					2	1	1	1	1	1	1	
Puerperal Albuminuria and Eclampsia.....	121												
Other Accidents of Pregnancy, Sudden Death.....	122												
Erysipelas.....	126	1											3
Gangrene.....	127												
Anthrax Carbuncle.....	129 F		1										
Other Diseases of the Skin and Adnexa.....	132												
Other Diseases of Bones.....	137												
Malformations.....	138	2	3	2									
Congenital Debility Icterus and Sclerema.....	139	18	15	2	1								
Infantile Inanition, Want of Care.....	140												
Other Diseases Peculiar to Infancy.....	141												
Senile Debility.....	142					2	1						
Suicide or Attempt at Suicide.....	A B C D E	142											
Fractures.....	143												
Other Accidental Injuries.....	145		1	4	2	1	6	4	2	3	2	2	7
Burns by Fire.....	146 A		1	3	1	2	1	1	1	1	1	1	
Sunstroke and Freezing.....	147		1	1	1	2	6	1	3	1	2	1	
Accidental Drowning.....	148												
Other Accidental Poisoning.....	151												
Other External Violence.....	152	1											
Dropsy.....	155												
Adominal Tumor.....	159												
Other Tumors.....	160	1											
Unknown or Not Specified Diseases.....	161	1	4	1	3	2	2						
Cerebro-spinal Meningitis.....													

Total deaths, 1,471. Death-rate, 16.75.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR  
DECEMBER 31, 1908.—(Continued.)

AGE PERIODS.	SEX.	COLOR.	NATIVITY.														SOCIAL CONDITION.				
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.				
Fifty-five to sixty.	5	5	1															5	4	8	
Sixty to seventy.	1	4	1															1	5	2	2
Seventy to eighty.	1	2	2															8	8	4	4
Eighty to ninety.	1	2	1	2														4	4	4	4
Over ninety.																		8	6	7	1
Not stated.																		1	1	1	1
Male.																		5	12	7	1
Female.																		1	1	1	1
Color of decedent white unless designated by mark.																		4	13	1	1
United States.																		13	1	1	1
England.																		1	1	1	1
France.																		1	1	1	1
Germany.																		2	2	2	2
Ireland.																		1	1	1	1
Italy.																		1	1	1	1
Scotland.																		1	1	1	1
Hungary.																		1	1	1	1
Sweden.																		1	1	1	1
Other foreign.																		1	1	1	1
Not stated.																		1	1	1	1
Married.																		5	4	8	1
Single.																		1	5	2	2
Widowed.																		1	1	1	1
Not stated.																		1	1	1	1











TABLE 18.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN ENGLEWOOD.	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Typhoid Fever.....	1												
Scurvy.....	3												
Scarlet Fever.....	6	1	1										
Influenza.....	9												
Tuberculosis. { Of the Lungs.....	22	1	1			1	1	2	1	2	1		
{ Of the Meninges.....													
{ Of Other Organs.....													
Syphilis.....	24	1											
Cancer. { Of the Stomach and Liver.....	25								1				
{ Of the Intestines and Rectum.....													
{ Of the Female Genital Organs.....													
{ Others.....													
{ Others.....													
Rheumatism.....	28												
Leukemia.....	31												
Simple Meningitis.....	39	1											
Cerebral Hemorrhage and Congestion.....	42												
Paralysis Without Indicated Cause.....	44												
General Paralysis.....	45												
Other Diseases of the Nervous System.....	52	C		1									
Endocarditis.....	56												
Organic Diseases of the Heart.....	57												
Acute Bronchitis.....	59												
Broncho-Pneumonia.....	71		2										
Pneumonia.....	72		2										
Diseases of the Pharynx.....	79	A											
Ulcer of the Stomach.....	80												
Other Diseases of the Stomach ((Cancer excepted).....	81												
Infantile Diarrhoea, Athrepsia.....	82		5	1									
Diarrhoea and Enteritis.....	83												
Hernia and Intestinal Obstructions.....	86												
Other Diseases of the Intestines.....	87	A											
Cirrhosis of the Liver.....	90												
Other Diseases of the Liver.....	92												
Inflammatory Peritonitis (Non-Puerperal).....	93												
Appendicitis.....	95												
Acute Nephritis.....	96												
Bright's Disease.....	97												
Diseases of the Bladder.....	102	C											
Other Diseases of the Female Genital Organs.....	114	C											
Accidents of Pregnancy.....	116	A											
Puerperal Septicemia.....	119	A											
Other Diseases of the Skin and Adnexa.....	129	F											
Congenital Debility Icterus and Sclerema.....	138	F	5										
Infantile Inanition, Want of Care.....	139	F	1										
Senile Debility.....	141												
Suicide or Attempt (By Strangulation.....	142	C											
{ at Suicide.....													
{ By Firearms.....													
Other Accidental Injuries.....	146	A		2									
Burns by Fire.....	148												
Accidental Drowning.....	148												
Cerebro-spinal Meningitis.....	161		1										

Total deaths, 126. Death-rate, 14.12.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908.

AGE PERIODS.	SEX.	COLOR.	NATIVITY.	SOCIAL CONDITION.			
				Married.	Single.	Widowed.	Not stated.
Fifty-five to sixty.							
Sixty to seventy.							
Seventy to eighty.							
Eighty to ninety.							
Over ninety.							
Not stated.							
Male.							
Female.							
Color of decedent white unless designated by mark.							
United States.							
England.							
France.							
Germany.							
Ireland.							
Italy.							
Scotland.							
Hungary.							
Sweden.							
Other foreign.							
Not stated.							
Married.							
Single.							
Widowed.							
Not stated.							



















TABLE 25.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN JERSEY CITY.	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Pulmonary Emphysema.....													
Other Diseases of the Respiratory System } .. 77	A												
Diseases of the Mouth and Adnexa.....	78												
Diseases of the Pharynx.....	79	A											
Diseases of the Stomach.....	80												
Other Diseases of Stomach (Cancer excepted).....	81												
Infantile Diarrhoea, Atrespia	82												
Diarrhoea and Enteritis.....	83												
Dysentery.....	84												
Ferns and Intestinal Obstructions.....	86												
Other Diseases of the Intestines.....	87	A											
Cirrhosis of the Liver.....	90												
Other Diseases of the Liver.....	92												
Inflammatory Peritonitis (Non-Puerperal).....	93												
Appendicitis.....	96												
Acute Nephritis.....	97												
Bright's Disease.....	100												
Other Diseases of the Kidneys and Adnexa.....	101												
Diseases of the Bladder.....	102												
Diseases of the Prostate.....	103												
Metritis.....	109												
Uterine Hemorrhage (Non-Puerperal).....	110												
Uterine Tumors (Non-Cancerous).....	111												
Other Diseases of the Uterus.....	112												
Ovarian Cysts and Other Ovarian Tumors.....	114	C											
Other Diseases of the Female Genital Organs.....	116												
Accidents of Pregnancy.....	118												
Other Accidents of Labor.....	119	A											
Puerperal Septicæmia.....	121	A											
Puerperal Albuminuria and Eclampsia.....	125												
Erysipelas.....	126												
Gonorrhœa.....	127												
Anthrax Carbuncle.....	128												
Phlegmon, Acute Abscesses.....	129	F											
Other Diseases of the Skin and Adnexa.....	132												
Other Diseases of the Bones.....	137												
Malformations.....	138												
Congenital Debility Icterus and Sclerema.....	139												
Infantile Inanition, Want of Care.....	141												
Senile Debility.....	142												
By Poison.....	A												
By Asphyxia.....	B												
By Strangulation.....	C												
By Firearms.....	D												
By Cutting Instruments.....	E												
By Drowning.....	F												
By Crushing.....	H												
Other Accidental Injuries.....	145												
Burns by Fire.....	147												
Sunstroke and Freezing.....	148												
Accidental Drowning.....	149	B											
Inanition of Adults.....	150												
Inhalation of Noxious Gases (Suicide excepted).....	151												
Other Accidental Poisoning.....	152												
Other External Violence.....	155												
Dropsy.....	156												
Abdominal Tumor.....	160												
Unknown or Not Specified Diseases.....	161												
Cerebro-spinal Meningitis.....	161												

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1905.—(Continued).

AGE PERIODS.	SEX.	COLOR.	NATIVITY.								SOCIAL CONDITION.															
			Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
																								Color of decedent designated by mark.		

Total deaths, 4,428. Death-rate, 17.82.











TABLE 29.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908.

DEATHS IN MILLVILLE.	AGE PERIODS.							
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.
	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.			
Typhoid Fever.....	1					1		
Measles.....	5	1	5					
Scarlet Fever.....	6	1	1					
Diphtheria and Croup.....	9	1	3					
Influenza.....	2							
Tuberculosis.....	22					1	5	2
( Of the Lungs.....						1	1	1
( Of the Peritoneum.....								
( Of the Stomach and Liver.....								1
( Of the Intestines and Rectum.....								
Cancer.....	25						2	
( Of the Female Genital Organs.....								1
( Of the Breast.....								1
( Others.....								1
Anemia Chlorosis.....	32					1		
Alcoholism (Acute or Chronic).....	34							
Progressive Locomotor Ataxia.....	40							1
Cerebral Hemorrhage and Congestion.....	42							3
Paralysis Without Indicated Cause.....	44							
General Paralysis.....	45							
Other Forms of Insanity.....	46					1		
Epilepsy.....	47							
Convulsions of Infants.....	49	1	1					
Tetanus.....	50					1		
Other Diseases of the Nervous System.....	53							
Endocarditis.....	56							
Organic Diseases of the Heart.....	57			1	1			1
Diseases of Arteries, Atheroma, Aneurism, etc.....	59							1
Diseases of the Larynx and Thyroid Body.....	68							
Chronic Bronchitis.....	70							
Broncho-Pneumonia.....	71	3	1					
Pneumonia.....	72	3	4	1	1		1	1
Congestion and Apoplexy of Lungs.....	74		1	1				
Other Diseases of the Respiratory System.....	77		1					
Ulcer of Stomach.....	80							
Other Diseases of Stomach (Cancer excepted).....	82					1		
Infantile Diarrhoea, Athrepsia.....	82	5	6					
Hernia and Intestinal Obstructions.....	86							
Cirrhosis of the Liver.....	90							1
Other Diseases of the Liver.....	92							
Toxamatory Peritonitis (Non-Puerperal).....	93		1			1		
Acute Nephritis.....	96						1	1
Bright's Disease.....	97					1	1	3
Erysipelas.....	125	1						
Gangrene.....	126							
Anthrax Carbuncle.....	127							1
Congenital Debility Icterus and Sclerema.....	138	9	4	2				
Infantile Inanition, Want of Care.....	139	3	1					
Senile Debility.....	141							
Suicide or Attempt at Suicide, By Firearm.....	142					1		
Other Accidental Injuries.....	145							1
Other Accidental Poisoning.....	151							1
Other External Violence.....	152	1						
Other Tumors.....	159							

AGE PERIODS.	SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.							
			Color of decedent white unless designated by mark.										Married.	Single.	Widowed.	Not stated.				
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.					Not stated.			
Fifty-five to sixty.		Male.	Female.																	
Sixty to seventy.																				
Seventy to eighty.																				
Eighty to ninety.																				
Over ninety.																				
Not stated.																				

Total deaths, 187. Death-rate, 14.77.







TABLE 32.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908—(Continued).

DEATHS IN NEWARK.	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Ulcer of Stomach.	80	11	77	7	1	1	1	3	2	1	1	1	1
Other Diseases of Stomach (Cancer excepted).	81	24	259	61	3	1	1	1	1	1	1	1	1
Infantile Diarrhœa, Athrepsia.	82												
Diarrhœa and Enteritis.	83												
Dysentery.	84												
Hernia and Intestinal Obstructions.	86												
Other Diseases of Intestines.	87												
Cirrhosis of the Liver.	90												
Other Diseases of the Liver.	92												
Inflammatory Peritonitis (Non-Puerperal).	93												
Other Diseases of the Digestive System (Cancer and Tuberculosis excepted).	94												
Appendicitis.	95												
Acute Nephritis.	96												
Bright's Disease.	97												
Diseases of the Kidneys and Adnexa.	100												
Vesical Calculi.	101												
Diseases of the Bladder.	102												
Diseases of (Blenorrhagia, Males.	103												
the Urethra (Others, Strict., Abs., etc.)	104												
Diseases of the Prostate.	105												
Dis's of the Testicle & its Envelopes, Orchitis.	107												
Abscess of the Pelvis.	111												
Uterine Tumors (Non-Cancerous).	112												
Other Diseases of the Uterus.	113												
Ovarian Cysts and Other Ovarian Tumors.	114												
Other Diseases of the Female Genital Organs.	116												
Non-Puerperal Diseases of the Breast (Cancer ex.)	117												
Accidents of Pregnancy.	118												
Puerperal Hemorrhage.	119												
Other Accidents of Labor.	121												
Puerperal Septicæmia.	125												
Puerperal Albuminuria and Eclampsia.	126												
Erysipelas.	127												
Gonorrhœa.	128												
Anthrax Carbuncle.	129												
Phlegmon, Acute Abscess.	130												
Other Diseases of the Skin and Adnexa.	132												
Pott's Disease.	133												
Other Diseases of Bones.	135												
Amputation.	137												
Malformations.	138												
Congenital Debility Icterus and Sclerema.	139												
Infantile Inanition, Want of Care.	141												
Senile Debility.	142												
Suicide or Attempt at Suicide.													
By Poison.	A												
By Asphyxia.	B												
By Strangulation.	C												
By Firearms.	D												
By Cutting Instruments.	E												
By Drowning.	F												
Others.	G												
Other Accidental Injuries.	145												
Burns by Fire.	146												
Sunstroke and Freezing.	147												
Accidental Drowning.	148												
Inanition of Adults.	149												
Inhalation of Noxious Gases (Suicide ex.)	150												
Other Accidental Poisoning.	151												
Other External Violence.	152												
Dropsy.	153												
Other Tumors.	154												
Cerebro-spinal Meningitis.	151												

AGE PERIODS.	SEX.	COLOR.	NATIVITY.											SOCIAL CONDITION.					
			Color of blood and hair, not indicated by mark.											Married.	Single.	Widowed.	Not stated.		
			United States.	Pennland.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.						
Fifty-five to sixty.	1	4	2	10	7	103	1	1	1	1	1	1	1	1	1	1	1	1	1
Sixty to seventy.	2	1	1	37	45	4	103	1	1	1	1	1	1	1	1	1	1	1	1
Seventy to eighty.	1	4	13	190	157	11	346	1	1	1	1	1	1	1	1	1	1	1	1
Eighty to ninety.	1	1	3	24	26	1	51	1	1	1	1	1	1	1	1	1	1	1	1
Over ninety.	1	1	3	20	22	1	45	1	1	1	1	1	1	1	1	1	1	1	1
Not stated.	6	1	1	6	1	1	13	1	1	1	1	1	1	1	1	1	1	1	1
Male.	1	1	1	40	15	17	3	16	1	1	1	1	1	1	1	1	1	1	1
Female.	1	1	1	10	9	10	9	3	3	3	3	3	3	3	3	3	3	3	3
Color of blood and hair, not indicated by mark.	1	1	1	6	10	11	2	4	4	4	4	4	4	4	4	4	4	4	4
United States.	1	1	1	26	10	30	1	1	1	1	1	1	1	1	1	1	1	1	1
Pennland.	2	2	2	4	37	56	1	1	1	1	1	1	1	1	1	1	1	1	1
France.	3	3	3	4	3	9	1	1	1	1	1	1	1	1	1	1	1	1	1
Germany.	4	4	4	12	11	5	1	1	1	1	1	1	1	1	1	1	1	1	1
Ireland.	5	5	5	1	3	4	6	1	1	1	1	1	1	1	1	1	1	1	1
Italy.	6	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Scotland.	7	7	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hungary.	8	8	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sweden.	9	9	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Other foreign.	10	10	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Not stated.	11	11	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Married.	12	12	12	11	14	14	2	2	2	2	2	2	2	2	2	2	2	2	2
Single.	13	13	13	11	11	11	1	1	1	1	1	1	1	1	1	1	1	1	1
Widowed.	14	14	14	11	11	11	1	1	1	1	1	1	1	1	1	1	1	1	1
Not stated.	15	15	15	11	11	11	1	1	1	1	1	1	1	1	1	1	1	1	1

Total deaths, 5,198. Death-rate 17.01.









TABLE 35.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN ORANGE.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Typhoid Fever.....	1						1	1	1			
Measles.....	5	5										
Scarlet Fever.....	6	1										
Whooping Cough.....	3	1										
Diphtheria and Croup.....	3	1										
Pyæmia and Septicæmia.....	14											
Intermittent Fever.....	19											
Of the Lungs.....	A	2	1	6	9	10	15	14	13	3	2	
Of the Meninges.....	B	1	1	1	1	1	1	1	1			
Of the Peritoneum.....	C	1										
Of Other Organs.....	E											
Syphilis.....	24	1										
Of the Mouth.....	A											
Of the Stomach and Liver.....	B					1		1	1			
Of the Intestines and Rectum.....	C							1	1			
Of the Female Genital Organs.....	D											
Of the Breast.....	E											
Others.....	C											
Diabetes.....	22											
Exophthalmic Goitre.....	22											
Leukæmia.....	31											
Anæmia Chlorosis.....	32											
Alcoholism (Acute or Chronic).....	34											
Simple Meningitis.....	39	3										
Progressive Locomotor Ataxia.....	40											
Cerebral Hemorrhage and Congestion.....	42											
Paralysis Without Indicated Cause.....	44	3										
General Paralysis.....	45											
Epilepsy.....	47											
Convulsions of Infants.....	49	1	2									
Tetanus.....	50	1										
Pericarditis.....	55											
Endocarditis.....	56											
Organic Diseases of the Heart.....	57	1	3									
Angina Pectoris.....	58											
Diseases of Arteries, Atheroma, Aneurism, etc.....	59	1	1									
Diseases of the Larynx and Thyroid Body.....	60											
Acute Bronchitis.....	69	1	1									
Chronic Bronchitis.....	70											
Broncho-Pneumonia.....	71	7	5									
Pneumonia.....	72	3	6	12		1	3	2	4	1	4	2
Fleuryisy.....	73											
Congestion and Apoplexy of Lungs.....	74											
Asthma.....	76											
Other Diseases of the Respiratory System.....	77											
Diseases of the Mouth and Adnexa.....	78											
Other Diseases of Stomach (Cancer excepted).....	81	2	7									
Infantile Diarrhoea, Athrepsia.....	82	2	25	8								
Diarrhoea and Enteritis.....	83											
Dysentery.....	84											
Hernia and Intestinal Obstructions.....	86											
Other Diseases of the Intestines.....	87											
Cirrhosis of the Liver.....	90											
Inflammatory Peritonitis (Non-Puerpera).....	93											
Appendicitis.....	95											
Acute Nephritis.....	96											
Bright's Disease.....	97	1										
Diseases of the Bladder.....	102											

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908.

AGE PERIODS.	SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.							
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.			
Fifty-five to sixty.			3	1																
Sixty to seventy.			4	1																
Seventy to eighty.			2	2																
Eighty to ninety.			1	1																
Over ninety.			4	2																
Not stated.			4	2																
Male.			4	2																
Female.			2	2																
Color of decedent white unless designated by mark.			1	1																
United States.			5	5																
England.			2	2																
France.			1	1																
Germany.			2	2																
Ireland.			1	1																
Italy.			1	1																
Scotland.			1	1																
Hungary.			1	1																
Sweden.			1	1																
Other foreign.			1	1																
Not stated.			3	3																
Married.			3	3																
Single.			1	1																
Widowed.			3	3																
Not stated.			5	5																



















TABLE 40.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Other Diseases of the Female Genital Organs. . . . .	114	C						1		1			
Accidents of Pregnancy. . . . .	116												
Puerperal Septicæmia. . . . .	119	A											
Puerperal Albuminuria and Eclampsia. . . . .	121							1					
Gangrene. . . . .	126												1
Phlegmon, Acute Abscess. . . . .	128												
Other Diseases of Bones. . . . .	132			1									
Congenital Debility Icterus and Sclerema. . . . .	138	15	6										
Infantile Inanition, Want of Care. . . . .	139	1	2										
Senile Debility. . . . .	141												
Suicide or ( By Poison. . . . .	142	A											
Attempt at ( By Strangulation. . . . .		C							1				
Suicide. ( By Firearms. . . . .		D							1	1	2	1	
Other Accidental Injuries. . . . .	143	1											
Burns by Fire. . . . .	148	A			1		1						
Accidental Drowning. . . . .	149												
Other Accidental Poisoning. . . . .	151			1	1								
Cerebro-spinal Meningitis. . . . .	161		1	1									

Total deaths, 334. Death-rate, 16.43.

DEATHS IN PLAINFIELD.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908—(Continued).

	AGE PERIODS.						SEX.	COLOR.	NATIVITY.											SOCIAL CONDITION.							
	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.			Male.	Female.	Color of hair not stated or designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.	
1									1												1						
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TABLE 44.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1908.

	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Typhoid Fever.....	1												
Measles.....	5	1	1										
Influenza.....	9												
Tuberculosis. { Of the Lungs.....	22	1	3	1	4	3	2	1	1				
{ Of the Meninges.....													
{ Of Other Organs.....													
{ Of the Intestines and Rectum.....													
Cancer. { Of the Female Genital Organs.....	25												
{ Of the Breast.....													
{ Of the Intestines and Rectum.....													
{ Of the Female Genital Organs.....													
Diabetes.....	28												
Anemia Chlorosis.....	32												
Alcoholism (Acute or Chronic).....	34												
Cerebral Hemorrhage and Congestion.....	42												
Paralysis Without Indicated Cause.....	44												
General Paralysis.....	45												
Other Diseases of the Nervous System.....	52												
Organic Diseases of the Heart.....	57												
Angina Pectoris.....	58												
Acute Bronchitis.....	69	1	2										
Pneumonia.....	72	5	2										
Asthma.....	76			1									
Other Diseases of Stomach (Cancer excepted).....	81	1											
Infantile Diarrhoea. Atrepsia.....	82	7	1										
Diarrhoea and Enteritis.....	83												
Cirrhosis of the Liver.....	90												
Other Diseases of the Liver.....	92												
Acute Nephritis.....	96												
Bright's Disease.....	97												
Phlegmon. Acute Abscess.....	128												
Congenital Deblity Icterus and Sclerema.....	138	3	6	2									
Infantile Inanition. Want of Care.....	139	1											
Senile Deblity.....	141												
Suicide or Attempt { By Poison.....	142	A											
{ By Drowning.....													
Other Accidental Injuries.....	145												
Total deaths, 118.													
Death-rate, 17.30.													

DEATHS IN SALEM CITY.

	AGE PERIODS.						SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.							
	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.			Male.	Female.	Color of Decedent not designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
Typhoid Fever.....							3																			
Measles.....	1						1																			
Influenza.....	1	1	1				8	10	5	15																
Tuberculosis. { Of the Lungs.....	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
{ Of the Meninges.....																										
{ Of Other Organs.....																										
{ Of the Intestines and Rectum.....																										
Cancer. { Of the Female Genital Organs.....	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
{ Of the Breast.....																										
{ Of the Intestines and Rectum.....																										
{ Of the Female Genital Organs.....																										
Diabetes.....							1																			
Anemia Chlorosis.....							1																			
Alcoholism (Acute or Chronic).....							1																			
Cerebral Hemorrhage and Congestion.....							2	1	2	2																
Paralysis Without Indicated Cause.....		1	1	1			1	1	1	1																
General Paralysis.....							1	1	1	1																
Other Diseases of the Nervous System.....							2	2	1	1																
Organic Diseases of the Heart.....							1	1	1	1																
Angina Pectoris.....		1	1	1			7	9	3	14																
Acute Bronchitis.....		1	1	6	3		1	1	3	3																
Pneumonia.....		1	1	1	1		1	1	1	1																
Asthma.....		1	1	1			7	7	3	10																
Other Diseases of Stomach (Cancer excepted).....		1	1	1			1	1	1	1																
Infantile Diarrhoea. Atrepsia.....		1	1	1			1	1	1	1																
Diarrhoea and Enteritis.....		1	1	1			3	5	3	3																
Cirrhosis of the Liver.....		1					1	2	1	1																
Other Diseases of the Liver.....		1					1	1	1	1																
Acute Nephritis.....							1	1	1	1																
Bright's Disease.....							1	1	1	1																
Phlegmon. Acute Abscess.....		1	2	1	1		2	3	3	4																
Congenital Deblity Icterus and Sclerema.....							1	1	1	1																
Infantile Inanition. Want of Care.....							4	7	5	11																
Senile Deblity.....							1	1	1	1																
Suicide or Attempt { By Poison.....	1	1					1	3	3	3																
{ By Drowning.....																										
Other Accidental Injuries.....							1	1	1	1																
Total deaths, 118.							2	2	2	4																

Total deaths, 118. Death-rate, 17.30.



TABLE 45.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,  
THE YEAR ENDING

	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Diphtheria and Croup.....	8	.	.	.	.	.	.	.	.	.	.	.	.
Intermittent Fever.....	19	4	.	.	.	.	.	.	.	.	.	.	.
Tuberculosis.	23	A	.	.	.	.	.	.	.	.	.	.	.
Of the Lungs.....		B	.	.	.	.	.	.	.	.	.	.	.
Of the Meninges.....		F	.	.	.	.	.	.	.	.	.	.	.
General.....	A	.	.	.	.	.	.	.	.	.	.	.	.
Cancer.	25	B	.	.	.	.	.	.	.	.	.	.	.
Of the Mouth.....		A	.	.	.	.	.	.	.	.	.	.	.
Of the Stomach and Liver.....		B	.	.	.	.	.	.	.	.	.	.	.
Of the Intestines and Rectum.....	C	.	.	.	.	.	.	.	.	.	.	.	.
Simple Meningitis.....	39	.	.	.	.	.	.	.	.	.	.	.	.
Cerebral Hemorrhage and Congestion.....	42	.	.	.	.	.	.	.	.	.	.	.	.
General Paralysis.....	45	1	.	.	.	.	.	.	.	.	.	.	.
Convulsions of Infants.....	49	.	.	.	.	.	.	.	.	.	.	.	.
Endocarditis.....	56	1	1	.	.	.	.	.	.	.	.	.	.
Organic Diseases of the Heart.....	57	.	1	1	.	.	.	.	.	.	.	.	.
Acute Bronchitis.....	69	1	1	1	.	.	.	.	.	.	.	.	.
Broncho-Pneumonia.....	71	1	2	1	.	.	.	.	.	.	.	.	.
Pneumonia.....	72	1	3	1	.	.	.	.	.	.	.	.	.
Other Diseases of Stomach (Cancer excepted).....	81	1	3	1	.	.	.	.	.	.	.	.	.
Infantile Diarrhoea, Athrepsia.....	82	10	1	.	.	.	.	.	.	.	.	.	.
Diarrhoea and Enteritis.....	83	1	10	1	.	.	.	.	.	.	.	.	.
Acute Nephritis.....	96	1	.	.	.	.	.	.	.	.	.	.	.
Bright's Disease.....	97	1	1	.	.	.	.	.	.	.	.	.	.
Accidents of Pregnancy.....	118	.	.	.	.	.	.	.	.	.	.	.	.
Congenital Debility Icterus and Sclerema.....	133	.	.	.	.	.	.	.	.	.	.	.	.
Infantile Imbecility, Want of Care.....	139	.	.	.	.	.	.	.	.	.	.	.	.
Senile Debility.....	141	2	1	.	.	.	.	.	.	.	.	.	.
Other Accidental Injuries.....	142	.	.	.	.	.	.	.	.	.	.	.	.
Burns by Fire.....	146	A	1	1	.	.	.	.	.	.	.	.	.
Accidental Drowning.....	148	.	.	.	.	.	.	.	.	.	.	.	.
Cerebro-spinal Meningitis.....	161	1	.	.	.	.	.	.	.	.	.	.	.

Total deaths, 90. Death-rate, 14.51.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR  
DECEMBER 31, 1908.

	AGE PERIODS.						SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.								
	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.			Male.	Female.	Color of decedent with cause of death designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.	
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	1	1	1	1	.	.	3	4	.	.	4	.	.	.	.	.	.	.	.	.	.	.	1	1	1	.	
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	1	1	1	1	.	.	1	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	3	1	1	.	
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TABLE 50.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,  
THE YEAR ENDING

	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	Fifty to fifty-five.
Senile Debility.....													141
Suicide or Attempt at Suicide													142
By Poison.....	A					1						1	
By Asphyxia.....	B						1						
By Strangulation.....	C							1					
By Firearms.....	D								1				2
Other Accidental Injuries.....		1	1		1		1	1					145
Sunstroke and Freezing.....		1											147
Inhalation of Noxious Gases (Suicide excepted).....													150
Dropsy.....													155
Cerebro-spinal Meningitis.....	1		1										161

Total deaths, 401. Death-rate, 12.27.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR  
DECEMBER 31, 1908.—(Continued).

	AGE PERIODS.							SEX.	COLOR.	NATIVITY.								SOCIAL CONDITION.								
	Fifty-five to sixty.	Sixty to seventy.	Seventy to Eighty.	Eighty to ninety.	Over ninety.	Not stated.	Male.			Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
1	1	5					3	2																		
	1	5					3	2																		
							4	3																		
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# List of Registrars of Vital Statistics.

Arranged by Counties.

## ATLANTIC COUNTY

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Absecon.....	Samuel Johnson.....	Absecon.
Atlantic City.....	W. B. Dill.....	Atlantic City.
Buena Vista Twp.....	Alfred Pennock, Sr.....	Vinehard, R. F. D. No. 2
Brigantine Bor.....	E. R. Smith, City Clerk.....	Brigantine.
Egg Harbor City.....	William Morgenweck, City Clerk.....	Egg Harbor City.
Egg Harbor Twp.....	William Hanenstein.....	Pleasantville.
Folsom Bor.....	Louis Schulze.....	Folsom.
Gallopway Twp.....	J. E. Smith.....	Oceanville.
Hamilton Twp.....	Harry Jenkins.....	Mays Landing.
Hammonton.....	J. C. Bitler, Secretary.....	Hammonton.
Linwood Bor.....	James Farish, Bor. Clerk.....	Linwood, Box 31.
Longport Bor.....	E. Fullerton Cook.....	Longport.
Margate City.....	Charles Hart, Bor. Clerk.....	Margate City.
Mullica Twp.....	H. R. Abbott.....	Nesco.
Northfield City.....	Elisha C. Duberson, City Clerk.....	Bakersville.
Pleasantville Bor.....	Thomas F. Crawford.....	Pleasantville.
Port Republic City.....	Clark A. Johnson, City Clerk.....	Port Republic.
Somers Point Bor.....	George Middleton, Secretary.....	Somers Point.
Ventnor City Bor.....	Edward Guion, M. D.....	Atlantic City.
Weymouth Twp.....	F. R. McKeague.....	Tuckahoe.

## BERGEN COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Allendale Bor.....	J. H. Mallinson, Bor. Clerk.....	Allendale.
Alpine Bor.....	Louis H. Cavemier.....	Alpine.
Bergenfield Bor.....	John J. Huyler.....	Bergenfield.
Bogota Bor.....	Harlan P. Ross, Bor. Clerk.....	Bogota.
Carlstadt Bor.....	Rudolph Rayner.....	Carlstadt.
Citfide Park.....	Jean Henri Kaus.....	Citfide.
Closter Bor.....	Alfred Anderson.....	Closter.
Cresskill Bor.....	George Y. Allaire.....	Cresskill.
Delford Bor.....	H. A. Bingham, Bor. Clerk.....	Oradell.
Demarest Bor.....	A. Machold.....	Demarest.
Dumont Bor.....	E. Stanley Clark, Secretary.....	Dumont.
East Rutherford.....	M. F. Onderdonk.....	East Rutherford.
Edgewater Bor.....	Arthur J. Carleton.....	Edgewater.
Englewood.....	Robert Jamieson, City Clerk.....	Englewood.
Englewood Cliffs Bor.....	John G. Ropes, Assessor.....	Coytesville.
Emerson Bor.....	H. I. Angel.....	Emerson.
Fairview Bor.....	Gustav A. Hellsiern.....	Fairview.
Fort Lee Bor.....	Robert H. Morrow.....	Coytesville.
Franklin Twp.....	Daniel Snyder.....	Midland Park.
Garfield.....	Louis H. Hainzman.....	Garfield.
Glen Rock Bor.....	J. B. Christopher, Bor. Clerk.....	Rutgewood.
Hackensack.....	William P. Ellery.....	Hackensack.
Harrington Park Bor.....	J. F. Hallenbeck.....	Harrington.
Hasbrouck Heights Bor.....	Wm. J. Schweickert.....	Hasbrouck Heights.
Haworth Bor.....	Henry F. Copelman.....	Haworth.
Hillsdale Twp.....	John W. Kinmouth.....	Hillsdale.
Hobokus Bor.....	John De Vore.....	Hobokus.
Hobokus Twp.....	James Devine, Jr.....	Mahwah.
Leonia Bor.....	H. M. Thompson.....	Leonia.
Little Ferry Bor.....	Louis Brauer.....	Little Ferry.

## BERGEN COUNTY—Continued.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Lodi Bor.	Jacob Van Hook.	Lodi.
Lodi Twp.	Julius Pries.	Wood Ridge.
Maywood Bor.	G. M. Fetzer.	Maywood.
Midland Twp.	John D. Bogert.	Ridgewood.
Midland Park Bor.	Chas. B. Winters.	Midland Park.
Montvale Bor.	John B. Hering, Bor. Clerk.	Montvale.
North Arlington.	John Devine.	Northvale.
Northvale Bor.	George Cooper.	Northvale.
Norwood Bor.	Paul Leubkett.	West Norwood, Box 43
Oakland Bor.	W. B. Romatine, Bor. Clerk.	Oakland.
Oak Tappan Bor.	R. B. Haring.	Tappan, Rockland Co., N. Y.
Orvil Twp.	George M. White.	Waldwick.
Overpeck Twp.	William H. Hunter.	Ridgefield Park.
Palsade Twp.	Walter Thomas.	New Millford.
Palsade Park Bor.	W. G. Stevens.	Palsade Park.
Park Ridge Bor.	T. G. Forbes.	Park Ridge.
Ramsey Bor.	D. S. Wanmaker.	Ramsey.
Ridgefield Bor.	James J. Conor.	Ridgefield.
Ridgefield Twp.	Thomas F. Malton.	Coytesville.
Ridgewood Twp.	J. B. Hopper.	Ridgewood.
Riverside Bor.	J. H. Weston, Bor. Clerk.	North Hackensack.
Rivervale Twp.	M. J. Ford.	Westwood.
Rutherford Bor.	J. B. W. Lansing, M.D., Bor. Clerk.	Rutherford.
Saddle River Bor.	James L. Ackerman, Bor. Clerk.	Saddle River.
Saddle River Twp.	F. M. Buckles.	Fair Lawn.
Teaneck Twp.	Isaac A. Hopper.	Teaneck.
Tenafly Bor.	Peter I. Ackerman.	Tenafly.
Union Twp.	J. B. W. Lansing, M.D., Bor. Clerk.	Lyndhurst.
Saddle River Bor.	Thomas E. Buckley.	Saddle River.
Wallington Bor.	Henry Zaborick, Bor. Clerk.	Wallington.
Washington Twp.	James Brennan.	Hillsdale.
Westwood Bor.	Alexander H. Jackson.	Westwood.
Woodcliff Bor.	N. Cleveland.	Woodcliff.
Wood Ridge Bor.	G. J. Wortendyke, Bor. Clerk.	Wood Ridge.
	F. W. Lehman.	

## BURLINGTON COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Bass River Twp.	Edward F. Cramer.	New Getna.
Beverly City.	Charles J. Parsons.	Beverly, Box 347.
Beverly Twp.	Joseph B. Carter.	Delanco.
Bordentown City.	H. W. Kunzi, City Recorder.	Bordentown.
Bordentown Twp.	Thomas S. Mooney, City Clerk.	Burlington.
Burlington City.	Thomas B. Gandy.	Burlington.
Burlington Twp.	George W. Heaton.	Moorestown.
Chester Twp.	William Wallace.	Medford.
Chesterfield Twp.	Thomas E. Steele.	Palmyra.
Cinnaminson Twp.	George Friday.	Riverside, R.F.D. No. 1
Delran Twp.	Chas. F. Holzbauer.	Smithville.
Eastampton Twp.	William F. Powell.	Fieldsboro.
Evesham Twp.	George W. Carman, Bor. Clerk.	Fieldsboro.
Fieldsboro Bor.	Byron Carty.	Florence.
Florence Twp.	B. C. Davis.	Lumberton, Box 127.
Lumberton Twp.	Joseph H. Armstrong.	Columbus.
Mansfield Twp.	William M. Potts.	Medford.
Medford Twp.	Benjamin M. Haines.	Moorestown.
Mt. Laurel Twp.	Charles Remine.	Wrightstown.
New Hanover Twp.	W. T. Stewart.	Mt. Holly.
Northampton Twp.	Benjamin Harker.	Wrightstown.
North Hanover Twp.	F. P. Gentry.	Wrightstown.
Palmyra Twp.	F. Blackburn.	Pemberton.
Pemberton Bor.	J. J. Brander, Bor. Clerk.	Pemberton.
Pemberton Twp.	Charles Heiss.	Riverside, Box 192.
Riverside Twp.	Charles Heiss.	Riverside.
Riverton Bor.	Jacob G. Cottrell.	Downe Twp.
Shamong Twp.	Mahlon Prickett.	Indian Mills.
Southampton Twp.	Chas. G. Naylor.	Vincetown.

## BURLINGTON COUNTY—Continued.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Springfield Twp.	John B. Tilton.	Wrightstown.
Tabernacle Twp.	George H. Wisam.	Vincetown, R.F.D. 2
Washington Twp.	J. R. Koster.	Green Bank.
Westampton Twp.	Hudson B. Haines.	Mt. Holly.
Willingboro Twp.	H. J. Hart.	Ranococas.
Woodland Twp.	Jacob Dunfee.	Chatsworth.

## CAMDEN COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Audubon Bor.	Howard Callingham.	Audubon.
Camden City.	I. V. Bradley, City Clerk.	Camden.
Centre Twp.	John H. Jackson.	Magnolia.
Chestnut Bor.	John G. Bevan, Bor. Clerk.	Chestnut.
Clemont Twp.	George W. Evans.	Lindenwood.
Collingswood Bor.	C. C. Powell, Secretary.	Collingswood.
Delaware Twp.	William Graf.	Haddonfield.
Gloucester City.	John J. Mannion, City Clerk.	Gloucester City.
Gloucester Twp.	Martin Schubert.	Kirkwood.
Haddonfield Bor.	William E. Horner.	Haddonfield.
Haddon Heights Bor.	Grayson W. Smith.	Haddon Heights.
Haddon Twp.	James St. C. Williams.	Westmont.
Merchantville Bor.	Wm. B. Stewart, Bor. Clerk.	Merchantville.
Oaklyn Bor.	Emil T. Bess.	Oaklyn.
Parsippany Twp.	Harry E. Horner.	Merchantville.
Voorhees Twp.	S. H. Gardiner.	Ashland.
Waterford Twp.	Charles D. Heath.	Berlin.
Winslow Twp.	Joseph H. Graham.	Cedar Brook.
Wood Lynne Bor.	F. G. Muggleworth.	Wood Lynne.

## CAPE MAY COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Anglesea Bor.	Charles G. Glenn, Secretary.	Otrtus.
Avalon Bor.	Charles B. Kates, Bor. Clerk.	Avalon.
Cape May City.	John W. Thompson, City Rec.	Cape May City.
Cape May Point Bor.	Lafayette M. Patten.	Cape May Point.
Dennis Twp.	I. S. Townsend.	Clermont.
Holly Beach Bor.	E. Yenny.	Holly Beach.
Lower Twp.	J. P. Mackisic.	Cape May.
Middle Twp.	Joseph Camp.	Perceot.
Ocean City Bor.	T. Lee Adams.	Ocean City.
Sea Isle City Bor.	A. S. Steelman.	Sea Isle City.
Upper Twp.	W. S. Shaw.	Tuckahoe.
West Cape May Bor.	Theo. W. Reeves, Bor. Clerk.	Eldredge.
Wildwood Bor.	Otto C. Fromm.	Wildwood.
Woodbine Bor.	Fred Schmidt.	Woodbine.

## CUMBERLAND COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Bridgeton City.	Frank I. Hewitt, City Rec.	Bridgeton.
Commercial Twp.	Walter C. Riggan.	Port Norris.
Deerfield Twp.	E. R. Parvin.	Deerfield St.
Downe Twp.	Sheppard Campbell.	Newport.
Fairfield Twp.	James B. Mulford.	Fairport.

## CUMBERLAND COUNTY—Continued.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Greenwich Twp. . . . .	J. W. Butler . . . . .	Othello.
Hopewell Twp. . . . .	Charles E. Bowen . . . . .	Shiloh.
Landis Twp. . . . .	A. B. Crossman . . . . .	Vineland.
Lawrence Twp. . . . .	Furman B. Sheppard . . . . .	Cedarville.
Maurice River Twp. . . . .	Henry Reeves, Jr. . . . .	Leesburg.
Millville City. . . . .	L. H. Hogate, City Rec. . . . .	Millville.
Stow Creek Twp. . . . .	Belford M. Bonham . . . . .	Shiloh.
Vineland Bor. . . . .	George W. Lamb . . . . .	Vineland.

## ESSEX COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Belleville Twp. . . . .	H. W. Underwood . . . . .	Belleville.
Bloomfield City. . . . .	Joseph C. Saile, M.D. . . . .	Bloomfield.
Caldwell Bor. . . . .	J. J. Van Order, Bor. Clerk . . . . .	Caldwell.
Caldwell Twp. . . . .	Theodore Vincent . . . . .	Caldwell.
Cedar Grove Twp. . . . .	John J. Vreeland . . . . .	Cedar Grove.
East Orange City. . . . .	Lincoln E. Rowley, City Clerk . . . . .	East Orange
Essex Fells Bor. . . . .	T. Byrne Ivy . . . . .	Essex Fells.
Glen Ridge Bor. . . . .	Clarence Place . . . . .	Glen Ridge.
Irrington City. . . . .	Mahlon Stockman, Town Clerk . . . . .	Irrington.
Livingston Twp. . . . .	Enoch Burnet . . . . .	Chatham, R.F.D.
Millburn Twp. . . . .	John M. Drake . . . . .	Millburn.
Montclair City. . . . .	Chester H. Wells . . . . .	Montclair.
Newark City. . . . .	James P. Connelly, City Clerk . . . . .	Newark.
North Caldwell Bor. . . . .	Fred L. Baldwin, Bor. Clerk . . . . .	Caldwell, Box 146
Nutley Bor. . . . .	G. Hawksworth . . . . .	Nutley.
Orange City. . . . .	Selskar M. Gunn . . . . .	Orange.
Roseland Bor. . . . .	Everett Boole . . . . .	Roseland.
South Orange Bor. . . . .	A. C. Benedict, M.D. . . . .	South Orange.
South Orange Twp. . . . .	Thomas C. Baker . . . . .	Maplewood.
Verona Bor. . . . .	C. S. Simonson . . . . .	Verona.
West Caldwell Bor. . . . .	Clifton C. Francisco, Bor. Clerk . . . . .	Caldwell.
West Orange City. . . . .	Carl E. Stanton . . . . .	West Orange.

## GLOUCESTER COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Clayton Bor. . . . .	C. F. Fister, M.D. . . . .	Clayton.
Deptford Twp. . . . .	Carroll C. Headley . . . . .	Westville, Box 32.
East Greenwich Twp. . . . .	J. C. Dawson . . . . .	Mickleton.
Elk Twp. . . . .	Samuel L. Seran . . . . .	Aura.
Franklin Twp. . . . .	H. C. Richman . . . . .	Malaga.
Glassboro Twp. . . . .	J. T. Abbott . . . . .	Glassboro.
Greenwich Twp. . . . .	Jacob M. Allen . . . . .	Gibbstown.
Harrison Twp. . . . .	Ell Heritage . . . . .	Richwood.
Logan Twp. . . . .	S. B. Platt . . . . .	Bridgeton.
Mantua Twp. . . . .	William S. Huff . . . . .	Sewell.
Monroe Twp. . . . .	John W. McClure . . . . .	Williamstown.
National Park Bor. . . . .	William P. Acchi, Bor. Clerk . . . . .	National Park.
Paulsboro Bor. . . . .	Jacob Ballinger . . . . .	Paulsboro.
Pitman Grove Bor. . . . .	Dr. C. B. Phillips, Bor. Clerk . . . . .	Pitman Grove.
South Harrison Twp. . . . .	D. C. Lippincott . . . . .	Harrisville.
Swedesboro Bor. . . . .	William H. Rieger, Bor. Clerk . . . . .	Swedesboro.
Washington Twp. . . . .	Charles D. Nicholson . . . . .	Turnersville.
Wenonah Bor. . . . .	Jesse W. English, Bor. Clerk . . . . .	Wenonah.
West Deptford Twp. . . . .	James Carter . . . . .	Thorofare, R.F.D.No.1
Woodbury City. . . . .	Arthur Starr, City Clerk . . . . .	Woodbury.
Woolwich Twp. . . . .	H. C. Howey . . . . .	Swedesboro

## HUDSON COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Hudson County. . . . .	C. J. Rooney . . . . .	Jersey City.
Hoboken City. . . . .	Joseph Tucker . . . . .	Hoboken.
Jersey City. . . . .	Joseph A. Carlin . . . . .	Jersey City.
Kearny Town. . . . .	Robert Eneland . . . . .	Kearny.

## HUNTERDON COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Alexander Twp. . . . .	John C. Wilson . . . . .	Everittstown.
Berlheim Twp. . . . .	William C. Riddle . . . . .	West Portal.
Bloomsbury Bor. . . . .	W. A. Rutt . . . . .	Bloomsbury.
Clinton Bor. . . . .	George A. Hall, Bor. Clerk . . . . .	Clinton.
Clinton Twp. . . . .	Bergen B. Berkaw . . . . .	Annapolis.
Delaware Twp. . . . .	David L. Holcombe . . . . .	Lambertville.
East Amwell Twp. . . . .	Joseph A. Snook . . . . .	Rileville.
Franklin Twp. . . . .	Elwood Nixon . . . . .	Quakerstown.
Frenchtown Bor. . . . .	W. W. Rogers, Bor. Clerk . . . . .	Frenchtown.
Hampton Bor. . . . .	Thomas J. Raber . . . . .	Juncton.
High Bridge Bor. . . . .	F. H. Murray . . . . .	High Bridge.
Holland Twp. . . . .	H. B. Vansyckel . . . . .	Milford.
Kingwood Twp. . . . .	Samuel J. Snyder . . . . .	Flemington, R. F. D. 2
Lambertville City. . . . .	James H. Reynolds, City Clerk . . . . .	Lambertville.
Lebanon Twp. . . . .	George H. Gastner . . . . .	Calton, R.F.D. No. 1.
Raritan Twp. . . . .	William S. Buchanan . . . . .	Flemington.
Readington Twp. . . . .	John W. Opie . . . . .	Three Bridges.
Stockton Bor. . . . .	F. E. Rockefeller, Bor. Clerk . . . . .	Stockton.
Tewksbury Twp. . . . .	Ezekiah Philhower . . . . .	Calton.
Union Twp. . . . .	Morris Stockton . . . . .	Patensburg.
West Amwell Twp. . . . .	George H. Carr . . . . .	Lambertville.

## MERCER COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
East Windsor Twp. . . . .	S. I. Mount . . . . .	Etra.
Ewing Twp. . . . .	William H. Cadwallader . . . . .	Trenton, R.F.D. No. 1
Hamilton Twp. . . . .	J. T. Alkinson . . . . .	Yardville.
Hightstown Bor. . . . .	Frank V. Jemison . . . . .	Hightstown.
Hopewell Bor. . . . .	Robert Zulauf . . . . .	Hopewell.
Hopewell Twp. . . . .	Charles H. Hart . . . . .	Titusville.
Lawrence Twp. . . . .	Frank Pierson . . . . .	Lawrenceville.
Pennington Bor. . . . .	Joseph C. Bunn, Bor. Clerk . . . . .	Pennington.
Princeton Bor. . . . .	Walter B. Howe . . . . .	Princeton.
Princeton Twp. . . . .	A. L. Berrien . . . . .	Kingston.
Trenton City. . . . .	Thomas B. Holmes . . . . .	Trenton.
Washington Twp. . . . .	C. N. Hutchinson . . . . .	Robbinsville.
West Windsor Twp. . . . .	C. W. Hutchinson . . . . .	Dutch Neck.

## MIDDLESEX COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Cranbury Twp. . . . .	Ancil M. Davison . . . . .	Cranbury.
Dunellen Bor. . . . .	Charles A. Cornell . . . . .	Dunellen.
East Brunswick Twp. . . . .	Henry Wamsorfer . . . . .	N. Brunswick, R.F.D.3
Helmetta Bor. . . . .	Edward M. Clemons, Bor. Clerk . . . . .	Helmetta.
Highland Park Bor. . . . .	William H. Holman, Secretary . . . . .	New Brunswick.
Jamesburg Bor. . . . .	William H. Brooks, Bor. Clerk . . . . .	Jamesburg.
Madison Twp. . . . .	D. H. Brown . . . . .	Old Bridge.
Metuchen Bor. . . . .	Dr. A. L. Ellis . . . . .	Metuchen.
Milltown Bor. . . . .	Robert A. Harkins, Bor. Clerk . . . . .	Milltown.
Monroe Twp. . . . .	Robert R. Vandenbergh . . . . .	Prospect Plains, Box 34
New Brunswick City . . . . .	James A. Morrison, City Clerk . . . . .	N. Brunswick, R.F.D., 5
North Brunswick Twp. . . . .	Issac V. Williamson . . . . .	Perth Amboy.
Perth Amboy City . . . . .	Wilbur L. Roe, City Clerk . . . . .	New Market.
Piscataway Twp. . . . .	George W. Coriell . . . . .	New Brunswick.
Raritan Twp. . . . .	William T. Woerner . . . . .	Carteret, Box 106.
Roosevelt Bor. . . . .	C. C. Sheridan . . . . .	Farlin.
Sayreville Twp. . . . .	Thomas C. Hamam . . . . .	South Amboy.
South Amboy City . . . . .	William Nagle, Jr. . . . .	Kingston.
South Brunswick Twp. . . . .	William Perkins . . . . .	South River.
South River Bor. . . . .	J. Conover Bowne . . . . .	Spotwood.
Spotwood Bor. . . . .	George W. Devoe, Bor. Clerk . . . . .	Woodbridge.
Woodbridge Twp. . . . .	Peter K. Edgar . . . . .	Woodbridge.

## MONMOUTH COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Allenhurst Bor. . . . .	G. B. Cade, Bor. Clerk . . . . .	Allenhurst.
Allentown Bor. . . . .	W. R. Forsythe . . . . .	Allentown.
Atlantic Twp. . . . .	Frank E. Heyer . . . . .	Colts Neck.
Asbury Park City . . . . .	Budd H. Obert . . . . .	Asbury Park.
Atlantic Highlands Bo. . . . .	Thomas J. Emery, Secretary . . . . .	Atlantic Highlands.
Avon Bor. . . . .	H. M. Dolan, Bor. Clerk . . . . .	Avon-by-the-Sea.
Belmar Bor. . . . .	Charles O. Hudnut . . . . .	Belmar.
Bradley Beach Bor. . . . .	C. F. Burney, Bor. Clerk . . . . .	Bradley Beach.
Deal Bor. . . . .	Frederick A. Weber, Bor. Clerk . . . . .	Deal.
Eatontown Twp. . . . .	J. Harry Herbert . . . . .	Oceanport.
Englishtown Bor. . . . .	S. B. Ely . . . . .	Englishtown.
Farmingdale Bor. . . . .	Frank P. Van Note, Bor. Clerk . . . . .	Farmingdale.
Freehold Bor. . . . .	Alonzo Brower . . . . .	Freehold.
Freehold Twp. . . . .	Rulif V. Lawrence . . . . .	Freehold.
Highlands Bor. . . . .	Calvin Parker . . . . .	Highland.
Holmdel Twp. . . . .	V. D. Kenney . . . . .	Holmdel.
Howell Twp. . . . .	James H. Butcher . . . . .	Ardena.
Keypoint Bor. . . . .	Charles F. Tuthill . . . . .	Keypoint.
Long Branch City . . . . .	E. E. Blaisdell, Secretary . . . . .	Long Branch.
Manalapan Twp. . . . .	W. D. Herbert . . . . .	Englishtown.
Manasquan Bor. . . . .	Robert M. Marks . . . . .	Manasquan.
Marlboro Twp. . . . .	W. C. McElwaine . . . . .	Englishtown.
Matawan Bor. . . . .	William A. Rodgers, Bor. Clerk . . . . .	Matawan.
Matawan Twp. . . . .	Richard Hauser . . . . .	Cliffwood.
Middletown Twp. . . . .	Omar Suckles . . . . .	Navasink.
Millstone Twp. . . . .	George J. Ely . . . . .	Cranbury, R.F.D.
Monmouth Beach Bor. . . . .	Jesse W. Potter, Bor. Clerk . . . . .	Long Beach.
Neptune Twp. . . . .	T. Nelson Lilligore . . . . .	Ocean Grove.
Neptune City Bor. . . . .	Edwin F. Bennett . . . . .	Avon-by-the-Sea.
Ocean Twp. . . . .	Harry G. Van Note . . . . .	Oakhurst.
Raritan Twp. . . . .	Daniel H. Robinson . . . . .	Keansburg.
Red Bank City . . . . .	Howard S. Higginson, Secretary . . . . .	Red Bank.
Rumson Bor. . . . .	V. A. Lister . . . . .	Oceanic.
Sea Bright Bor. . . . .	James P. Armstrong . . . . .	Sea Bright.
Shrewsbury Twp. . . . .	Abram T. Bennett . . . . .	Red Bank.
Spring Lake Bor. . . . .	D. H. Hills . . . . .	Spring Lake Beach.
Upper Freehold Twp. . . . .	William C. Giesell . . . . .	Hornerstown.
Wall Twp. . . . .	George E. Rogers . . . . .	Belmar, R.F.D., No. 2.
W. Long Branch Bor. . . . .	R. R. Hughes . . . . .	West Long Branch.

## MORRIS COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Boonton Twp. . . . .	E. H. Stickle . . . . .	Boonton.
Boonton City . . . . .	Frank Banta . . . . .	Boonton.
Butler Bor. . . . .	Allen Looker, Jr. . . . .	Butler.
Chatham Bor. . . . .	D. H. Crawford . . . . .	Chatham.
Chatham Twp. . . . .	J. H. Bebout . . . . .	New Providence.
Chester Twp. . . . .	Abram Tiger . . . . .	Chester.
Dover City . . . . .	J. H. C. Hunter . . . . .	Dover.
Florham Park Bor. . . . .	William V. Tunis . . . . .	Florham Park.
Hanover Twp. . . . .	Edwin C. Quinby . . . . .	Whippany.
Jefferson Twp. . . . .	Charles Chamberlain . . . . .	Woodport.
Madison Bor. . . . .	S. Fred Burnet, Sec. . . . .	Madison.
Mendham Bor. . . . .	J. D. Lindsay . . . . .	Mendham.
Mendham Twp. . . . .	Fred H. Garrabrant . . . . .	Brookside.
Montville Twp. . . . .	Fred Van Duzne . . . . .	Towaco.
Morristown City . . . . .	Clifford Mills . . . . .	Morristown.
Morristown Twp. . . . .	Thomas T. Sands . . . . .	Morristown.
Mt. Arlington Bor. . . . .	Cyrus E. Cook, Bor. Clerk . . . . .	Mt. Arlington.
Mt. Olive Twp. . . . .	S. W. Salmon . . . . .	Mt. Olive.
Netcong Bor. . . . .	George T. Keech, Bor. Clerk . . . . .	Netcong.
Passaic Twp. . . . .	J. A. Harvey . . . . .	Stirling.
Poquannock Twp. . . . .	Alfred Gilland . . . . .	Pompton Plains.
Randolph Twp. . . . .	Elisson Coe . . . . .	Mt. Freedom.
Rockaway Bor. . . . .	William A. Parلمان . . . . .	Rockaway.
Rockaway Twp. . . . .	Thomas F. Delaney . . . . .	Hibernia.
Roxbury Twp. . . . .	Edward W. Kilpatrick . . . . .	Kenil.
Washington Twp. . . . .	George H. Siker . . . . .	Pleasant Grove.
Wharton Bor. . . . .	William H. Force, Bor. Clerk . . . . .	Wharton.

## OCEAN COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Barnegat City Bor. . . . .	James V. Jones, Assessor . . . . .	Barnegat City.
Bay Head Bor. . . . .	Julius Foster, Assessor . . . . .	Bay Head.
Beach Haven Bor. . . . .	Thomas A. Gavin . . . . .	Beach Haven.
Berkeley Twp. . . . .	Devine Butler . . . . .	Bayville.
Brick Twp. . . . .	J. H. Harvey . . . . .	West Point Pleasant.
Dover Twp. . . . .	Thomas B. Irons . . . . .	Toms River.
Eagleswood Twp. . . . .	P. R. Sprague . . . . .	West Creek.
Island Heights Bor. . . . .	John Simpson, Bor. Clerk . . . . .	Island Heights.
Jackson Twp. . . . .	Walter S. Hendrickson . . . . .	Jackson Mills.
Lacey Twp. . . . .	E. Mathews . . . . .	Rocked River.
Lakewood Twp. . . . .	H. J. Terwilliger . . . . .	Lakewood, Box 263.
Lavalette Bor. . . . .	A. G. Fischer, Bor. Clerk . . . . .	Laviette.
Little Egg Harbor . . . . .	Norwood Parker . . . . .	Tuckerton.
Long Beach Twp. . . . .	A. H. T. Rider . . . . .	Beach Haven.
Manchester Twp. . . . .	Amos Bozarth . . . . .	Lakehurst.
Ocean Twp. . . . .	Oscar R. Cranner . . . . .	Waretown.
Plumstead Twp. . . . .	George Hartshorn . . . . .	New Egypt.
Point Pleasant Beach . . . . .	J. E. Harvey, Secretary . . . . .	Point Pleasant.
Seaside Park Bor. . . . .	J. E. Wood, Bor. Clerk . . . . .	Seaside Park.
Stafford Twp. . . . .	John B. Courtney . . . . .	Manahawkin.
Tuckerton Bor. . . . .	T. Wilmer Speck, Bor. Clerk . . . . .	Tuckerton.
Union Twp. . . . .	J. C. Woodmansee . . . . .	Barnegat.

## PASSAIC COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Acquackanonk Twp.	Richard Berry.	Clifton.
Haledon Bor.	Edward Pries, Secretary.	Haledon.
Hawthorne Bor.	W. E. Thompson, Bor. Clerk.	Hawthorne.
Little Falls Twp.	W. W. Wilson.	Little Falls.
North Haledon Bor.	Samuel Clowes.	Haledon.
Passaic City.	George F. Grear.	Passaic.
Paterson City.	Charles S. Gall.	Paterson.
Pompton Twp.	David Beam.	Midvale.
Pompton Lakes Bor.	H. L. Wells.	Pompton Lakes.
Prospect Park Bor.	Lambertus Touw.	Paterson.
Totowa Bor.	Wilbur DeMott.	Paterson.
Wayne Twp.	Thomas D. Ryerson.	Wayne.
West Milford Twp.	John M. Weaver.	Newfoundland.

## SALEM COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Alloway Twp.	William E. Simpkins.	Elmer, R.F.D. No. 3.
Elmer Bor.	Hiram Van Meter, Bor. Clerk.	Elmer.
Elsinboro Bor.	Charles E. Farnkopf.	Salem.
Lover Alloways Creek	Edward Hancock.	Hancocks Bridge.
L. Penns Neck Twp.	Ellsworth L. Irelan.	Pennsville.
Mannington Twp.	Elmer Grisoom.	Salem.
Oldmans Twp.	Edwin E. Somers.	Pedricktown.
Penns Grove Bor.	Dr. C. P. Lummis.	Penns Grove.
Pilesgrove Twp.	George H. Kirby.	Woodstown.
Pittsgrove Twp.	George Schaleck.	Centerton.
Quinton Twp.	Charles S. Bussatt.	Quinton.
Salem City.	Charles Bowen.	Salem.
U. Penns Neck Twp.	C. P. Lummis, M.D.	Penns Grove.
U. Pittsgrove Twp.	R. A. Robinson.	Monroeville.
Woodstown Bor.	William B. Foster, Bor. Clerk.	Woodstown.

## SOMERSET COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Bedminster Twp.	W. D. Vanderbeck.	Gladstone.
Bernards Twp.	Joseph E. Buck.	Bernardsville.
Bound Brook Bor.	Charles McNabb.	Bound Brook.
Branchburg.	Augustus McCullough.	North Branch Depot.
Bridgewater Twp.	B. P. Conling.	Somerville.
Franklin Twp.	A. Hummer.	East Millstone.
Hillsborough Twp.	H. S. Van Nuys, Jr., Assessor.	Millstone.
Millstone Bor.	H. Tomlinson.	Millstone.
Montgomery Twp.	C. B. Althouse.	Belle Mead.
North Plainfield City.	Dr. A. H. Dundon.	Plainfield.
North Plainfield Twp.	Francis E. Bodin.	Plainfield.
Raritan Bor.	George H. Brightbill.	Raritan.
Rocky Hill Bor.	C. R. Baldwin, Bor. Clerk.	Rocky Hill.
Somerville Bor.	W. R. Sutphen, Bor. Clerk.	Somerville.
S. Bound Brook Bor.	James P. Hoffman, Bor. Clerk.	South Bound Brook.
Warren Twp.	Edmund E. Sage.	Gliette, Morris Co.

## SUSSEX COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Andover Bor.	S. H. Wilson.	Andover.
Andover Twp.	William Iliff.	Lafayette.
Branchville Bor.	M. D. Hayward, Secretary.	Branchville.
Brooklyn Bor.	Charles F. Muller.	Lake Hopatcong.
Byram Twp.	John N. Woolston.	Stanhope.
Frankford Twp.	Daniel Dalrymple.	Papakating.
Fredon Twp.	Joseph E. Huff.	Newton, R.F.D., No. 1.
Green Twp.	Irving L. Labor.	Tranquility.
Hampton Twp.	John W. Thompson.	Blair.
Hardyston Twp.	Smith Simpson.	Hamburg.
Hopatcong Bor.	Theodore A. K. Gessler.	Landing, Morris Co.
Lafayette Twp.	J. C. Strider, M.D.	Lafayette.
Montague Twp.	George McCarty.	Port Jervis, N. Y.
Newton Twp.	P. H. Van Horn.	Newton.
Sandyston Twp.	W. H. Vansieckle.	Bevans.
Sparta Twp.	John W. Maseker.	Sparta.
Stanhope Bor.	C. E. Herrick, Bor. Clerk.	Stanhope.
Stillwater Twp.	Obadiah Van Horn.	Stillwater.
Sussex Bor.	Harry E. Wells, Bor. Clerk.	Sussex.
Vernon Twp.	John Gunderson.	Glenwood.
Walpack Twp.	J. W. Bunnell.	Bevans.
Wantage Twp.	S. M. Farcell.	Sussex.

## UNION COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Clark Twp.	William J. Thompson.	Rahway, R.F.D. No. 1.
Cranford Twp.	S. R. Swackhamer.	Cranford.
Elizabeth City.	John F. Kench, City Clerk.	Elizabeth.
Fanwood Bor.	Samuel W. McAneny.	Fanwood.
Fanwood Twp.	George H. Johnston.	Scotch Plains.
Garwood Bor.	Howard S. Manning, Secretary.	Garwood.
Kenilworth Bor.	Charles Knudson, Bor. Clerk.	Kenilworth.
Linden Bor.	Clarence H. Smart, Bor. Clerk.	Linden.
Linden Twp.	Frank B. Stimson.	Linden.
Mountainside Bor.	Robert Laing, Bor. Clerk.	Mountainside.
New Providence Bor.	William Woodruff.	New Providence.
New Providence Twp.	P. Garfield Johnson.	New Providence.
Plainfield City.	H. O. Mattison.	Plainfield.
Rahway City.	Charles H. Lambert.	Rahway.
Roselle Bor.	J. D. Cooper, Bor. Clerk.	Roselle.
Roselle Park Bor.	Lewis T. Terry.	Springfield.
Summit City.	Dr. J. M. Rowe.	Summit, Box 419.
Union Twp.	D. Hobart Sayre.	Union.
Westfield.	C. W. Harlan.	Westfield.



## WARREN COUNTY.

NAME OF PLACE.	NAME OF REGISTRAR.	ADDRESS.
Allamuchy Twp.	George A. Jilson	Allamuchy.
Belvidere City	U. G. Pursell, Town Clerk	Belvidere.
Blairstown Twp.	Joseph A. Dugan	Vail.
Franklin Twp.	P. B. Butterwick	Asbury.
Frelinghuysen Twp.	Walter H. Ackerson	Blairstown, R.F.D. 1.
Greenwich Twp.	William Sherrer	Bloomsbury, Hun. Co.
Hackettstown Town.	A. G. Bottiger, Town Clerk	Hackettstown.
Hardwick Twp.	Marcus C. Hill	Blairstown.
Harmony Twp.	Freeman Schuler	Rocksburg.
Hope Twp.	L. C. Fleming	Townsbury.
Independence Twp.	W. K. Teel	Vienna.
Knowlton Twp.	Milton De Witt	Columbia.
Lopatcong Twp.	E. Frank Kline	Shiners.
Mansfield Twp.	J. F. Frome	Oxford.
Oxford Twp.	Michael Mountain	Oxford.
Pahaquarry Twp.	Hiram Zimmerman	Millbrook.
Phillipsburg City.	Frank Kneedler, Town Clerk	Phillipsburg.
Pohatcong Twp.	Harry E. Boyer	Carpentersville.
Washington Bor.	A. J. Craft	Washington.
Washington Twp.	Samuel Rinehart	Washington.

## List of Licensed Health Officers and Sanitary Inspectors.

Following is a list of the persons who have successfully passed the examinations provided for in the act approved April 8th, 1903:

### HEALTH OFFICERS.

†Budd H. Obert	Asbury Park, N. J.
†Hiram Williams, M.D.	Passaic, N. J.
Alex. Marcy, Jr., M.D.	Riverton, N. J.
†Wm. S. Green, M.D.	Paterson, N. J.
Walter Taylor, M.D.	Jersey City, N. J.
Maria M. Vinton, M.D.	East Orange, N. J.
†Edward Guion, M.D.	Atlantic City, N. J.
†Fred W. Sell, M.D.	Rahway, N. J.
Howard L. Baumgartner	Asbury Park, N. J.
Lewis L. Sharp, M.D.	Palmyra, N. J.
†Ferdinand N. Sauer, M.D.	Jersey City, N. J.
†George T. Tracy, M.D.	Beverly, N. J.
†Chester H. Wells	Montclair, N. J.
†Duncan W. Blake, Jr., M.D.	Gloucester City, N. J.
Samuel D. Mayhew, M.D.	Bridgeton, N. J.
†John O'Brien, Jr.	Montclair, N. J.
†James A. Exton, M.D.	Arlington, N. J.
Frank H. Streightoff	Montclair, N. J.
G. W. Fithian, M.D.	Perth Amboy, N. J.
†Henry MacDonald	Newark, N. J.
†Leon R. Thurlow	Plainfield, N. J.
†Edward B. Rogers, M.D.	Collingswood, N. J.
†J. I. Hoverder, M.D.	Atco, N. J.
W. U. Kurtz, M.D.	Asbury Park, N. J.
John K. Adams, M.D.	Orange, N. J.
William W. Brooke, M.D.	Bayonne, N. J.
†Thomas J. Duffield	Asbury Park, N. J.
Henry D. Abbott, M.D.	Bayonne, N. J.
Eugene H. Sullivan	Orange, N. J.
†J. Alex. Browne, M.D.	Paterson, N. J.
Perkins Boynton	Little Falls, N. J.
Ellsmore Stites, M.D.	Bridgeton, N. J.
†Marcus W. Newcomb, M.D.	Burlington, N. J.
Charles P. Eaton	Jersey City, N. J.
†V. M. D. Marcy, M.D.	Cape May, N. J.
†Milton L. Somers, M.D.	Atlantic City, N. J.
†Harry H. Pettit, M.D.	Ridgewood, N. J.
†John T. Connelly	Bayonne, N. J.
Charles J. Larkey	Bayonne, N. J.
†T. Lee Adams	Ocean City, N. J.

†In the service of the local board of health.

†Deceased.

†R. H. Parsons, M.D.	Mount Holly, N. J.
Jay E. Kilpatrick	Montclair, N. J.
William Schluer	Orange, N. J.
William G. Schaulfer, M.D.	Lakewood, N. J.
†William H. Shipp, M.D.	Bordentown, N. J.
Morris W. Clouse, M.D.	Kearny, N. J.
†Joseph J. Craven, M.D.	Jersey City, N. J.
†Selskar M. Gunn	Orange, N. J.
Joseph Payne, M.D.	Midland Park, N. J.
†Jay G. Foose	Montclair, N. J.
John J. Broderick, M.D.	Jersey City, N. J.
Henry H. Brinkerhoff, M.D.	Jersey City, N. J.
†George W. Lawrence, M.D.	Lakewood, N. J.
†James J. Hagan	Jersey City, N. J.
†Charles S. Mills, M.D.	Riverton, N. J.
†Joseph Wantoch, M.D.	Carteret, N. J.
†William H. Iszard, M.D.	Camden, N. J.
Ralph O. Clock, M.D.	Burlington, N. J.
E. Irving Cronk, M.D.	New Brunswick, N. J.
John L. Lund, M.D.	Perth Amboy, N. J.
†Charles McNabb	Bound Brook, N. J.
J. C. Loper, M.D.	Bridgeton, N. J.
Henry C. James, M.D.	Mays Landing, N. J.
A. M. Heron, M.D.	Lakewood, N. J.
George H. Taylor, M.D.	Maplewood, N. J.
L. F. Meloney, M.D.	Clifton, N. J.
I. N. Griscom, M.D.	Ocean City, N. J.
James L. Ollif	Plainfield, N. J.

## PLUMBING INSPECTORS.

†Henry B. Francis	Camden, N. J.
Joseph Sonnenberg	Irvington, N. J.
Conrad Deuchler	Newark, N. J.
Charles M. Whelan	Trenton, N. J.
†William F. Brode	Atlantic City, N. J.
†Thomas D. Clark	Woodbury, N. J.
Edward J. Kelly	Jersey City, N. J.
Thomas F. Harris	Orange, N. J.
†G. H. Soult	Ridgewood, N. J.
Henry A. W. Smith	Ocean City, N. J.
Hugh F. Parle	Jersey City, N. J.
R. LeRoy Skillman	Newark, N. J.
Andrew McGookin, Jr.	Newark, N. J.
Frederick W. Nichols	Newark, N. J.
Luke J. Devine	Elizabeth, N. J.
James Barnard	Trenton, N. J.
Frank H. Fitzgeorge	Trenton, N. J.
George F. Shafer	Hackensack, N. J.
Charles F. West	Gloucester City, N. J.
Bernard B. Reiley	New Brunswick, N. J.
P. W. Borrows	Ridgefield Park, N. J.
Arthur G. Reeves	Cape May City, N. J.
James H. Kiernan	Jersey City, N. J.
Edward A. Sullivan	Newark, N. J.

†In the service of the local board of health.  
 †Deceased.

Gustave A. Abiez	Newark, N. J.
William F. Specht, Jr.	Atlantic City, N. J.
Jacob Kull	Newark, N. J.
Eugene Lau	Newark, N. J.
Peter A. Degnan	Newark, N. J.
David Entwistle	Jersey City, N. J.
Tunis Looi	Lodi, N. J.

## SANITARY INSPECTORS OF FIRST CLASS.

†Fred W. Hering	Jersey City, N. J.
†George W. Gilmore	Newark, N. J.
†Fred C. Robertson, M.D.	Jersey City, N. J.
†John T. McClure	Harrison, N. J.
†John G. Taylor	Dover, N. J.
Charles E. Bellows	Bridgeton, N. J.
†Albert E. Geissler	Kearny, N. J.
Thomas Ainge	Lansing, Mich.
Charles S. Voorhis	Palmyra, N. J.
†Lewis E. Boutillier	Newark, N. J.
†Joseph C. Salle	Bloomfield, N. J.
†Casper Benz	Newark, N. J.
†Robert W. Meeker	Plainfield, N. J.
†John K. Bennett, M.D.	Gloucester City, N. J.
William H. Addis	Plainfield, N. J.
William W. Heberton, M.D.	South Orange, N. J.
Eric Ordell	Newark, N. J.
John Greaves	Jersey City, N. J.
†John E. Rowe, D.V.S.	Summit, N. J.
George N. Smith	Newark, N. J.
†Frank Dencklan	Plainfield, N. J.
J. H. C. Hunter	Dover, N. J.
Chauncey V. Bunnell	Jersey City, N. J.
†Charles F. Conrad	Newark, N. J.
Percy W. Sipp	Newark, N. J.
†H. S. Winterhalter	Bayonne, N. J.
Jay E. Kilpatrick	Montclair, N. J.
W. J. E. Seder	Newark, N. J.
†Alonzo Brower	Freehold, N. J.
†Frederick E. Wilson	Bayonne, N. J.
David R. Thompson	Delaware City, Del.
†Jay G. Foose	Montclair, N. J.
†William H. Lowe, D.V.S.	Paterson, N. J.
Charles W. Harreys, M.D.	Ridgewood, N. J.
Joseph C. Bitler, M.D.	Hammonont, N. J.
†Lynford E. Tuttle, M.D.V.	Bernardsville, N. J.
James L. Ollif	Plainfield, N. J.
J. J. Reason, M.D.	Carteret, N. J.
†Alfred C. Benedict, M.D.	South Orange, N. J.
†John H. Winslow, M.D.	Vineland, N. J.
†Harry R. Ingalls	Asbury Park, N. J.
Edward F. Flynn	Newark, N. J.
†Elvia Scott	South Orange, N. J.
Harris Day, M.D.	Chester, N. J.
A. I. Goehrig	Trenton, N. J.
Harry E. Mofett	Newark, N. J.

†In the service of the local board of health.  
 †Deceased.

Irwin C. Dakin.....	Newark, N. J.
William Gleuck, Jr.....	Newark, N. J.
Fred S. Ball, M.D.....	Lakewood, N. J.
†Felix McGee.....	Millburn, N. J.
Charles E. Divine.....	Newark, N. J.
†Charles McNabb.....	Bound Brook, N. J.
James J. Waters.....	Newark, N. J.
John L. Lund, M.D.....	Perth Amboy, N. J.
Edward Mulvaney, M.D.....	Jersey City, N. J.
John J. Magner, M.D.....	Jersey City, N. J.
Edward J. Devitt.....	Jersey City, N. J.
†J. L. Ebbels.....	Montclair, N. J.
H. G. Eakin.....	Union Hill, N. J.
Joseph R. Bartlett.....	Atlantic City, N. J.
Frank V. Wilkinson.....	Newark, N. J.
Edwin E. Taber.....	Long Branch, N. J.
John A. Manson.....	Dover, N. J.
Lester J. Hamblet.....	Asbury Park, N. J.
Clarence A. Lamont.....	Asbury Park, N. J.
Alex. M. Heron, M.D.....	Lakewood, N. J.
Abram A. Lydecker, M.D.....	Haledon, N. J.
Howard H. Huffert.....	Newark, N. J.
Sylvester Utter, M.D.....	Paterson, N. J.
F. Wm. Stahuber.....	Atlantic City, N. J.
William Morris.....	Roselle Park, N. J.
John W. Garey.....	Atlantic City, N. J.
James P. McNair.....	Paterson, N. J.
Thomas J. Steele.....	Jersey City, N. J.
Walter B. Delaney.....	Jersey City, N. J.
John C. Harnett.....	Jersey City, N. J.
Heary A. Bonynge, M.D.....	Ridgewood, N. J.
C. H. W. Van Sciver.....	Burlington, N. J.
Frank S. Harris.....	Salem, N. J.
Stanley S. Williams.....	Newark, N. J.
Patrick J. Brogan.....	Newark, N. J.
Samuel Bachman.....	Newark, N. J.

## SANITARY INSPECTORS OF SECOND CLASS.

†Charles Cunningham, M.D.....	Hammonton, N. J.
†Franklin P. Vanlier.....	Woodstown, N. J.
†Joseph J. Clickenger.....	Irvington, N. J.
†J. C. Shinn, M.D.....	Jamesburg, N. J.

## SANITARY INSPECTORS OF THIRD CLASS.

David Jamieson.....	Gloucester City, N. J.
†Robert A. Hirner.....	Woodbridge, N. J.

## MEAT INSPECTORS.

†G. F. Harker, D.V.S.....	Trenton, N. J.
†Richard W. Hewitt, D.V.S.....	Camden, N. J.
Willet H. Cooper, D.V.S.....	Trenton, N. J.
†Albert T. Sellers, D.V.S.....	Camden, N. J.

†In the service of the local board of health.

‡Deceased.

## LIST OF SANITARY DISTRICTS

With Names and Addresses of Officers and Members.

## CITIES.

Asbury Park, Monmouth County; population 4,526. Members and Officers—Theodore H. Beringer, President; David W. Sexton, George F. Wilbur, M.D., Asher S. Burton, Harry C. Millar, B. H. Obert, Clerk and Registrar; H. R. Ingalls and L. J. Hamblet, Inspectors.

Atlantic City, Atlantic County; population 37,593. Members and Officers—Elwood S. Johnson, President; John J. Mahoney, Clarence S. Thompson, W. S. Laumaster, Alfred W. Baily, M.D., Harry J. Mulock, Wm. B. Dill, Secretary and Registrar; Edward Guion, M.D., Health Officer; Harry V. Beck, Health Inspector; Benj. H. Sooy, Henry Schneider, John W. Garey and Chas. McDowell, Assistant Health Inspectors; Thos. W. Clement, Food Inspector; Wm. F. Brode and Wm. F. Specht, Jr., Plumbing Inspectors.

Bayonne, Hudson County; population 42,262. Members and Officers—Pierre P. Garven, President; Garret L. Post, Edward S. Benson, James Knight, Jerry Lisk, Jr., Herman Klein, George T. Greenly, James D. Boyd, Secretary; John T. Connely and Charles J. Larkey, Health Officers; H. S. Winterhalter and Fred Wilson, Inspectors.

\*Belvidere, Warren County; population, 1,869. Members and Officers—F. P. Lefferts, M.D., Secretary.

Beverly, Burlington County; population, 2,258. Members and Officers—R. P. Hains, President; Berten Kiple, H. W. Abbott, Geo. A. Smith, J. D. Fish, Chas. J. Parsons, Clerk and Registrar; Geo. T. Tracy, M.D., Inspector.

Bordentown, Burlington County; population, 4,073. Members and Officers—Samuel E. Burr, President; Edwin L. Thompson, Jos. W. Higgins, Samuel R. Magee, David R. Brown, Wm. M. Kester, Clerk; Harry Kunzi, Registrar; Amos P. Thorn and Wm. H. Shipp, M.D., Inspectors.

Bridgeton, Cumberland County; population, 13,624. Members and Officers—Oscar E. Kellum, President; Wm. H. Ballenger, Jacob B. Jones, Fred Conner, Sydney E. Williams, Ellsmore Stites, M.D., J. H. Moore, M.D., Secretary; Frank L. Hewitt, Registrar; J. C. Loper, M.D., Inspector.

Burlington, Burlington County; population, 8,038. Members and Officers—Franklin S. Carter, President; John B. Cassidy, M.D., Neil D. Keeler, Marcus W. Newcomb, M.D., George W. Shinn, Thomas S. Mooney, Clerk and Registrar; Chas. H. W. Vansciver, Inspector.

Camden, Camden County; population, 82,912. Members and Officers—E. W. Collins, President; H. H. Davis, M.D., S. G. Bushey, M.D., M. K. Mines, M.D., M. F. Middleton, M.D., R. H. Gaskill, Wm. I. Ketchner, M.D., Eugene B. Roberts, Clerk; I. V. Bradley, Registrar; John F. Leavitt, M.D., Wm. H. Iszard, M.D., H. B. Francis, Jos. A. Starr, G. H. Robinson and L. P. Munion, Inspectors., Cape May County; population, 3,006. Members and Officers—A. L. Leach, M.D., President; Geo. L. Lovett, Robert S. Hand, W. R. Shepard, Wm. Porter, Clerk; V. M. D. Marcy, M.D., Inspector.

Dover, Morris County; population, 6,353. Members and Officers—D. S. Allen, President; A. W. Condit, M.D., P. H. Burrell, R. F. Woodhull, J. H. C. Hunter, Clerk and Registrar; John G. Taylor, Inspector.

East Orange, Essex County; population, 25,175. Members and Officers—Roger H. Butterworth, President; Frank B. Lane, M.D., Ralph H. Hunt,

\*No report received.

M.D., DeWitt Cook, Jr., Harvey Mott, Wm. T. Bowman, Health Officer and Secretary; Lincoln E. Rowley, Registrar; Chas. W. Banks, Bacteriologist.

**Egg Harbor, Atlantic County;** population 2,280. Members and Officers—August A. Breder, President; Henry G. Regensburg, Henry Otto, Wm. Morgenweck, Jr., Clerk and Registrar; J. U. Elmer, M.D., Inspector.

**Elizabeth, Union County;** population, 60,509. Members and Officers—John W. Whelan, President; J. L. Bauer, Edw. W. Connell, T. E. Dolan, M. D., J. S. Green, M.D., S. T. Quinn, M.D., S. M. Williams, John F. Kenah, Clerk and Registrar; L. J. Richards, P. J. Connell and Henry Toole, Inspectors.

**Englewood, Bergen County;** population, 7,922. Members and Officers—Floyd R. Du Bois, President, William C. Tucker, C. E. Weinmann, F. C. Bradner, M.D., Alfred Hopkirk, Secretary; Robert Jameson, Registrar; John A. Manson, Inspector.

**Gloucester City, Camden County;** population, 8,055. Members and Officers—Oliver J. Stetser, President; John Beaston, J. A. Beek, M.D., Thomas McNulty, John Redfield, George W. Turner, A. D. Koeman, Secretary; John K. Bennett, M.D., and Edward A. Dugan, Inspectors.

**Hackensack, Bergen County;** population, 11,093. Members and Officers—E. B. Walden, President; A. W. Lawton, Jos. Lincoln, Peter Nylander, Dr. E. K. Conrad, John H. DeMott, Coleman Gray, Robert Ballagh, Clerk and Inspector; F. S. Hallett, M.D., Health Officer.

**Hoboken, Hudson County;** population, 65,468. Members and Officers—J. H. Timken, President; D. H. Stuhrman, B. McGovern, Wm. C. Kackemester, John J. Rudolph, M.D., Joseph Tucker, Clerk and Registrar; W. T. Kudlich, M. D., Health Warden; Antonio Granelli, John Beronio and James A. Marnell, Inspectors; Jeannot Hostmann, Analyst.

**Jersey City, Hudson County;** population, 232,699. Members and Officers—John J. Broderick, M.D., President; Chas. E. Putnam, M.D., Henry J. Woelfle, M. D., Frederic A. Finn, M.D., Henry H. Brinkerhoff, M.D., Henry Mack, William Delaney, John Flesey, George Hendrickson, William J. Murphy, James J. Hagan, Secretary; Joseph A. Carlin, Registrar; Edward Devitt, John Harnett, Thomas Steele and John Q. Larkin, Inspectors.

**Lambertville, Hunterdon County;** population, 5,016. Members and Officers—Edward W. Closson, M.D., President; Albert D. Anderson, Wm. R. Bowne, Harry K. Kramer, James Moonan, George L. Romine, M.D., James H. Reynolds, Clerk and Registrar; John L. Corvell, Inspector.

**\*Long Branch, Monmouth County;** population, 12,183. Members and Officers—E. B. Blaisdell, Secretary and Registrar.

**Millville, Cumberland County;** population, 11,884. Members and Officers—John W. Wade, M.D., President, H. G. Miller, M.D., George W. Thorpe, James R. Headley, L. H. Hogate, Clerk and Registrar; Frank Bullock, Health Inspector; John D. Brandriff, Plumbing Inspector.

**Montclair, Essex County;** population, 16,370. Members and Officers—Moses N. Baker, President; Richard P. Francis, M. D., Levi W. Halsey, M.D., Herbert M. Lloyd, John N. Holton, Secretary; Chester H. Wells, Registrar and Health Officer; J. L. Ebbels and R. L. Huttenloch, Inspectors.

**Morristown, Morris County;** population, 12,146. Members and Officers—Isaac R. Pierson, President; John R. Burr, John D. Collins, F. H. Glazebrook, M.D., Clifford Mills, M.D., Registrar; Robert S. Van Dyke, Inspector.

**\*Newark, Essex County;** population 283,289. Members and Officers—Jas. F. Connelly, Registrar.

**\*New Brunswick, Middlesex County;** population, 23,133. Members and Officers—Benj. Gutmann, M.D., Secretary.

**Orange, Essex County;** population, 26,101. Members and Officers—George H. Richards, M. D., President; D. W. Poor, M.D., Ludlow B. Clark, John T. Davis, John Kane, O. S. Williams, L. M. Sanders, Selskar M. Gunn, Secretary, Registrar and Health Officer; Thomas F. Harris and Richard Savage, Inspectors.

**Passaic, Passaic County;** population, 37,837. Members and Officers—F. H. Field, M.D., President; J. J. Slater, J. A. Hanlon, C. F. H. Johnson, A. L. Pettersen, M. R. Strong, G. J. Van Schott, W. B. Davidson, Secretary and Inspector; Geo. F. Gear, Registrar; Hiram Williams, M.D., J. P. Lowe and Jacob Cooper, Inspectors.

**Paterson, Passaic County;** population, 111,529. Members and Officers—Franklin Van Winkle, President; James F. Briody, M.D., J. A. Browne, M.D., Wm. McKeon, John L. Leal, M.D., Francis H. Todd, M.D., James P. McNair, Clerk; Chas. S. Gall, Registrar; J. A. Browne, M.D., Health Officer; James Fitzpatrick, Wm. H. MacDonald, Wm. S. Green, M.D., and Wm. H. Lowe, Inspectors.

**\*Perth Amboy, Middlesex County;** population 25,895. Members and Officers—Cortlandt E. Brewster, Clerk.

**Phillipsburg, Warren County;** population, 13,325. Members and Officers—C. J. Pfeiffer, President; P. F. Hagerty, M. T. Lynch, A. Williston, M.D., Francis Coyne, Daniel Ziegler, Frank Kneedler, Clerk and Registrar; Howard R. Carey, Inspector.

**Plainfield, Union County;** population, 18,468. Members and Officers—B. V. Hedges, M.D., President; F. W. Dunn, C. H. Dunham, W. H. Kinney, T. S. Davis, M. D., Secretary; Miss H. O. Mattison, Registrar; L. R. Thurlow, Health Officer; John O'Brien, Jr., Assistant Health Officer; Wm. Addis, Sr., and C. A. Lamont, Inspectors.

**Rahway, Union County;** population, 8,649. Members and Officers—Joseph G. Smith, President; Wm. H. Randolph, Walter E. Cladek, M. D., Moses Ritter, W. J. Haliday, Chas. H. Lambert, Clerk and Registrar; Fred W. Sell, M.D., Health Officer; Fred J. Mix, Inspector.

**Salem, Salem County;** population, 6,443. Members and Officers—R. M. A. Davis, M.D., President; Charles E. Markley, Warren T. Sparks, L. H. Hummel, M.D., A. D. Mitchell, Clinton Bowen, Clerk and Registrar; Frank S. Harris, Inspector.

**Summit, Union County;** population, 6,845. Members and Officers—Allan B. Wallace, President, Parker W. Page, Dr. Thomas H. Rockwell, Dr. Wm. H. Lawrence, Jr., James G. Ovens, Dr. J. E. Rowe, Clerk and Registrar; T. J. Scott and John J. McGrath, Inspectors.

**Trenton, Mercer County;** population, 84,147. Members and Officers—Charles P. Britton, M.D., President; Elmer Barwis, M.D., Thomas S. Chambers, Francis B. Lee, George R. Moore, M.D., Howard N. Richards, M.D., Thomas B. Holmes, Clerk and Registrar; Alton S. Fell, M.D., Health Officer; Geo. W. Feaster, Plumbing Inspector; Wm. C. Allen, Edward L. Titus, Sanitary Inspector; Dr. G. F. Harker, Meat Inspector.

**\*Woodbury, Gloucester County;** population, 4,560. Members and Officers—Arthur Starr, Clerk.

## BOROUGHES.

**Allendale, Bergen County;** population, 762. Members and Officers—W. E. Carver, President; M. P. Couch, J. M. Hamilton, J. W. Rudolph, W. W. Pollock, Clerk.

**Allenhurst, Monmouth County;** population, 247. Members and Officers—James M. Ralston, President; Geo. D. Morrow, A. M. Hyatt, E. C. Armico, T. C. Cottrell, G. B. Cade, Clerk; James G. Havens, Registrar and Inspector.

**Allentown, Monmouth County;** population, 653. Members and Officers—Dr. H. P. Emley, President; H. Johnson, M. D., Chas. Spaulding, H. M. Anderson, M. D., Secretary; Wm. R. Forsyth, Registrar and Inspector.

**Alpine, Bergen County;** population, 448. Members and Officers—W. T. Opdyke, President; Douglass Green, Closter; John H. Conklin, L. H. Tavernier, Clerk, Registrar and Inspector.

**Andover, Sussex County;** population, 427. Members and Officers—J. C. Clark, M.D., President; S. S. Wills, W. E. Willson, Clerk; S. H. Willson, Registrar.

\***Anselea, Cape May County;** population, 400. Members and Officers—**Atlantic Highlands, Monmouth County;** population, 1,480. Members and Officers—Thomas J. Emery, Clerk and Registrar.

**Audubon, Camden County;** population, 525. Members and Officers—Frederick Wiehard, President, J. Lanning, J. Yardley, C. Clark, Howard Callingham, Clerk and Registrar, James Mackintosh, Inspector.

**Avalon, Cape May County;** population, 86. Members and Officers—Fred A. Canfield, Elbert B. High, Chas. W. Taylor, Chas. B. Kates, Clerk and Registrar; Hugh H. Holmes, Inspector.

\***Avon, Monmouth County;** population 328. Members and Officers—H. M. Dolan, Clerk and Registrar.

**Barnegat City, Ocean County;** population, 78. Members and Officers—John K. S. Cox, President; J. C. Bower, John W. Che w, J. C. Woodmansee, Clerk.

\***Bay Head, Ocean County;** population, 278. Members and Officers.—Julius Foster, Assessor.

\***Beach Haven, Ocean County;** population, 301. Members and Officers—W. F. Beer, Clerk.

**Belmar, Monmouth County;** population, 1,039. Members and Officers—Harry E. Snow, M.D., President; William M. Bergen, Cyrus B. Hence, George G. Titus, Frank P. Philbrick, John Allspatch, Nathan C. King, Chas. O. Hunut, Clerk and Registrar, Wm. A. Robinson, Acting Inspector.

**Bergenfield, Bergen County;** population, 1,095. Members and Officers—Mervyn Pratt, President; L. L. Holmes, William B. May, W. Banta Van Saun, John J. Huyler, Registrar.

**Bogota, Bergen County;** population, 522. Members and Officers—John McNaughton, President; Henry Wehrmaker, R. B. Lord, A. B. Bogert, A. E. Hausman, John F. Hill, Clerk; H. R. Ross, Registrar; M. G. Thewut, Health Officers; Robert Ballagh, Inspector, Hackensack.

**Bound Brook, Somerset County;** population, 3,389. Members and Officers—J. T. Robinson, M.D., President; C. R. P. Fisher, M.D., Geo. Stryker, W. S. Negus, Clerk; Chas. McNabb, Registrar and Inspector.

\***Bradley Beach, Monmouth County;** population, 1,037. Members and Officers—C. F. Burney, Clerk and Registrar.

\***Branchville, Sussex County;** population, 591. Members and Officers—Marvin D. Hayward, Secretary.

**Brigantine, Atlantic County;** population, 95. Members and Officers—E. R. Smith, Registrar.

**Butler, Morris County;** population, 2,188. Members and Officers—G. C. Coates, M.D., President; E. P. Smithyman, R. Guenter, Samuel K. Owen, Secretary; Allan Looker, Bloomingdale.

\***Caldwell, Essex County;** population, 1,670. Members and Officers—Isaac E. Baldwin, Secretary.

\***Cape May Point, Cape May County;** Members and Officers—Lafayette Miller, Registrar.

**Carlstadt, Bergen County;** population, 3,100. Members and Officers—Otto Landwehr, President; Chas. Lonz, E. F. Sickenberger, M.D., Rudolph Rayner, Clerk and Registrar; John Whitehead, Inspector.

**Chatham, Morris County;** population, 1,554. Members and Officers—Joseph E. Pollard, M.D., President; Walter V. Sayre, H. C. McBraier, J. T. Scott, D. H. Crawford, Clerk and Registrar; John J. McCormack, Inspector.

**Creshturst, Camden County;** population, 253. Members and Officers—John Graham, President; James Brearey, Harry Horton, Louis Salmon, A. L. Curado, Clarence High, Luther H. Wilson, John G. Bevan, Clerk and Registrar.

\***Clayton, Gloucester County;** population, 1,864. Members and Officers—C. F. Fisler, M. D., Registrar.

\***Cliffside Park, Bergen County,** population, 2,128. Members and Officers—Chas. B. Hearn, Clerk, Grantwood.

**Clinton, Hunterdon County;** population, 830. Members and Officers—A. S. Leatherman, President; James Mulligan, Wm. Knight, M.D., Wm. Carpenter, Geo. A. Hall, Clerk and Registrar.

\***Closter, Bergen County;** population, 1,272. Membets and Officers—Alfred Anderson, Secretary and Registrar.

**Collingswood, Camden County;** population, 2,538. Members and Officers—H. L. Bioly, President; Henry Bennett, Henry Bauer, W. L. Patterson, David Bayne, Benj. Gardner, C. C. Powell, Clerk and Registrar; E. S. Sheldon, M.D., Medical Inspector; Ernest Simpson, Plumbing Inspector.

**Cresskill, Bergen County;** population, 503. Members and Officers—C. A. Lewis, President; P. O. E. Rhuel, H. V. Westervelt, John Ferdon, Clerk; G. Y. Allaire, Registrar; J. B. W. Lansing, M. D., Inspector, Tenafly.

\***Deal, Monmouth County;** population, 164. Members and Officers—Frederick C. Weber, Clerk.

**Defford, Bergen County;** population, 841. Members and Officers—R. W. Cooper, President; New Milford; J. J. Van Wagner, Oradell; W. E. Williams, Oradell; Geo. F. Moore, Clerk, Oradell; H. A. Bingham, Registrar, Oradell; S. A. Vandewater, M.D., Inspector, Oradell.

**Demarest, Bergen County;** population, 480. Members and Officers—Matthew J. Bogert, President; Geo. V. Morton, Chas. E. Hutchison, Edward J. Carr, Albert Machold, Clerk and Registrar.

**Dumont, Bergen County;** population, 913. Members and Officers—R. D. Van Buskirk, President; P. E. Moore, V. B. Demarest, E. Stanley Clarke, Clerk and Registrar; J. E. Pratt, M.D., Inspector.

**Dunellen, Middlesex County;** population, 1,517. Members and Officers—John R. Campbell, President; Edward Pennock, Thomas H. Platt, Jr., M.D., Wilson S. Frederick, Clerk; Charles A. Coriell, Registrar; C. Wesley Blaine, Inspector.

\***East Newark, Hudson County;** population, 2,828. Members and Officers—**East Rutherford, Bergen County;** population, 3,165. Members and Officers—George Sanders, President; Wm. T. Sieger, Henry J. Harms, Oscar Fortenbach, W. E. Ogden, Health Officers; M. F. Onderdonk, Secretary and Registrar; Frank Hollerback, Inspector.

**Edgewater, Bergen County;** population, 1,392. Members and Officers—George W. Allison, President; John E. Mulligan, Edward M. Fitzgerald, William Bradley, Arthur J. Carleton, Clerk and Registrar.

**Elmer, Salem County;** population, 1,219. Members and Officers—J. V. Conover, President; Chas. H. Morris, Isaac B. Reeve, Joseph Leigh, P. Mason Fox, Clerk; Hiram Van Meter, Registrar.

**Emerson, Bergen County;** population,—. Members and Officers—F. Adolph Maul, President; Diedrich Wulff, August Block, Gustave Lucie, Clerk; Harry I. Angell, Registrar.

**Englewood Cliffs, Bergen County;** population, 266. Members and Officers—John G. Ropes, Assessor, Coytesville.

**Englishtown, Monmouth County;** population, 416. Members and Officers—Samuel Ely, President and Clerk; A. T. Vandoren, Richard Petty, Daniel Laird, Samuel S. Johnson, Registrar, Samuel Burke, Inspector.

**Essex Fells, Essex County;** population, 393. Members and Officers—Chas. G. White, President; C. E. Leach, W. F. Oakes, James C. Sprigg, F. Byrne Ivy, Clerk and Registrar.

**Fairview, Bergen County;** population, 1,693. Members and Officers—Chas. Sedore, President; John S. Tracy, Geo. Ellenbach, Chauncey M. Driggs, Clerk; Gustave Hellstern, Registrar.

**Fanwood, Union County;** population, 445. Members and Officers—F. W.

Westcott, M.D., President; A. D. Beeken, C. R. Vincent, Philip Nieder, S. W. McAneny, Secretary and Registrar.

\***Farmingdale, Monmouth County**; population, 399. Members and Officers—Frank P. Van Note, Clerk and Registrar.

\***Fieldsboro, Burlington County**; population, 451. Members and Officers—Wm. Leatherbury, Clerk.

**Florham Park, Morris County**; population, 803. Members and Officers—Charles H. Genung, President, Madison; Frank Budd, Chatham; Chas. Snyder, Madison; W. A. Helm, Clerk, Chatham; Wm. V. Tunis, Registrar, Madison; N. A. Felch, Inspector, Florham Park.

**Folsom, Atlantic County**; population—. Members and Officers—Jacob Blazer, Jr., Jacob T. Roller, Henry Roller, Joseph Limback, Louis Schulze, Secretary.

**Fort Lee, Bergen County**; population, 3,433. Members and Officers—R. B. Opitz, President, Palisade; S. J. Cooker, Fort Lee; Peter Scrittia, Fort Lee; David E. King, Coytesville; Gerome Sardi, Fort Lee; Robert H. Morrow, Clerk and Registrar, Coytesville; Max Wyler, Inspector, Fort Lee.

**Frenchtown, Hunterdon County**; population, 975. Members and Officers—Martin Bellis, President; Isaac W. Swick, Ernest J. Stryker, Wm. S. Dalrymple, Chas. B. Salter, Clerk; Wm. W. Rogers, Registrar.

**Garfield, Bergen County**; population, 5,092. Members and Officers—Miles C. Whitehead, President; Ernest Dahmert, Max Walter, Richard J. O'Brien, Louis H. Heinzman, Clerk and Registrar; Opke Bonnema, Martin D. Kari and John Bakelaar, Inspector.

**Garwood, Union County**; population, 564. Members and Officers—William Garry, President; J. M. Colwell, Howard S. Manning, Clerk and Registrar; James Bosley, Inspector.

\***Glen Ridge, Essex County**; population, 2,062. Members and Officers—H. K. Benson, Secretary.

**Glen Rock, Bergen County**; population, 778. Members and Officers—C. M. Viel, President; Peter H. Stun, John R. Ganabrough, Joseph H. MacGill, Chas. Harreys, M.D., R. E. Bassett, Clerk, Ridgewood; G. H. Soult, Inspector.

**Haddonfield, Camden County**; population, 3,466. Members and Officers—Charles H. Hillman, President; Stanley Rusk, Alfred J. Shuster, Walter H. Smith, Wm. H. Harrison, Clerk and Registrar; Edward F. Magill, Inspector.

**Haddon Heights, Camden County**; population, 654. Members and Officers—Geo. W. Water, M.D., President and Inspector; H. Grayson Smith, J. H. Hutchison, W. M. Pollock, Clerk; H. G. Smith, Registrar; Edw. R. Jenks, Inspector.

**Haledon, Passaic County**; population, —. Members and Officers—Ernest Schroeder, President; Fred Wenzel, Theo. Kegelman, Edward Pries, Clerk and Registrar; A. A. Lydecker, Inspector.

**Hampton, Hunterdon County**; population, —. Members and Officers—W. Frank Fritts, President; James Splane, Robert C. Thompson, Thomas J. Raber, Clerk and Registrar; T. B. Fulper, M.D., Inspector.

**Harrington Park, Bergen County**; population, 283. Members and Officers—A. E. Taylor, President; G. M. Osterberg, J. F. Gleason, J. F. Hallenbeck, Clerk and Registrar, all of Harrington.

**Hasbrouck Heights, Bergen County**; population, 1,650. Members and Officers—H. B. Van Note, President; John G. Martin, S. V. Morris, M.D., Wm. J. Schweichert, Clerk and Registrar; D. M. Davidson, Plumbing Inspector, Rutherford.

**Haworth, Bergen County**; population, 400. Members and Officers—E. H. Schuyler, President; A. Martinot, M. Dieck, H. R. Roden, H. E. Crocker, Henry F. Copeland, Clerk and Registrar.

**Hawthorne, Passaic County**; population, 2,570. Members and Officers—Paul A. Wieland, President; Bruce Beveridge, F. D. Garrison, C. D. Petry, John G. Whittaker, Clerk; W. E. Thompson, Registrar; Dr. S. Utter, Inspector, Paterson.

\*No report received.

**Helmetta, Middlesex County**; population, 575. Members and Officers—James Deming, President; Andrew York, Clinton M. Clemons, John Hysore, Robert J. Franklin, Clerk; Edward M. Clemons, Registrar; J. C. Shinn, M.D., Inspector, Jamesburg.

**High Bridge, Hunterdon County**; population, 1,352. Members and Officers—P. H. Murray, President and Registrar; Samuel Tait, John L. Phillips, Clerk; Wm. C. Alpaugh, M.D., Inspector.

**Highland Park, Middlesex County**; population, 714. Members and Officers—Chas. Nourse, President; Joseph Dunham, Peter Leuker, A. F. W. Mueller, Chas. Meserole, Wm. H. Holman, Clerk and Registrar; F. J. Lucas, Inspector.

**Highlands, Monmouth County**; population, 1,275. Members and Officers—H. Frazier, President; John L. Opferman, Wm. Guy, Perry Martin, D. T. Herbert, Calvin Parker, Clerk and Registrar; Wm. Lane and Samuel Strauss, Inspectors.

\***Hightstown, Mercer County**; population, 2,093. Members and Officers—A. V. Pierson, Clerk.

\***Holly Beach, Cape May County**; population, 1,327. Members and Officers—Forest B. Long, Clerk and Registrar.

**Hopatcong, Sussex County**; population, 125. Members and Officers—Lewis S. Pilcher, M. D., President; John Aldred, Dwight B. Smith, Thos. B. Atterbury, Theo. A. K. Gessler, Clerk and Registrar; Harold Moore, Inspector; all of Landing.

**Hopewell, Mercer County**; population, 984. Members and Officers—Robert P. Miller, M.D., President; Wm. H. Hart, John H. Merz, Jos. B. Hill, Robert Zulauf, Clerk and Registrar.

\***Island Heights, Ocean County**; population, —. Members and Officers—

\***Jamesburg, Middlesex County**; population, —. Members and Officers—

\***Kenilworth, Union County**; population, —. Members and Officers—Charles Knudson, Clerk.

\***Lavallette, Ocean County**; population, 22. Members and Officers—A. G. Fisher, Registrar.

**Leonia, Bergen County**; population, 1,041. Members and Officers—Henry R. Goesser, President; Fred K. Ellerbrook, Chas. W. Mooney, Arthur D. Bogert, H. M. Thompson, Clerk and Registrar; J. T. Wyckoff, M. D., Inspector.

**Linden, Union County**; population, 403. Members and Officers—H. B. Hardenburg, President; H. L. Browing, H. D. Huston, Philetus Smith, John F. Watson, — Neubauer, Clarence H. Smith, Clerk and Registrar; Wm. H. Donaldson, Inspector.

\***Linwood, Atlantic County**; population, 503. Members and Officers—James Farish, Secretary and Registrar.

**Little Ferry, Bergen County**; population, 1,772. Members and Officers—Thomas Stiger, President; Wm. H. Sall, Frank Novak, Louis Brauer, Clerk and Registrar; Adam Holtz, Inspector.

**Lodi, Bergen County**; population, 2,793. Members and Officers—Ernest L. Rumsey, President; John W. Lane, Anthony Cavallo, Eddy Meyers, Jacob Van Hook, Clerk and Registrar; Henry H. Brevoort, M.D., Inspector.

**Longport, Atlantic County**; population, 133. Members and Officers—Thos. D. Sullivan, President; Howard Stout, Bolton E. Steelman, W. D. Jackson, E. Fullerton Cook, Clerk and Registrar; Michael McCoy, Inspector.

**Madison, Morris County**; population, 4,115. Members and Officers—Dr. I. N. Van De Water, President; F. H. Seward, M.D., A. G. Evens, J. J. C. Humbert, E. P. Holden, S. Fred Burnett, Registrar and Inspector.

**Manasquan, Monmouth County**; population, 1,636. Members and Officers—A. H. Miller, President; Alonzo Mount, Wm. Thorp, Robert M. Marks, Clerk and Registrar; R. B. Campbell, Inspector.

**Margate City, Atlantic County**; population, —. Members and Officers—Anthony Gertzen, Jr., President; Geo. A. McClain, John Gertzen.

\*No report received.

**Matawan, Monmouth County; population, 1,479. Members and Officers.**—Wm. Hardwick, President; A. J. Jackson, M.D., Geo. W. Parker, Bart Tice, I. T. Rue, Wm. A. Rodgers, Clerk, Registrar and Inspector.

**Maywood, Bergen County; population, 687. Members and Officers.**—Henry Heck, President; Gustav Berroyer, J. H. Burr, F. Schwere, Frank Freeland, M. D., J. M. Masters, G. M. Fetzer, Clerk and Registrar.

**Merchantville, Camden County; population, 1,632. Members and Officers.**—F. W. Kleinz, President; John Garrison, J. E. Vankirk, A. H. Moses, J. Lawrence, M. D., W. B. Stewart, Clerk and Registrar; Wm. Linderman, Inspector.

**Metuchen, Middlesex County; population, 1,907. Members and Officers.**—A. C. Kelly, President; R. B. Crowell, F. M. Orton, C. P. Hull, H. Gross, M. D., Secretary; A. L. Ellis, M.D., Registrar.

**Midland Park, Bergen County; population, 1,617. Members and Officers.**—Charles R. Mastin, President; A. F. Hall, Wm. Ryans, Wortendyke; C. P. Morgan, Chas. B. Williams, Clerk and Registrar; Joseph Payne, M.D., Inspector.

**Millstone, Somerset County; population, 156. Members and Officers.**—S. O. B. Taylor, M.D., President; W. C. Kitchen, Enoch M. Davis, J. H. Haganman, John P. Ditmars, Wm. H. Polhemus, Clerk; Harry Tomlinson, Registrar.

**Milltown, Middlesex County; population, 1,210. Members and Officers.**—Conrad Wagner, President; Adam Wagner, Henry Kuhlthian, Milton Brindle, John Dorn, Wm. G. Evans, Clerk; Robert A. Harkins, Registrar, N. N. Forney, M. D., Inspector.

**\*Monmouth Beach, Monmouth County; population, —. Members and Officers.**—

**\*Montvale, Bergen County; population, 502. Members and Officers.**—John B. Hering, Registrar.

**Mount Arlington, Morris County; population, 250. Members and Officers.**—R. J. Chaplin, President; F. H. Tappen, F. J. Werner, H. C. Upchurch, M. D., Clerk, Kenvil; C. E. Cook, Registrar; F. L. Schafer, Inspector.

**\*Mountainside, Union County; population, 314. Members and Officers.**—Robert Laing, Registrar.

**\*Mount Tabor, Morris County; population, —. Members and Officers.**—Frank S. Waller, Secretary.

**\*National Park, Gloucester County; population, 160. Members and Officers.**—Adolphus S. Dean, Clerk.

**\*Neptune City, Monmouth County; population, 808. Members and Officers.**—J. H. Leming, Clerk and Registrar, Avon.

**\*Netcong, Morris County; population, 1,024. Members and Officers.**—Chas. W. Eaton, Secretary.

**New Providence, Union County; population, 754. Members and Officers.**—Alfred G. Nason, President, Murray Hill; Wm. T. Hickson, Albert E. Jackson, West Summit; Edward Nelson, Wm. Woodruff, Clerk and Registrar.

**\*North Arlington, Bergen County; population, —. Members and Officers.**—H. C. Barliss, Registrar.

**North Caldwell, Essex County; population, 493. Members and Officers.**—Charles B. Gould, President, Ralph C. Back, Louis Kussman, Wm. Little, Sherman Paddock, Clerk; Fred L. Baldwin, Registrar, all of Caldwell.

**Northfield City, Atlantic County; population, 683. Members and Officers.**—Joseph Lake, President; Walter Heckman, Wm. Oxley, T. L. McConnell, E. C. Duberson, Clerk and Registrar.

**North Haledon, Passaic County; population, 697. Members and Officers.**—Wm. Cloves, President; Wm. J. Ellis, Chas. E. Ellis, Thos. F. Lord, Edward Watson, Joseph Graham, John Hay, Samuel Cloves, Clerk and Registrar; A. A. Lydecker, M. D., Inspector, Haledon.

**\*North Plainfield, Somerset County; population, 5,616. Members and Officers.**—A. H. Dundon, M. D., Clerk and Registrar.

**\*North Spring Lake, Monmouth County; population, —. Members and Officers.**—F. M. Hunt, Registrar, Spring Lake Beach.

\*No report received.

**Norwood, Bergen County; population, 432. Members and Officers.**—Henry Eling, President, Demarest; Joshua Wood, Norwood; Wm. Harra, West Norwood; Andrew Portz, Closter; Paul Luebker, Secretary and Registrar, Norwood; A. W. Ward, M. D., Inspector, Closter.

**Nutley, Essex County; population, 4,556. Members and Officers.**—James L. Miller, President; R. W. Booth, W. H. De Vausney, E. P. Montague, Geo. Hawksworth, Clerk and Registrar, E. E. Farth, Inspector.

**\*Oakland, Bergen County; population, 586. Members and Officers.**—W. B. Romaine, Secretary.

**Oaklyn, Camden County; population, 454. Members and Officers.**—J. F. Johnson, President, Frank Ashdale, Wm. Link, Emil C. Hessert, Clerk and Registrar.

**Ocean City, Cape May County; population, 1,835. Members and Officers.**—Charles B. Rider, M. D., President; N. H. Burt, M. D., I. N. Griscom, M. D., C. E. Edwards, M. D., E. W. Burleigh, T. Lee Adams, Clerk, Registrar and Health Officer.

**Ocean Grove, Monmouth County; population, —. Members and Officers.**—A. E. Ballard, President; J. H. Alday, M. D., Henry Wheeler, W. H. Wardell, E. N. Cole, H. B. Alday, M. D., Secretary and Inspector.

**\*Old Tappan, Bergen County; population, 280. Members and Officers.**—R. B. Haring, Clerk and Registrar, Westwood.

**\*Orvil, Bergen County; population, 443. Members and Officers.**—Francis C. Kopp, Secretary and Registrar, Hohokus.

**Palisades Park, Bergen County; population, 911. Members and Officers.**—Henry Clark, President; R. Steenland, Eben Valentine, J. S. Van Dyke, M. D. Wm. Sehner, Walter G. Stevens, Secretary and Registrar.

**Park Ridge, Bergen County; population, 1,189. Members and Officers.**—H. C. Neer, M. D., President; J. A. Moenig, M. D., Martin Verbeyst, H. Strohsahl, Thos. G. Forbes, Clerk and Registrar, D. W. Woodley, Inspector.

**Paulsboro, Gloucester County; population, 2,269. Members and Officers.**—R. H. Reeves, President; Wm. Gainer, Wilmer Leap, Jacob Ballinger, Registrar; Geo. C. Laws, Inspector.

**Pemberton, Burlington County; population, 821. Members and Officers.**—A. J. Morris, J. G. Montgomery, John B. Nutt, C. B. Wallace, Jos. O. Jones, J. N. Cleveger, Wm. H. Smith, J. J. Brander, Clerk.

**Pennington, Mercer County; population, 768. Members and Officers.**—P. A. Caughell, President; G. W. Scarborough, G. W. Snook, Henry L. Laning, Clerk; Frank A. Blackwell, Inspector.

**\*Pennsgrove, Salem County; population, 2,062. Members and Officers.**—C. P. Lumnis, M. D., Secretary.

**\*Pitman Grove, Gloucester County; population, —. Members and Officers.**—Harry Rulon, Clerk.

**Pleasantville, Atlantic County; population, 2,824. Members and Officers.**—H. C. Thomas, President; C. M. Shewell, G. W. Braun, John Stevenson, Seward Schofield, Thomas F. Crawford, Clerk and Registrar; R. M. Sooy, M. D., Inspector.

**Point Pleasant, Ocean County; population, 977. Members and Officers.**—Chas. W. Dampman, President; Jos. Ellerson, Chas. Imlay, J. E. Harney, Clerk and Registrar, H. C. Shoemaker, Jr., Inspector.

**\*Pompton Lakes, Passaic County; population, 1,013. Members and Officers.**—Horace L. Wells, Secretary and Registrar.

**Port Republic City, Atlantic County; population, 451. Members and Officers.**—Daniel Fielder, President; G. Fielder, Elias Conover, Wm. P. Vansant, John W. Barton, Secretary.

**Princeton, Mercer County; population, 6,029. Members and Officers.**—E. H. Loomis, President; Richard Rowland, A. A. Woodhull, Jos. L. Hoff, Bayard Stockton, Wm. L. MacLaren, M. D., W. B. Howe, Clerk; V. D. Bayles, Registrar.

\*No report received.

**Prospect Park, Passaic County;** population, 1,911. Members and Officers—Jacob Doebe, President; John Crawford, John Boer, Alfred McHuley, Lambertus Touw, Clerk and Registrar; A. A. Lydecker, M. D., Inspector, Haledon.

**Raritan, Somerset County;** population, 3,944. Members and Officers—Thomas P. Traynor, President; John Fahey, B. F. Seaman, M.D., Wm. Wharton, Geo. Brightbill, Clerk and Registrar; Michael Corcoran, Inspector.

**Ridgefield, Bergen County;** population, 745. Members and Officers—Dr. M. S. Ayers, President and Inspector; S. V. Martling, John Banta, W. K. Davison, James J. Conór, Clerk and Registrar.

**\*Riverside, Bergen County;** population, 670. Members and Officers—W. E. Martin, Clerk, River Edge.

**Riverton, Burlington County;** population, 1,557. Members and Officers—Harry P. Wyman, President; Edward C. Stoughton, Charles A. Wright, Benj. S. Meehling, Charles S. Mills, M.D., Clerk and Inspector; Jacob G. Cottrell, Registrar.

**\*Rockaway, Morris County;** population, 1,585. Members and Officers—John H. Miller, Borough Clerk.

**Rocky Hill, Somerset County;** population, 479. Members and Officers—J. H. W. Tilton, President; A. E. Haines, H. H. Mount, W. N. Stults, C. R. Baldwin, Clerk and Registrar; Peter Madsen, Inspector.

**Roosevelt, Middlesex County;** population, —. Members and Officers—Edward J. Heil, President, Adolph Grohman, Isadore Shwartz, Frank Born, Clerk; C. C. Sheridan, Registrar, Joseph Wantoch, M.D., Inspector.

**Roselle, Union County;** population, 2,142. Members and Officers—W. B. Hadley, President; John I. Howe, H. C. Pierson, M. D., G. W. Strickland, M.D., James W. Hope, A. A. Pope, J. D. Cooper, Secretary and Registrar; Wm. Morris, Inspector.

**Roselle Park, Union County;** population, 2,236. Members and Officers—S. W. Kingsland, President; H. M. Bangert, J. C. Monier, Geo. W. Dennick, Wm. Morris, Clerk, Registrar and Inspector.

**Rutherford, Bergen County;** population, 5,218. Members and Officers—Chas. Colhoun, M.D., President; C. R. Hunt, F. W. Fleming, Geo. F. Schermerhorn, F. F. Fritts, F. M. Buckles, Clerk and Registrar; G. K. Thomas, Inspector.

**Saddle River, Bergen County;** population, 474. Members and Officers—George M. Eckert, President, Saddle River; R. A. Adams, Hohokus; Wm. Blackledge, Saddle River; Wm. Walling, Waldwick; Robert T. Wilson, Saddle River; James L. Ackerman, Clerk, Saddle River; A. Van Nostrand, Inspector, Westwood.

**Seabright, Monmouth County;** population, 1,166. Members and Officers—Isaac Levy, President; Clarence Walling, Daniel Poppenja, James P. Armstrong, Clerk; J. Larry Fitcher, Inspector.

**Sea Isle City, Cape May County;** population, 432. Members and Officers—James Eustace, President; Thos. Mitchell, H. G. Stimus, M.D., John M. Ross, Clerk; A. S. Steelman, Registrar.

**Seaside Park, Ocean County;** population, 92. Members and Officers—Dr. Chas. S. Harker, President; Chas. B. Coles, L. J. Stone, A. E. Clayton, G. H. Thatcher, Clerk and Registrar.

**Secaucus, Hudson County;** population, 3,191. Members and Officers—Henry Leib, President; Henry Glendmeyer, Andrew Hornung, Lewis G. Asmus, Frank Van Dyne, Clerk; George Fox, Inspector.

**Somers Point, Atlantic County;** population, 431. Members and Officers—Wm. Thompson, President; Wm. M. Himeback, Lewis Mason, David Robinson, T. G. Middleton, Clerk and Registrar.

**South Amboy, Middlesex County;** population, 6,258. Members and Officers—J. C. Allbright, M.D., President; Wm. Woodward, Chas. S. Buckelew, Edward J. O'Connor, A. J. Miller, F. E. DeGrow, Clerk; Wm. J. Nagle, Jr., Registrar Wm. Parisen, Inspector.

\*No report received.

**South Bound Brook, Somerset County;** population, —. Members and Officers—E. B. Randolph, President; E. D. Latourette, Wm. T. Morecraft, J. T. Robinson, M.D., James P. Hoffman, Clerk and Registrar.

**\*South Cape May, Cape May County;** population, 5. Members and Officers—James Ritchie, Mayor.

**South River, Middlesex County;** population, 3,585. Members and Officers—A. W. Bissett, President; Charles Anderson, Jesse Selover, Clerk; J. Conover Bourne, Registrar; R. V. Reid, Inspector.

**\*Spring Lake, Monmouth County;** population, 1,039. Members and Officers—D. H. Hills, Clerk and Registrar.

**Stanhope, Sussex County;** population, 887. Members and Officers—Chas. E. Herrick, President; Frank Todd, John Slaght, Theo. Y. King, J. J. Shaw, Clerk.

**Stockton, Hunterdon County;** population, 588. Members and Officers—Horace M. Reading, President; Hiram B. Neice, Peter A. Shepherd, Godfrey C. Stout, John S. Wilson, Clerk; Philip E. Rockafellow, Registrar and Inspector.

**Sussex, Sussex County;** population, 1,318. Members and Officers—H. D. Van Gaasbeek, M.D., President; J. L. McCoy, Edward Vansyckel, S. F. Quince, Clerk; H. E. Wells, Registrar; Moses Green, Inspector.

**Swedesboro, Gloucester County;** population, 1,484. Members and Officers—Frederick Weber, President; Dr. J. G. Halsey, Charles Lecroy, W. H. Rieger, Clerk and Registrar; Dr. T. B. Turner, Inspector.

**Tenafly, Bergen County;** population, 2,142. Members and Officers—J. J. Haring, M.D., President; Richard Delahanty, Walter Bogert, J. M. MacKellar, M.D., Clerk; J. B. W. Lansing, M.D., Registrar and Inspector.

**\*Totowa, Passaic County;** population, 738. Members and Officers—Wilbur DeMott, Secretary and Registrar, Paterson.

**\*Tuckerton, Ocean County;** population, 1,332. Members and Officers—J. F. Mathis, Secretary.

**\*Upper Saddle River, Bergen County;** population, 324. Members and Officers—Henry Zabriski, Secretary and Registrar.

**\*Ventnor City, Atlantic County;** population, 116. Members and Officers—James G. Scull, Secretary.

**Verona, Essex County;** population, —. Members and Officers—W. Pitt Rich, President; W. J. Whitaker, Wm. A. Schneider, Judson W. Parker, Louis C. Miller, Clerk; Chas. S. Simonson, Registrar; Chester H. Wells, Inspector, Montclair.

**Vineland, Cumberland County;** population, 4,593. Members and Officers—W. J. Large, President; C. M. Gray, M.D., W. F. Gilder, Frank Cunningham, Geo. W. Lamb, Clerk and Registrar; J. H. Winslow, M.D., Inspector.

**\*Wallington, Bergen County;** population, 2,475. Members and Officers—James Brennan, Secretary and Registrar.

**Washington, Warren County;** population, 3,431. Members and Officers—F. M. McKinstry, M.D., President; Thos. S. Dedrick, M.D., Chas. M. Williams, M.D., Daniel V. Wyckoff, Henry Johnston, Wesley Fleming, A. J. Craft, Registrar; Geo. C. Losey, Inspector.

**Wenonah, Gloucester County;** population, 569. Members and Officers—Wm. C. Cattell, President; John M. Colbert, Hamilton Turner, George L. Dilks, Jesse W. English, Clerk and Registrar; Henry H. Stout, M.D., Inspector.

**\*West Caldwell, Essex County;** population, 490. Members and Officers—John R. Jacobus, Secretary.

**\*West Cape May, Cape May County;** population, 902. Members and Officers—John D. Craig, Clerk, Eldredge.

**Westwood, Bergen County;** population, 1,044. Members and Officers—G. M. Ottignon, President, C. E. Haring, T. P. Kidd, J. J. Blauvelt, D. B. Stone, N. Cleveland, Clerk and Registrar.

**Wharton, Morris County;** population, 2,285. Members and Officers—

\*No report received.



H. W. Kice, M.D., President, John Birmingham, J. H. Williams, J. J. Langdon, Fred Rogers, Clerk, W. H. Force, Registrar.

**Wildwood, Cape May County;** population, 500. Members and Officers—Henry Coombs, President; John Daggan, H. H. Tomlin, M.D., Curtis Baker, Otto C. Koeneke, Clerk and Registrar; Harry C. Hendee, Inspector.

**Woodbine, Cape May County;** population, 1,850. Members and Officers—Wm. Lipman, President; B. Breslaw, R. Rainer, R. Zellermeier, Sam Rosenfeld, Frederick Schmidt, Clerk and Registrar; Dr. Behrman and Dr. Moss, Inspectors.

**Woodcliff, Bergen County;** population, 477. Members and Officers—Wm. English, President; John H. Wortendyke, Augustus Cleveland, David H. Tice, Allendale; Peter E. Van Riper, Allendale; G. J. Wortendyke, Clerk and Registrar, Allendale, R. F. D., No. 2.

\***Wood Lynne, Camden County;** population, 388. Members and Officers—Frank G. Mugglesworth, Clerk and Registrar.

**Wood Ridge, Bergen County;** population, 721. Members and Officers—J. H. Schmitt, President; F. C. Ball, J. Dorfinger, F. W. Lehmann, Clerk and Registrar; G. Holtz, Inspector.

**Woodstown, Salem County;** population, 1,500. Members and Officers—Isaac B. Coles, President; Henry V. Foster, Wm. Coleman, Richard E. Corson, Dr. E. P. McGeorge, Wm. B. Foster, Clerk and Registrar, F. P. Vanlier, Inspector.

#### TOWNS.

**Absecon, Atlantic County;** population, 616. Members and Officers—Lewis G. Bonfield, President; A. J. Craven, Henry Alexander, Samuel Johnson, Clerk and Registrar; Dr. C. C. Allen, Inspector.

**Bloomfield, Essex County;** population, 11,668. Members and Officers—J. J. Thompson, President; Jacob Wolfe, M.D., John Moore, M.D., Wm. Ritsches, Seymour P. Gilbert, Dr. Joseph C. Saile, Clerk, Registrar and Inspector.

**Boonton, Morris County;** population, 3,935. Members and Officers—Thomas Heaton, President; John Glennon, Giles Millet, Frank N. Banta, Clerk and Registrar.

**Freehold, Monmouth County;** population, 3,064. Members and Officers—E. D. Clayton, President; W. A. Barkalow, H. S. Brown, M.D., Alonzo White, S. L. Bennett, C. V. Du Bois, Alonzo Brower, Clerk, Registrar and Inspector.

**Guttenberg, Hudson County;** population, 4,563. Members and Officers—Jacob B. Zimmerman, President; Chas. A. Burnell, Philip Martin, Joseph Hurley, Max Rosivatch, Charles A. Eypper, Wm. Baudendeistel, W. G. Langenhop, Clerk; F. S. Pindar, M.D., Inspector.

**Hackettstown, Warren County;** population, 2,594. Members and Officers—W. J. Barker, President; Jos. W. Curtis, A. C. Van Syckle, M.D., Thos. Nolan, A. G. Boettiger, Clerk and Registrar; R. G. Clark, Inspector.

**Hammonton, Atlantic County;** population, 4,334. Members and Officers—A. J. Rider, President; John Walther, C. R. Scullen, J. L. O'Donnell, John A. Hoyle, J. C. Bitler, M.D., Clerk and Registrar; Chas. Cunningham, M.D., Inspector.

**Harrison, Hudson County;** population, 12,824. Members and Officers—John T. Malone, President; H. Allers, M.D., Nathaniel Comey, Jas. A. Reid, Laurence S. Fagans, Clerk; John T. McClure, Inspector.

**Irvington, Essex County;** population, 7,180. Members and Officers—Jonah Hardgrove, President; Hergo Winkler, Julius Bartosch, Benjamin F. Camp, Fred Engel, Edwin Berry, Clerk; Joseph Sonnenberg and Joseph K. Clickenger, Inspectors.

**Kearny, Hudson County;** population, 13,601. Members and Officers—Nevin Kennedy, President; Elias Schiller, John R. O'Connor, Carl F. Fachan,

Wm. P. Anderson, John B. Thomson, Clerk; Robt. O. England, Registrar; Albert E. Geissler, Inspector.

**Keypoint, Monmouth County;** population, 3,385. Members and Officers—Gustave Mauer, President; Abram Huyler, S. F. Mason, William Degroff, H. W. Hartman, M.D., Chas. F. Tuthill, Clerk and Registrar; James M. Walling, Inspector.

**Red Bank, Monmouth County;** population, 6,263. Members and Officers—Dr. Jas. McCaffrey, President; Wm. P. Frey, Nicholas J. Wilson, B. H. Garrison, M.D., Howard S. Higginson, Clerk and Registrar; Elwood Minugh, Inspector.

**Somerville, Somerset County;** population, 4,782. Members and Officers—A. L. Stillwell, M.D., President; John B. Osbourn, Wm. B. Steels, T. H. Flynn, M.D., Wm. R. Sutphen, Clerk and Registrar; George D. Totten, Inspector.

**Town of Union, Hudson County;** population, 17,005. Members and Officers—Chas. F. Ruh, President; Charles Steller, Rud. Riemenschneider, John Weil, Fred Zapp, Richard Specker, Clerk; Emil Malsner, M.D., Inspector.

**Westfield, Union County;** population, 5,265. Members and Officers—Joseph B. Harrison, M.D., President; Sherman Cooper, M.D., Geo. L. Delatour, Homer H. Butler, C. W. Harden, Clerk and Registrar; Edward Edgar, Inspector.

\***West Hoboken, Hudson County;** population, 29,082. Members and Officers—Wm. Ziegler, Clerk.

**West New York, Hudson County;** population, 7,196. Members and Officers—F. A. Crawley, President; Rudolf Kunze, Wm. Woringer, Jos. Lindner, Harry Kuhlke, Clerk.

**West Orange, Essex County;** population, 7,872. Members and Officers—H. J. Fiendt, President; John B. Landes, Carl Stanton, J. M. Maghee, Joseph Fleming, Clerk and Registrar; Dr. J. M. Maghee, Inspector, and R. W. Kenney, Inspector.

#### VILLAGES.

**Ridgefield Park, Bergen County;** population, —. Members and Officers—John H. Ficken, President; E. J. Benson, Wm. G. White, Joseph Fletcher, John H. Vetter, Howard B. Ficken, Clerk; Wm. H. Hunter, Registrar; C. A. Knox, M.D., Inspector.

**Ridgewood, Bergen County;** population, 3,980. Members and Officers—John B. Hopper, President, H. S. Willard, M.D., E. T. White, W. H. Moore, John T. Hanks, Secretary; J. B. Hopper, Registrar; H. H. Pettit, M.D., Health Officer; G. H. Soult, Plumbing Inspector.

**South Orange, Essex County;** population, 4,932. Members and Officers—Mefford Runyon, M.D., President; Richard Freeman, M.D., Francis Spier, Jr., Louis V. Blanchet, J. Budd Smith, Edwin S. Allen, Secretary; A. C. Benedict, Registrar and Inspector; H. C. Hoskier, Inspector.

#### TOWNSHIPS.

**Acquackanonk, Passaic County;** population, 7,187. Members and Officers—Richard Berry, President and Registrar, Clifton; Geo. F. Schmidt, Clifton; Eugene F. Paget, Richfield; Henry Frederick, Delawanna; Frederick W. Wusterbarth, Lakeview; Wm. Lemke, Delawanna; Edo M. Yereance, Clerk, Clifton; Jas. F. Sutton, Inspector, Clifton.

**Alexandria, Hunterdon County;** population, 1,007. Members and Officers—Wm. V. Bloom, President, Little York; Walton Martin, Mt. Pleasant; Joseph Hoff, Everitstown; John C. Wilson, Clerk and Registrar, Everitstown; F. S. Grimm, M.D., Inspector, Baptiststown.

**Allamuchy, Warren County;** population, 571. Members and Officers—Z. R. McMurtrie, President, Great Meadows; F. A. Heyder, Allamuchy; Benj.

A. Hendershot, Clerk, Allamuchy; Geo. A. Jilson, Registrar, Allamuchy; L. C. Osmun, M.D., Inspector, Hackettstown; Eli Dereiner, Inspector, Allamuchy.

\***Alloway, Salem County**; population, 1,562. Members and Officers—J. S. Watson, M.D., President, Yorktown; Warren L. Ewen, M.D., Alloway; Joseph Garton, Cohansey; Chas. Timberman, Clerk, Alloway; Wm. E. Simkins, Registrar; Elmer, R. F. D.

\***Andover, Sussex County**; population, 478. Members and Officers—Wm. IIiff, Clerk, Lafayette.

\***Atlantic, Monmouth County**; population, 1,355. Members and Officers—J. H. Johns, Clerk, Vanderberg.

\***Bass River, Burlington County**; population, 728. Members and Officers—Jos. B. Lanson, Clerk, New Gretna.

\***Bedminster, Somerset County**; population, 2,246. Members and Officers—Chas. H. Tiger, President, Peapack; Chas. Hoffman, Pottersville; Chas. Woods, Bedminster; M. C. Smalley, M.D., Gladstone; J. B. Beekman, Bedminster; W. D. Vanderbeek, Registrar, Gladstone.

\***Belleville, Essex County**; population, 7,632. Members and Officers—Edward O. Cypher, M.D., President; Joseph Weston, Wm. Hirdes, George Stoniar, W. E. Becthold, Edward Matthes, Clerk; H. W. Underwood, Registrar; George W. Williamson, Inspector; all of Belleville.

\***Berkeley, Ocean County**; population, 558. Members and Officers—Charles W. Ward, President, Bayville; Stout R. Johnson, Bayville, Wm. Britton, Jr., Bayville; R. L. Disbrow, M.D., Toms River; Marcus B. Allen, Clerk; Bayville; Devine Butler, Registrar, Bayville.

\***Bernards, Somerset County**; population, 4,514. Members and Officers—H. R. Kunhardt, President, Bernardsville; Van Clee Meeker, Bernardsville; John M. Holmes, Bernardsville; Julius Froehlin, Liberty Corner; James E. Bathgate, Jr., Basking Ridge; J. E. Buck, Clerk and Registrar, Bernardsville; Josiah Meigh, M.D., Inspector, Bernardsville.

\***Bethlehem, Hunterdon County**; population, 1,594. Members and Officers—G. C. Lott, Clerk, Junction.

\***Beverly, Burlington County**; population, 2,181. Members and Officers—George D. McIvalne, President, Beverly; Frank H. Story, Delanco; Harry D. Cramp, Beverly; Jos. B. Carter, Clerk and Registrar, Delanco; H. K. Weiler, M.D., Inspector, Delanco.

\***Blairstown, Warren County**; population, 1,537. Members and Officers—Theodore B. Daws, President, Blairstown; John E. Jones, Blairstown; Isaiah Lance, Columbia; Joseph A. Dugan, Clerk and Registrar, Vail; H. O. Carhart, M.D., Inspector, Blairstown.

\***Boonton, Morris County**; population, 343. Members and Officers—Harry Gordon, Clerk and Registrar, Boonton.

\***Bordentown, Burlington County**; population, 534. Members and Officers—C. Mendenhall, M.D., President, Bordentown; Samuel Johnson, Bordentown; Harrison Chambers, Yardville; Chas. T. Taylor, Bordentown; Dr. Hugh Le Jambre, Secretary, Registrar and Inspector, Bordentown.

\***Branchburg, Somerset County**; population, 979. Members and Officers—Tunis Ten Eyck, President, North Branch; Wm. V. D. Jelliffe, North Branch Station; S. D. Opie, Neshanic Station; Augustus McCullough, Registrar, North Branch Sta.; Henry V. Davis, Inspector, North Branch.

\***Brick, Ocean County**; population, 2,112. Members and Officers—J. H. Harvey, Secretary and Registrar, Point Pleasant.

\***Bridgewater, Somerset County**; population, 962. Members and Officers—John G. Coddington, President, Somerville; Tunis Mulliner, Raritan; Elijah Stevens, Somerville; Philip Mundy, Somerville; Wm. Harris, Somerville; Abram Smith, Somerville; John Slattery, Raritan; B. T. Conkling, Clerk and Registrar, Somerville; C. F. Halstead, M.D., Inspector, Somerville.

\***Buena Vista, Atlantic County**; population, 2,624. Members and Officers—

Alfred Pennock, Sr., President and Registrar, Vineland; Harry Brown, Newtonville; Edmund J. Smith, Richland; Louis F. Canepa, Vineland; Douglas Reed, Clerk, Newfield.

\***Burlington, Burlington County**; population, 1,012. Members and Officers—Thos. B. Gandy, Clerk, Burlington.

\***Byram, Sussex County**; population, 426. Members and Officers—J. L. Roleson, President, Andover; Hiram Stone, Andover; A. L. Cassidy, Waterloo; John N. Woolston, Clerk and Registrar, Stanhope.

\***Caldwell, Essex County**; population, 644. Members and Officers—Theo. Vincent, Registrar, Caldwell.

\***Cedar Grove, Essex County**; population, —. Members and Officers—H. B. Whitehorne, M.D., Secretary, Verona.

\***Centre, Camden County**; population, 2,651. Members and Officers—Herbert K. Dobbs, President, Mt. Ephraim; Sewell H. Hodges, Lawnside; Frank M. La Pierre, Magnolia; L. C. Lyon, M.D., Magnolia; John H. Jackson, Clerk and Registrar, Magnolia.

\***Chatham, Morris County**; population, 629. Members and Officers—L. A. Noe, President, Madison; E. W. Blazier, Green Village; C. A. Johnson, Chatham; J. H. Bebout, Clerk and Registrar, Chatham.

\***Chester, Burlington County**; population, 4,849. Members and Officers—Samuel B. Lippincott, President; George Brock, Samuel C. Roberts, Eugene Hill, Wm. B. Lippincott, Samuel E. Jones, Clerk; Geo. W. Heaton, Registrar; Dr. Frank G. Stroud, Inspector; all of Moorestown.

\***Chester, Morris County**; population, 1,378. Members and Officers—John B. Kelsey, President; Elias Wack, Wm. S. Howell, Abraham Tiger, Clerk and Registrar; Harris Day, M.D., Inspector; all of Chester.

\***Chesterfield, Burlington County**; population, 1,141. Members and Officers—Chas. M. Bunting, President, Crosswicks; Edward M. Ridgway, Crosswicks; Chas. E. Wallace, Chesterfield; Wm. Wallace, Clerk and Registrar, Crosswicks.

\***Cinnaminson, Burlington County**; population, 1,064. Members and Officers—Thos. E. Steele, Registrar, Palmyra.

\***Clark, Union County**; population, 387. Members and Officers—Benjamin King, President; William J. Thompson, Andrew Gibson, Wm. J. Thompson, Clerk; all of Rahway, R. F. D., No. 1.

\***Clementon, Camden County**; population, 2,257. Members and Officers—Geo. Summerfield, President, Clementon; Jacob C. Lippencott, Kirkwood; Fred Tomlinson, Laurel Springs; Geo. W. Evans, Clerk and Registrar, Lindenwold; Frank B. Cook, M.D., Inspector, Laurel Springs.

\***Clinton, Hunterdon County**; population, 2,026. Members and Officers—Austin Cramer, President, Annandale; John W. Apgar, Lebanon; John Shurts, Lebanon; Bergen B. Berkaw, Clerk and Registrar, Annandale; H. H. Miller, M.D., Inspector, Lebanon.

\***Commercial, Cumberland County**; population, 2,476. Members and Officers—Lewis F. Shropshire, President, Port Norris; C. W. Hand, Port Norris; Claude Bateman, Mauricetown; E. B. Bradford, M.D., Port Norris; Walter C. Riggan, Clerk and Registrar, Port Norris.

\***Cranbury, Middlesex County**; population, 1,465. Members and Officers—Walter Scott, President; Joseph C. Chamberlin, W. I. Stults, A. M. Davison, Secretary and Registrar; all of Cranbury.

\***Cranford, Union County**; population, 3,600. Members and Officers—J. C. W. Rankin, President; John N. Heins, J. Z. Smith, J. L. Vail, M.D., Alfred H. Miller, Clerk and Inspector; F. R. Swackhamer, Registrar; all of Cranford.

\***Deerfield, Cumberland County**; population, 3,212. Members and Officers—Elijah R. Parvin, President and Registrar, Deerfield; James McNab, Deerfield; John Loper, Woodruff; John Fralinger, Woodruff; H. L. Cooper, M.D., Clerk, Deerfield.

\***Delaware, Camden County**; population, 1,470. Members and Officers—Wm. Graff, President and Registrar, Haddonfield; Wm. T. Lippincott, Moores-

town; J. W. Matlack, Haddonfield; Jos. Hinchman, Jr., Merchantville; W. B. Jennings, M.D., Clerk and Inspector, Haddonfield.

**Delaware, Hunterdon County;** population, 1,926. Members and Officers—George H. Higgins, President, Sergeantsville; Nelson Lambert, Sergeantsville; Jeremiah Case, Rosemont; David L. Holcombe, Clerk and Registrar, Lambertville; G. N. Best, M.D., Inspector, Rosemont.

**Delran, Burlington County;** population, 1,340. Members and Officers—Chas. Beatty, President, Bridgeboro; Alex. P. Bright, Bridgeboro; Jos. F. Denzeler, Riverside; George Friday, Clerk and Registrar, Riverside, R. F. D.

**Dennis, Cape May County;** population, 1,777. Members and Officers—Samuel Bishop, President, Eldora; James G. Stiles, Dennisville; Eli Townsend, Clermont; I. S. Townsend, Clerk and Registrar, Clermont; Eugene Way, M.D., Inspector, Dennisville.

**Deptford, Gloucester County;** population, 2,233. Members and Officers—Oscar Stern, President, Sewell; Benjamin F. Hains, Westville; Ellison K. Turner, Sewell; Carroll C. Headley, Clerk, Registrar and Inspector, Westville.

**Dover, Ocean County;** population, 2,869. Members and Officers—Thomas B. Irons, President; Anthony A. Dunham, Jacob A. Irons, John A. Ernst, Clerk; Ralph R. Jones, Inspector; all of Toms River.

**Downe, Cumberland County;** population, 1,664. Members and Officers—A. B. Campbell, President, Newport; John Gaskill, Newport; W. H. Townsend, Dividing Creek; Sheppard Campbell, Clerk, Newport.

**Eagleswood, Ocean County;** population, 534. Members and Officers—Jonathan Cox, President; John W. Holman, Oscar C. Cranmer, Philip R. Sprague, Clerk; all of West Creek.

**Eastampton, Burlington County;** population, 587. Members and Officers—H. E. Lippincott, President, Smithville; Allen F. Powell, Mt. Holly; L. H. Chambers, Mt. Holly; Chas. F. Holzbaur, Clerk and Registrar, Smithville; Dr. Geo. W. Van Derveer, Inspector, Mt. Holly.

**East Amwell, Hunterdon County;** population, 1,256. Members and Officers—John Q. Holcombe, President, Ringoes; George Hartpence, Ringoes; George Van Kirk, Hopewell; Joseph A. Snook, Clerk, Hopewell; P. C. Young, M.D., Inspector, Ringoes.

**\*East Brunswick, Middlesex County;** population, 2,025. Members and Officers—Henry Warnsdorfer, Secretary and Registrar, New Brunswick, R. F. D. No. 3.

**East Greenwich, Gloucester County;** population, 1,299. Members and Officers—Wm. H. Borden, President, Mickleton; Wm. Cook, Mount Royal; Wm. Dauson, Paulsboro; J. C. Dauson, Clerk and Registrar, Mickleton.

**East Windsor, Mercer County;** population, 863. Members and Officers—Aaron Ely, President, Hightstown; E. R. Pickering, Hightstown; Forman Updike, Hightstown; S. L. Mount, Secretary and Registrar; Etra; J. M. Franklin, M.D., Inspector, Hightstown.

**Eatontown, Monmouth County;** population, 2,874. Members and Officers—S. S. Stout, President, Eatontown; F. S. Higginson, Eatontown; H. W. Conrow, Oceanport; D. S. Morris, Clerk, Eatontown; J. H. Herbert, Registrar, Oceanport; E. W. Crater, M.D., Inspector, Oceanport.

**Egg Harbor, Atlantic County;** population, 1,468. Members and Officers—R. Harry Sheele, President, Idlewood; Chas. Vincent, Bargaintown; John H. Smith, Scullville; Wm. Hauenstein, Clerk and Registrar, Pleasantville; Ernest Zille, M.D., Inspector, Scullville.

**Elk, Gloucester County;** population, 938. Members and Officers—William Hamilton, President, Aura; Thomas Hann, Ewan; Sheppard Murphy, Monroe-ville; Samuel L. Seran, Clerk, Aura.

**Elsinboro, Salem County;** population, 398. Members and Officers—J. L. Smith, President; Thomas B. Reeves, Samuel Morgan, Wm. D. Griscom, Clerk; Chas. P. Farnkoph, Registrar, all of Salem.

**Evesham, Burlington County;** population, 1,356. Members and Officers—Harry D. Lippincott, President; Wm. Dumphrey, B. K. Brick, M.D., Clerk; Wm. F. Powell, Registrar; all of Marlton.

**Ewing, Mercer County;** population, 1,560. Members and Officers—J. L. Knight, President, Trenton Junct.; H. M. Fine, Trenton; Wm. S. Morris, Trenton; Wm. H. Cadwallader, Clerk and Registrar, Trenton, R. F. D. No. 1; E. B. Allen, M.D., Inspector, Trenton.

**Fairfield, Cumberland County;** population, 1,625. Members and Officers—James B. Mulford, President and Registrar; Edwin Trenchard, Geo. B. Williams, Jos. Meyers, Harry E. Lore, M.D., Chas. H. Nichols, Clerk; James B. Mulford, Registrar; all of Fairton.

**Fanwood, Union County;** population, 1,341. Members and Officers—Ira G. Walker, Henry C. Meyer, Winfield S. Terry, George H. Johnston, Clerk and Registrar; F. W. Westcott, M.D., Inspector; all of Scotch Plains.

**Florence, Burlington County;** population, 1,967. Members and Officers—Lewis Gray, President; Harry Aikins, Chester Emmons, Byron Carty, Registrar; David Baird, Jr., M.D., Inspector; all of Florence.

**\*Frankford, Sussex County;** population, 998. Members and Officers—Daniel Dalrymple, Registrar, Papatking.

**Franklin, Bergen County;** population, 1,566. Members and Officers—John N. Lewis, President, Camp Gaw; Wm. J. Packer, Midland Park; Daniel Van Houten, Wyckoff; Daniel Snyder, Clerk and Registrar, Midland Park; Walter F. Keating, M.D., Inspector, Wyckoff.

**Franklin, Gloucester County;** population, 2,197. Members and Officers—A. B. Richman, President, Malaga; John S. Downs, Newfield; Thos. S. Downs, Franklinville; Harry C. Richman, Clerk and Registrar, Malaga.

**Franklin, Hunterdon County;** population, 1,105. Members and Officers—E. H. Deats, President, Pittstown; John H. B. Opdycke, Quakertown; John W. Snyder, Frenchtown; Elwood Nixon, Clerk, Quakertown; Q. E. Snyder, M.D., Inspector, Quakertown.

**\*Franklin, Somerset County;** population, 3,577. Members and Officers—A. Hummer, Registrar, East Millstone.

**\*Franklin, Warren County;** population, 1,309. Members and Officers—P. B. Butterwick, Clerk, Asbury.

**Fredon, Sussex County;** population, 462. Members and Officers—Frank Lanterman, President; Peter E. Garris, Charles E. Roy, Jos. E. Huff, Secretary and Registrar; all of Newton; E. W. Landes, Inspector, Stillwater.

**Freehold, Monmouth County;** population, 2,474. Members and Officers—Robert N. Senter, President; Willard F. Conover, John H. Shepherd, John H. Drum, R. V. Lawrence, Clerk and Registrar; Dr. Harry W. Ingling, Inspector; all of Freehold.

**Frelinghuysen, Warren County;** population, 728. Members and Officers—Adrian L. Cook, President, Marksboro; Wm. A. Durling, Newton; Charles Lewis, Johnsonburg; W. H. Ackerson, Registrar, Blairstown.

**Galloway, Atlantic County;** population, 1,876. Members and Officers—C. B. Somers, President, Oceanville; C. M. Leeds, Leeds Point; Harry A. Wickes, Egg Harbor City; J. E. Smith, Clerk and Assessor, Oceanville.

**\*Glassboro, Gloucester County;** population, 2,607. Members and Officers—J. T. Abbott, Registrar, Glassboro.

**\*Gloucester, Camden County;** population, 2,300. Members and Officers—Martin Schubert, Clerk and Registrar, Kirkwood.

**\*Green, Sussex County;** population, 500. Members and Officers—D. H. Longcor, President, Newton; S. S. Coleman, Tranquility; E. E. Cooper, I. L. Labar, Clerk and Registrar; Tranquility; Dr. J. C. Clark; Inspector, Andover.

**Greenwich, Cumberland County;** population, 1,122. Members and Officers—Geo. L. Watson, President; Isaac D. Brown, John N. Fithian, S. M. Snyder, M.D., J. W. Butler, Clerk and Registrar; all of Greenwich.

**Greenwich, Gloucester County;** population, 754. Members and Officers—Leopold Fager, President; Henry Munyan, Frank Featherer, Jacob M. Allen, Clerk and Registrar; all of Gibbstown; Robert Reeves, Inspector, Pauborough.

**Greenwich, Warren County;** population, 854. Members and Officers—Geo. E. Hamlen, President; John H. Cyphers, P. K. Shipman, F. W. Curtis, M.D., all of Stewartsville; Wm. Sherrer, Clerk, Bloomsbury.

**Haddon, Camden County;** population, 1,009. Members and Officers—Henry I. Wright, President; Alfred M. Matthews, Albert J. Cline, James St. C. Williams, Clerk and Registrar; all of Westmont; Dr. E. B. Rogers, Inspector, Collingswood.

**Hamilton, Atlantic County;** population, 2,021. Members and Officers—Harry Wilson, President; C. D. Makepeace, C. Stewart, H. Jenkins, Thompson Hoover, Clerk; H. C. James, M.D., Inspector; all of Mays Landing.

**Hamilton, Mercer County;** population, 5,150. Members and Officers—Edwin B. Woodward, M. D., President, Yardville; Isaac Robbins, Trenton; Charles A. Comp, Yardville; Wm. C. Mervine, Trenton; Wm. T. Robbins, Clerk, Hamilton Square; Josiah T. Allinson, Registrar, Yardville; James N. Reed, Inspector, Homedell.

**Hampton, Sussex County;** population, 623. Members and Officers—A. J. Williams, President, Baleville; J. R. Ackerson, Halsey; J. A. Sigler, Halsey; J. W. Thompson, Clerk; Blair.

**\*Hanover, Morris County;** population, 5,294. Members and Officers—Edwin C. Quinby, Registrar, Whippany.

**Hardwick, Warren County;** population, 370. Members and Officers—Henry Kice, President; D. R. Newman, Isaac J. Konkia, Marcus C. Hill, Clerk and Assessor, H. O. Carhart, M.D., Inspector; all of Blairstown.

**Hardyston, Sussex County;** population, 3,434. Members and Officers—Reeve Harden, President, Hamburg; Jas. McCue, Stockholm; Wm. Stephens, Franklin Furnace; Smith Simpson, Clerk, Hamburg; J. G. Coleman, M.D., Inspector, Hamburg.

**Harmony, Warren County;** population, 1,086. Members and Officers—H. B. Bossard, M.D., President and Inspector, Phillipsburg; Geo. M. Amey, Phillipsburg; Elmer Cruts, Phillipsburg; J. M. Rush, Stewartsville; Freeman Schuler, Registrar, Phillipsburg, R. F. D. No. 2.

**Harrington, Bergen County;** population, 521. Members and Officers—L. B. Sneedan, President; Jas. F. Argenti, Chas. F. Semino, H. Bollinger, Geo. C. Cooper, Clerk and Registrar; all of Northvale.

**Harrison, Gloucester County;** population, 1,624. Members and Officers—Samuel T. Stratton, President, Ewan; W. Nelson Justice, Richwood; Isaac S. White, Mullica Hill; S. F. Ashcraft, M.D., Mullica Hill; Eli Heritage, Clerk and Registrar, Richwood.

**Hillsboro, Somerset County;** population, 2,247. Members and Officers—Wm. M. Staats, President, Millstone; John Brokaw, Belle Mead; John V. M. Sutphen, Three Bridges; W. H. Merrell, M.D., Clerk and Registrar, South Branch; Harry Van Nuys, Inspector, Millstone.

**Hillsdale, Bergen County;** population, 945. Members and Officers—Franklin J. Myers, President; Chas. S. Van Wagonen, Albert Mohmking, John W. Kinnmouth, Clerk and Registrar; all of Hillsdale.

**Hohokus, Bergen County;** population, 3,107. Members and Officers—Albert Winter, President, Mahwah; Jacob C. Straut, Mahwah; Charles D. Vanderbeck, Ramsey; James Devine, Jr., Clerk and Registrar, Mahwah.

**Holland, Hunterdon County;** population, 1,528. Members and Officers—Geo. N. Becker, President, Milford; Wm. Keown, Milford; Alfred Riley, Milford; H. B. Vansyckel, Clerk and Registrar, Mt. Pleasant; A. A. Heil, M.D., Inspector, Milford.

**\*Holmdel, Monmouth County;** population, 1,221. Members and Officers—V. D. Kenney, Secretary and Registrar, Holmdel.

**Hope, Warren County;** population, 1,025. Members and Officers—George

A. Henry, President, Great Meadows; E. J. Winters, Hope; I. B. Hopkins, Hope; Lewis C. Fleming, Clerk and Registrar, Townsbury; Walter Storm, M.D., Inspector, Hope.

**Howell, Cumberland County;** population, 1,840. Members and Officers—D. D. Davis, President, Shiloh; Edward D. Perry, Bridgeton, Ephraim G. Ayars, Bridgeton; C. E. Bowen, Clerk and Registrar, Shiloh.

**Howell, Mercer County;** population, 3,209. Members and Officers—David Hill, President, Mount Rose; Isaac B. Scudder, Titusville; Joseph R. Burroughs, Pennington, Charles H. Hart, Clerk and Registrar, Titusville; Wm. Radcliffe, M.D., Inspector, Pennington.

**Howell, Monmouth County;** population, 2,585. Members and Officers—B. M. Cooper, President, Lakewood; R. H. Morris, Adelphi; Chas. E. Ferry; Farmingdale; James H. Butcher, Clerk and Registrar, Freehold, R. F. D. No. 2; W. P. Havens, M.D., Inspector, Farmingdale.

**Hudson County;** population, 449,879. Members and Officers—F. W. Mal-lalieu, M.D., President; E. J. G. Valentine, M.D., C. B. Converse, M.D., C. J. Rooney, Clerk; Dr. John Connell, John H. Sullivan, John F. Nagle and A. H. Mansfield, Inspectors; all of Jersey City.

**Independence, Warren County;** population, 835. Members and Officers—W. H. McCormick, President, Vienna; Elijah Cox, Vienna; A. B. Leigh, Great Meadows; F. W. Haggerty, Clerk, Vienna; W. K. Teel, Registrar, Vienna.

**\*Jackson, Ocean County;** population, 1,334. Members and Officers—Geo. C. Hankins, Clerk, Vanhiseville.

**Jefferson, Morris County;** population, 1,259. Members and Officers—Moses B. Spencer, President, Lake Hopatcong; Harvey R. Davenport, Oak Ridge; Daniel R. Davenport, Oak Ridge; Charles Chamberlain, Clerk and Registrar, Wharton, R. F. D.; John Walter, M. D., Inspector, Wharton.

**Kingwood, Hunterdon County;** population, 1,188. Members and Officers—Ralph Teats, President, Frenchtown; Stanford Vanderbilt, Frenchtown; Wm. R. S. Cook, Idell; Samuel J. Snyder, Registrar, Frenchtown; Frank S. Grim, Inspector, Baptistown.

**\*Knowlton, Warren County;** population, 1,222. Members and Officers—Milton De Witt, Secretary and Registrar, Columbia.

**Lacey, Ocean County;** population, 653. Members and Officers—G. E. Wallace, M.D., President; George Frazee, B. F. Holmes, A. H. Grant, B. F. Matthews, Clerk and Registrar; all of Forked River.

**Lafayette, Sussex County;** population, 619. Members and Officers—Raymond Snyder, President; John D. Ackerson, R. D. Snook, Clerk; John C. Strader, M.D., Inspector; all of Lafayette.

**\*Lakewood, Ocean County;** population, 4,265. Members and Officers—H. J. Terwilliger, Secretary and Health Officer, Lakewood.

**Landis, Cumberland County;** population, 5,351. Members and Officers—W. F. Sawyer, M.D., President, Vineland; Wallace I. Frost, Vineland; Jos. W. Hoff, Millville; Geo. D. Geiger, Vineland; Thomas C. Fox, Newfield; Louis J. Rafo, Vineland; Alfred B. Crossman, Assessor, Vineland; John S. Wintsov, M.D., Inspector, Vineland;

**Lawrence, Cumberland County;** population, 1,730. Members and Officers—E. L. Mullford, President, Cedarville; David W. Sheppard, Cedarville; Peter Johnson, Fairton; Louis M. Hogbin, Clerk, Cedarville; F. B. Sheppard, Registrar, Cedarville; F. M. Bateman, M.D., Inspector, Cedarville.

**Lawrence, Mercer County;** population, 2,043. Members and Officers—Morgan Van Hise, President, Slackwood; John E. Gorden, Port Mercer; Jasper Maple, Princeton; Frank Pierson, Secretary and Registrar, Lawrenceville; E. K. Fee, M.D., Inspector, Lawrenceville.

**Lebanon, Hunterdon County;** population, 1,983. Members and Officers—Wm. A. Alpaugh, President, High Bridge; J. Frank Lance, Port Murray; James F. Smith, Changewater; Geo. H. Castner, Clerk and Registrar, Califon. Linden, Union County; population, 1,096. Members and Officers—John P.

Winans, President, Linden; John E. Tucker, Elizabeth; George W. Bauer, Elizabeth; Frank B. Stimson, Clerk and Registrar, Linden; Wm. T. Day, Inspector, Roselle.

\*Little Egg Harbor, Ocean County; population, 517. Members and Officers—Norwood Parker, Parkertown.

\*Little Falls, Passaic County; population, 3,079. Members and Officers—W. W. Wilson, Clerk, Little Falls.

Livingston, Essex County; population, 1,407. Members and Officers—F. M. Hoffman, President, Livingston; Sidney B. Winans, Livingston; Godlieb Ochs, Chatham; E. E. Burnet, Clerk and Registrar, Chatham; D. J. Edwards, M.D., Inspector, Chatham.

Lodi, Bergen County; population, 1,061. Members and Officers—Charles Foosse, President, Woodridge; Frank Switz, Little Ferry; John Turick, Hackensack; Julius Pries, Clerk; Woodridge.

Logan, Gloucester County; population, 1,528. Members and Officers—John H. Shoemaker, President, Repaupo; Wm. F. Justice, Bridgeport; Wilbur F. Beckett, Swedesboro; S. B. Platt, Clerk and Registrar, Bridgeport.

\*Long Beach, Ocean County; population, 73. Members and Officers—Charles E. Sherborne, Clerk, Long Beach.

\*Lopatcong, Warren County; population, 695. Members and Officers—Frank Cling, Registrar, Shimers.

Lower, Cape May County; population, 1,336. Members and Officers—John C. Elliott, President, Cold Springs; J. D. Hoffman, Fishing Creek; Wm. L. Garretson, Erma; J. P. Mackissie, Clerk and Registrar, Cape May; W. A. Lake, M.D., Inspector, Erma.

Lower Alloways Creek, Salem County; population, 1,220. Members and Officers—Louis F. Smith, President, Hancock Bridge; I. M. Hawn, Canton; Albert M. Carl, Harmersville; F. B. Harris, M.D., Canton; Edward Hancock, Clerk, Hancock Bridge.

Lower Penns Neck, Salem County; population, 1,327. Members and Officers—David Dixon, President, Salem; Samuel Lecroy, Pennsville; Hance Jaquett, Pennsville; Ellsworth L. Irelan, Clerk and Registrar, Pennsville.

Lumberton, Burlington County; population, 1,683. Members and Officers—Wm. Jones, President, Lumberton; A. E. Haines, Medford; Jacob Walters, Hainesport; Wm. C. Parry, M.D., Hainesport; E. C. Davis, Clerk, Lumberton.

Madison, Middlesex County; population, 1,582. Members and Officers—Frank P. Lamberson, President, Cliffwood; Ambrose Green, Old Bridge; James Fountain, Old Bridge; Ira O. Crandell, Old Bridge; D. H. Brown, Clerk and Registrar, Old Bridge; Edward Barker, Inspector, Matawan.

Manalapan, Monmouth County; population, 1,392. Members and Officers—Edward Hendrickson, President, Englishtown; J. C. Sutphen, Tennent; Wm. C. Hartshorne, Freehold; A. T. Applegate, M.D., Englishtown; Garret B. Conover, Clerk, Englishtown; W. D. Herbert, Registrar, Englishtown.

Manchester, Ocean County; population, 785. Members and Officers—E. F. Larrabee, President, Lakehurst; S. C. Rhoads, Lakehurst; Peter Christofferson, Whiting; Harold Pittis, M.D., Clerk and Inspector, Lakehurst; Amos Bozarth, Registrar, Lakehurst.

\*Manchester, Passaic County; population, 2,277. Members and Officers—Emil Kuhn, Clerk, Haledon.

\*Mannington, Salem County; population, 1,652. Members and Officers—Jonathan B. Grier, Clerk and Registrar, Salem.

Mansfield, Burlington County; population, 1,493. Members and Officers—John B. Townsend, President; Walter Kirby, Frank B. Haines, Jos. H. Armstrong, Clerk and Registrar; all of Columbus; A. H. Patterson, M.D., Inspector, Georgetown.

\*Mansfield, Warren County; population, 1,234. Members and Officers—Jacob Beaty, Clerk, Port Murray.

Mantua, Gloucester County; population, 1,471. Members and Officers—

\*No report received.

Benj. Sharp, President; John Kincard, A. R. Workman, Wm. S. Hurff, Clerk and Registrar; all of Sewell; E. Z. Hillegas, M.D., Inspector, Mantua.

\*Marlboro, Monmouth County; population, 1,664. Members and Officers—J. D. Ely, M.D., Clerk and Inspector, Marlboro.

Matawan, Monmouth County; population, 1,365. Members and Officers—John D. Ivins, President, Cliffwood; Michael Halleran, Matawan; L. H. Stemler, Clerk; Daniel Martin, Clerk, Matawan; Richard Heuser, Registrar, Cliffwood; Nathan Ervin, M.D., Inspector, Matawan.

Maurice River, Cumberland County; population, 2,133. Members and Officers—Charles W. Champion, President, Dorchester; Charles Williams, Heislerville; Edwin Elliott, Port Elizabeth; Henry Reeves, Jr., Registrar, Leesburg; Geo. Spence, M.D., Inspector, Leesburg.

Medford, Burlington County; population, 2,030. Members and Officers—W. P. Haines, M.D., President; Lewis L. Sharp, M.D., Frank A. Braddock, Wm. M. Potts, Clerk and Registrar; all of Medford.

Mendham, Morris County; population, 1,724. Members and Officers—M. M. Connet, President, Brookside; M. S. Burnett, Chester; Alex. Cochran, Clerk, Brookside; F. H. Garrabrant, Registrar, Brookside.

Middle, Cape May County; population, 2,584. Members and Officers—L. T. Garretson, President, Cape May C. H.; V. N. Ericson, Dias Creek; L. T. Swain, Swainton; J. M. Dix, M.D., Cape May C. H.; Joseph Camp, Clerk, Registrar and Inspector, Pierces.

Middletown, Monmouth County; population, 5,600. Members and Officers—Wm. H. Naylor, President, Navesink, Daniel W. Van Note, Belford; John N. Johnson, Jr., Belford; John M. West, Middletown; Frank Osborn, Middletown; Henry D. Smith, Clerk, Middletown; Omar Sickles, Registrar, Navesink; D. B. Hendrickson, M.D., Inspector, Middletown.

Midland, Bergen County; population, 1,465. Members and Officers—Thomas Gardner, President; August C. Ohle, Carl Pauly, John D. Bogert, Clerk and Registrar; all of Ridgewood; Frank Freeland, M.D., Inspector, Maywood.

Milburn, Essex County; population, 3,182. Members and Officers—Henry S. Acken, President, Maplewood; E. L. Smithers, Milburn; D. P. Kingsford, Short Hills; W. Campbell, M.D., Short Hills; J. M. Drake, Clerk and Registrar, Millburn; Felix McGee, Inspector, Millburn.

Millstone, Monmouth County; population, 1,432. Members and Officers—A. B. Chamberlin, President, Perrineville; Geo. M. Davison, Perrineville; J. Henry Ely, Perrineville; Geo. J. Ely, Clerk, Cranbury; Wm. T. MacMellen, Inspector, Perrineville.

Monroe, Gloucester County; population, 2,519. Members and Officers—Wm. P. Buck, President; David S. Champion, E. F. Evans, J. G. Edwards, M.D., John W. McClure, Clerk; all of Williamstown.

Monroe, Middlesex County; population, 2,023. Members and Officers—John D. Butcher, President, Cranbury; George McDowell, Cranbury; Harry Rogers, Cranbury; Robert E. Vandenberg, Clerk and Registrar, Prospect Plains; J. L. Suidam, M.D., Inspector, Jamesburg.

Montague, Sussex County; population, 661. Members and Officers—Timothy Shay, President, Hainesville; George A. Clark, Port Jervis, N. Y.; Jacob McCarty, Port Jervis, N. Y.; Geo. McCarty, Clerk and Registrar, Port Jervis, N. Y., R. F. D. No. 1.

Montgomery, Somerset County; population, 1,504. Members and Officers—Jacob Boice, President, Harlingen; Henry A. Duryee, Skillman; H. D. Terhune, Skillman; A. B. Mosher, Griggstown; Chas. E. Van Nuys, Clerk, Belle Meade; C. B. Allshouse, Registrar, Skillman.

Montville, Morris County; population, 1,650. Members and Officers—John H. Capstick, President; John Husk, Walter A. Young, Fred O. Longstreet, M.D., John M. Tice, Clerk; all of Montville; Fred Van Duyne, Inspector, Towaco.

\*No report received.

**Morris, Morris County;** population, 2,660. Members and Officers—Thomas T. Sands, President and Registrar, Morristown; Watson A. Barton, Morris Plains; Lewis E. Clark, Morristown; Willis H. Sutton, Morristown; J. Paul Jamieson, Clerk, Morristown.

**Mount Laurel, Burlington County,** population, 1,671. Members and Officers—Edward L. Godfrey, President, Moorestown; J. H. Darnell, Masonville; Budd H. Horner, Masonville; Benj. M. Haines, Clerk and Registrar, Moorestown; Dr. F. G. Stroud, Inspector, Moorestown.

**Mount Olive, Morris County;** population, 1,098. Members and Officers—George H. Dorland, President, Flanders; George N. Salmon, Flanders; L. M. Teel, Drakestown; S. W. Salmon, Clerk, Mount Olive; John Miller, M.D., Inspector, Netcong.

**Mullica, Atlantic County;** population, 794. Members and Officers—Jesse R. Abbott, President and Registrar, Hammonont; A. J. McKeone, Hammonont; John Mick, Elwood; Ross B. Pierce, Egg Harbor City; John D. Carver, Clerk, Elwood; J. C. Bitler, M.D., Inspector, Hammonont.

**Neptune, Monmouth County;** population, 9,357. Members and Officers—Alfred Clark, President, Ocean Grove; W. A. Robinson, M.D., Ocean Grove; John Messler, West Grove; R. E. K. Rothfritz, Whitesville; Leonard Hulit, West Grove; Fred Hurley, West Grove; T. Nelson Lillagore, Clerk and Inspector, Ocean Grove.

**New Hanover, Burlington County;** population, 960. Members and Officers—Albert Watson, President, Wrightstown; Lewis Yerhees, Pointville; John Burk, Cookstown; Charles Remine, Clerk, Wrightstown; E. D. Maine, Inspector, Sykesville.

**New Providence, Union County;** population, 456. Members and Officers—Henry S. Fullerton, President, Scotch Plains; E. B. Oechsner, Scotch Plains; Joseph Kuntz, Berkeley Heights; P. G. Johnson, Clerk and Registrar, New Providence; F. W. Westcott, Inspector, Fanwood.

**Newton, Sussex County;** population, 4,422. Members and Officers—Warren H. Smith, M.D., President; Charles S. Steele, Charles M. Onkes, Wm. H. Nicholls, Philetus R. Van Horn, Secretary and Registrar; Israel L. Hallock, Inspector; all of Newton.

**Northampton, Burlington County;** population, 5,509. Members and Officers—Franklin Dill, President; Chas. Morton, Jos. E. Elbertson, Benj. Zellej, Samuel P. Cline, W. T. Stewart, Clerk and Registrar; R. H. Parsons, M.D., Inspector, all of Mt. Holly.

**\*North Bergen, Hudson County;** population, 11,134. Members and Officers—Chas. J. Morris, Clerk, Weehawken.

**North Brunswick, Middlesex County;** population, 929. Members and Officers—A. A. Voorhees, President; Alfred Yorsten, Wm. Vincent, Isaac V. Williamson, Clerk and Registrar; all of New Brunswick, R. F. D.; Dr. J. D. Ten Eyck, Inspector, Franklin Park.

**\*North Hanover, Burlington County;** population, 747. Members and Officers—Pearson Taylor, Clerk, Wrightstown.

**North Plainfield, Somerset County;** population, 693. Members and Officers—Alex. M. Archbold, President, Scotch Plains; Albert Brokaw, Bound Brook; Theo. Luerssen, Watchung; Francis E. Bodin, Clerk, Watchung; Emil Clementz, Inspector, Watchung.

**Ocean, Monmouth County;** population, 1,574. Members and Officers—Wm. B. Ireland, President; John R. Jeffrey, John F. Woolley, Harry G. Van Note, Clerk and Registrar; all of Oakhurst.

**\*Ocean, Ocean County;** population, 409. Members and Officers—Oscar R. Cranmer, Clerk and Registrar, Brookville.

**Oldmans, Salem County;** population, 1,374. Members and Officers—Wm. Stiles, President; Jacob J. Hunt, Wm. Darlington, E. E. Somers, Clerk; all of Pedricktown.

**\*Orvil, Bergen County,** population, 752. Members and Officers—Chas. Pfitzner, Clerk and Registrar, Waldwick.

\*No report received.

**\*Overpeck, Bergen County;** population, 2,850. Members and Officers—Wm. H. Hunter, Registrar, Ridgefield Park.

**Oxford, Warren County;** population, 2,964. Members and Officers—Wm. H. H. Stires, President, Bridgeville; Hanlon Gardner, Oxford; Wm. Cole, Belvidere; Michael Mountain, Clerk and Registrar, Oxford.

**Pahaquarry, Warren County;** population, 257. Members and Officers—R. G. Secor, Dunfield; John Garris, Mill Brook; J. C. Depue, Dunfield; Hiram Zimmerman, Assessor, Mill Brook.

**Palisade, Bergen County;** population, 1,042. Members and Officers—George G. Gereghy, President, New Milford; S. W. Richards, River Edge; Carl Ufheil, Peetzburg, Walter Thomas, Secretary and Registrar, New Milford; C. W. Dakesman, M.D., Inspector, Oradell.

**Palmrya, Burlington County;** population, 2,643. Members and Officers—James E. Russell, President; H. P. Hurff, H. A. Hodson, L. L. Sharp, M.D., F. Blackburn, Clerk, Registrar and Inspector, all of Palmrya.

**\*Passaic, Morris County;** population, 2,163. Members and Officers—J. A. Havesy, Clerk, Stirling.

**Pemberton, Burlington County;** population, 1,706. Members and Officers—Walter Woolston, President, Mt. Holly; Chas. Kinsley, Browns Mills; Victor Bush, Pemberton; M. W. Hargrove, Clerk, Browns Mills; Barclay Seeds, Registrar, Pemberton.

**Pensauken, Camden County;** population, 3,957. Members and Officers—Gale Bennett, President, Delair; Isaiah Hatch, Fish House; Dr. Loeling, Pensauken; H. E. Horner, Clerk and Registrar, Merchantville; Job Pidgeon, Inspector, Pensauken.

**Pequannock, Morris County;** population, 1,674. Members and Officers—A. J. Slingerland, President, Pequannock; Thomas Dodd, Lincoln Park; Fred Ricker, Butler; Alfred Gilland, Clerk and Registrar, Pompton Plains; C. D. V. Romondt, Inspector, Pompton Plains.

**Pilesgrove, Salem County;** population, 1,726. Members and Officers—Clement McAllister, President, Sharptown; Edgar C. Moore, Woodstown; John G. Barton, Geo. H. Kirby, Clerk, Woodstown.

**\*Piscataway, Middlesex County;** population, 2,767. Members and Officers—George W. Coriell, Registrar, New Market.

**\*Pittsgrove, Salem County;** population, 2,514. Members and Officers—George Schalick, Clerk and Registrar, Centreton.

**Plumsted, Ocean County;** population, 1,241. Members and Officers—Dayton Hopkins, President, Hornerstown; James Larkin, New Egypt; Elmer E. Erickson, New Egypt; George Hartshorn, Clerk and Registrar, New Egypt.

**Pohatcong, Warren County;** population, 3,408. Members and Officers—John M. Crouse, President, Finesville; Isaac Hawk, Springtown; Harry W. Davis, Bloomsbury; Wm. H. Albright, M.D., Alpha; Harry E. Boyer, Clerk and Registrar, Springtown.

**Pompton, Passaic County;** population, 2,981. Members and Officers—Edward R. Brown, President, Haskell; James H. Vreeland; Midvale, Walter C. White, Butler; David Beam, Clerk and Registrar, Midvale; D. N. Shippee, M.D., Inspector, Wanauque.

**\*Princeton, Mercer County;** population, 1,144. Members and Officers—J. H. Hulit, Clerk, Princeton, R. F. D. No. 3.

**Quinton, Salem County;** population, 1,135. Members and Officers—F. B. Husted, President, Quinton; Wm. Radle, Quinton; Abner S. Patrick, Quinton; Parnell Rinear, Bridgeton; Joseph Powell, Clerk, Quinton; Charles S. Bassett, Registrar, Quinton.

**Randolph, Morris County;** population, 2,327. Members and Officers—M. H. Maloney, President; Walter S. Hiller, John F. Griffen, Geo. W. Crane, Clerk; all of Dover; Ellison Coe, Registrar, Mt. Freedom.

**Raritan, Hunterdon County;** population, 3,861. Members and Officers—Joseph Alvater, President, Flemington; J. D. Hellyer, Copper Hill; John B.

\*No report received.

Rockafellow, Flemington; W. S. Buchanan, Clerk and Registrar, Flemington; John H. Ewing, M.D., Inspector, Flemington.

**Raritan, Middlesex County;** population, 2,612. Members and Officers—John J. Cogswell, President, New Brunswick; Edward Pfeiffer, Metuchen; Peter Lott, Metuchen; Wm. T. Woerner, Clerk, New Brunswick, R. F. D. No. 1.

\***Raritan, Monmouth County;** population, 1,473. Members and Officers—Rufus O. Walling, Clerk, Keyport.

**Readington, Hunterdon County;** population, 2,423. Members and Officers—Andrew R. Seals, President, White House Station; Calvin C. Huff, Three Bridges; Silas Schomp, Three Bridges; F. L. Johnson, M.D., Stanton; John W. Opie, Clerk and Registrar, Three Bridges.

\***Ridgefield, Bergen County;** population, 745. Members and Officers—Thos. F. Mallon, Registrar, Coytesville.

\***Ridgewood, Bergen County;** population, —. Members and Officers—Riverside, Burlington County; population, 3,301. Members and Officers—Edward Schauberland, President; Henry Taubel, John H. Leech, Charles Heiss, Clerk; Chauncey B. Lambert, Inspector, all of Riverside.

**Rivervale, Bergen County;** population, —. Members and Officers—George H. Seaman, President; Gustave Wotke, Otto Lentz, M. J. Ford, Clerk and Registrar, all of Westwood.

\***Rockaway, Morris County;** population, 5,153. Members and Officers—Thos. Grant, Registrar, Hibernia.

**Roxbury, Morris County;** population, 2,323. Members and Officers—T. F. King, President; John C. Todd, Chas. I. King, E. W. Kilpatrick, Clerk and Assessor, Kenvil.

**Saddle River, Bergen County;** population, 2,048. Members and Officers—Otto P. Pehle, President, Rochelle Park; Adam Hopper, Fair Lawn; Geo. Boyce, Fair Lawn; Isaac A. Hopper, Clerk and Registrar, Fair Lawn; Dr. Van Derbeck, Inspector, Paterson.

\***Sandyston, Sussex County;** population, 872. Members and Officers—M. D. Hughes, M.D., Clerk, Branchville.

**Sayreville, Middlesex County;** population, 4,779. Members and Officers—August Rohde, President; Chas. M. Fisher, Robert Fetts, J. H. Beekman, M.D., Thos. Creamer, Clerk and Registrar; Henry Boyler, Inspector; all of Sayreville.

**Shamong, Burlington County;** population, 508. Members and Officers—W. H. Brown, President, Indian Mills; John W. Crane, John Miller, Mahlon T. Prickett, Clerk, Indian Mills.

\***Shrewsbury, Monmouth County;** population, 5,502. Members and Officers—A. C. Harrison, Clerk, Red Bank.

**Southampton, Burlington County;** population, 1,860. Members and Officers—John Brushwood, President; Chas. H. Rodgers, Frank Simons, Chas. G. Naylor, Clerk and Registrar; J. C. Brown, M.D., Inspector, all of Vincentown.

**South Brunswick, Middlesex County;** population, 2,489. Members and Officers—Henry W. Jefferes, President, Plainsboro; Arthur Turton, Monmouth Junction; I. S. Bennett, Jamesburg; Wm. Perkins, Clerk, Kingston.

**South Harrison, Gloucester County;** population, 680. Members and Officers—Mathew Allen, President, Mullica Hill; George F. Wilkinson, Bassett; Clayton G. Kirby, Mullica Hill; D. C. Lippincott, Clerk and Registrar, Harrisonville; Samuel Ashcraft, M.D., Inspector, Mullica Hill.

**South Orange, Essex County;** population, 1,946. Members and Officers—Wm. H. Knox, President, Orange; Wm. H. Kemp, Maplewood; Wm. A. Greenaway, Irvington; Edward R. Arcularius, Clerk, Hilton; Thomas C. Baker, Registrar, Maplewood; G. H. Taylor, M.D., Inspector, Maplewood.

**Sparta, Sussex County;** population, 1,613. Members and Officers—Manning Sickles, President, Sparta; Walter D. Byram, Sparta; George Van Blarcom, Monroe Corner; A. N. Jacob, M.D., Sparta; J. W. Maseker, Clerk and Registrar, Sparta.

**Springfield, Burlington County;** population, 1,323. Members and Officers—

\*No report received.

Philip N. Haines, President, Burlington; Edward K. West, Juliustown; Howard Letts, Jobstown; Dr. E. C. Bullock, Columbus; John B. Tilton, Clerk, Wrightstown.

**Springfield, Union County;** population, 1,123. Members and Officers—Robert Morrison, President, Springfield; George Parcell, Fred Kienle, Lewis T. Terry, Clerk, Springfield; J. A. Stites, M.D., Inspector, Springfield.

**Stafford, Ocean County;** population, 994. Members and Officers—Joshua Hilliard, M.D., President, Manahawkin; Charles H. Cranmer, Manahawkin; Wm. B. Sprague, Manahawkin; George A. Cranmer, Cedar Run; John B. Courtney, Clerk, Manahawkin.

**Stillwater, Sussex County;** population, 815. Members and Officers—Wm. P. Struble, President, Swartswood; Chas. A. Tunis, Stillwater; Geo. C. Ogden, Wintermute; E. W. Landes, M.D., Stillwater; O. Van Horn, Clerk and Registrar, Stillwater.

\***Stow Creek, Cumberland County;** population, 855. Members and Officers—Belford M. Bonham, Clerk and Registrar, Shiloh.

\***Tabernacle, Burlington County;** population, 462. Members and Officers—Geo. H. Wisham, Clerk, Vincentown.

**Teaneck, Bergen County;** population, 1,222. Members and Officers—Wm. Bennett, President, Englewood; Robert Stevenson, Englewood; J. W. Ackerman, Hackensack; Peter I. Ackerman, Clerk, Registrar and Inspector, Hackensack.

**Tewksbury, Hunterdon County;** population, 1,815. Members and Officers—L. M. Hoffman, Califon; F. L. Lindabury, Lebanon; J. J. Neff, White House Station; Hezekiah Philhower, Registrar, Califon; F. A. Appar, M.D., Inspector, New Germantown.

**Union, Bergen County;** population, 2,188. Members and Officers—Andrew Egert, President; Edmund M. Grimes, Charles Garland, Dr. Clark, Thomas E. Buckley, Clerk and Registrar; Otto Meyer, Inspector; all of Lyndhurst.

**Union, Hunterdon County;** population, 923. Members and Officers—Godfrey Emery, President, Jutland; Geo. B. Smith, Clinton; J. W. Duchworth, Pattenburg; Morris Stockton, Clerk and Registrar, Pattenburg.

\***Union, Ocean County;** population, 913. Members and Officers—E. R. Wills, Clerk, Barnegat City.

**Union, Union County;** population, 2,614. Members and Officers—D. B. Wade, President, Union; D. H. Beach, Union; Gottlieb Schnable, Lyons Farms; D. H. Sayre, Clerk, Union.

**Upper, Cape May County;** population, 1,350. Members and Officers—Harry Young, President, Beesleys Point; Zachariah Townsend, Tuckahoe; James S. Smith, Petersburg; Jesse T. Young, Clerk, Beesleys Point; W. S. Show, Registrar, Tuckahoe; Randolph Marshall, Inspector, Tuckahoe.

**Upper Freehold, Monmouth County;** population, 2,002. Members and Officers—I. S. Dawes, President, Nelsonville; John W. Havens, Cream Ridge; Joseph C. Johnston, Allentown; F. C. Price, M.D., Secretary, Imlaystown; Wm. Quicksell, Registrar, Hornerstown.

**Upper Penns Neck, Salem County;** population, 793. Members and Officers—Jos. E. Clark, President; James Hutchinson, Wilbert F. Sailor, J. Ford Tompson, Clerk; J. M. Summerill, M.D., Registrar; all of Penns Grove.

**Upper Pittsgrove, Salem County;** population, 1,722. Members and Officers—R. MacFarland, President, Monroeville; Charles Driver, Monroeville; Wm. Mayhew, Elmer; G. W. Fitch, M.D., Daretown; R. A. Robinson, Registrar, Monroeville.

**Vernon, Sussex County;** population, 1,649. Members and Officers—N. P. Ryerson, President, Glenwood; John I. B. Gunderson, Clerk and Registrar, Glenwood.

\***Verona, Essex County;** population, —. Members and Officers—Voorhees, Camden County; population, 1,009. Members and Officers—Chas. Hammel, President, Marlton; Geo. Riggins, Gibbstown; Albert Rau,

\*No report received.

Ashland; Wm. A. Wescott, M. D., Berlin; S. H. Gardiner, Clerk and Registrar, Ashland.

Wall, Monmouth County; population, 3,518. Members and Officers—Chas. White, President, Belmar; Dr. W. W. Trout, Spring Lake; E. C. White, Belmar; S. B. Pearce, Brielle; Geo. E. Rogers, Clerk, Registrar and Inspector, Belmar, R. F. D. No. 2.

Wallpack, Sussex County; population, 325. Members and Officers—Nicholas Tillman, President, Wallpack Centre; Samuel S. Cole, Wallpack Centre; Eugene Rosenkraus, Flatbrookville; J. W. Bunnell, Registrar, Bevans.

Wantage, Sussex County; population, 2,080. Members and Officers—Frank Medaugh, President, Jason House; Frank Coe, James Wilson, S. M. Parcell, Clerk and Registrar; H. I. Harp, Inspector, all of Sussex.

Warren, Somerset County; population, 974. Members and Officers—John Gunten, President, Martinsville; J. C. Cooper, Warrenville; Adam Sachs, Plainfield; E. E. Sage, Clerk, Registrar and Inspector, Plainfield, R. F. D. No. 3.

\*Washington, Bergen County; population, 382. Members and Officers—Lucas C. Blauvelt, Clerk, Westwood.

Washington, Burlington County; population, 568. Members and Officers—Joseph M. Birdsall, President, Green Bank; Thos. K. Sooy, Green Bank; Julius Gerber, Batssto; A. E. Koster, Assessor, Green Bank.

Washington, Gloucester County; population, 1,336. Members and Officers—B. Frank Allen, President, Sewell; G. R. Hurff, Turnersville; Clarence Rowand, Sewell; Jos. E. Hurff, M.D., Blackwood; Chas. D. Nicholson, Registrar, Turnersville.

\*Washington, Mercer County; population, 1,173. Members and Officers—E. K. Cole, Clerk, Windsor.

Washington, Morris County; population, 2,021. Members and Officers—John A. Parker, President, German Valley; Geo. H. Sliker, Pleasant Grove; Fred Apgar, Califon; G. H. Sliker, Secretary and Registrar, Pleasant Grove; Mahlon Van Nest, Inspector, German Valley.

Washington, Warren County; population, 1,089. Members and Officers—Wm. Larison, President; Charles B. Smith, M.D., Orin Perry, Daniel M. Wyckoff, Samuel Rinehart, Clerk; all of Washington.

Waterford, Camden County; population, 2,713. Members and Officers—Jesse S. C. Heiss, President, Berlin; Chas. O. Perry, Waterford; Chas. Regn, Ato; Chas. D. Heath, Clerk and Registrar, Berlin; Frank O. Stem, M.D., Inspector, Berlin.

Wayne, Passaic County; population, 2,017. Members and Officers—Geo. W. Colfax, President, Pompton; Wm. H. Birchenough, Paterson; John Beider, Mountain View; Dr. Warren H. Young, Little Falls; Thos. D. Ryerson, Assessor, Wayne.

\*Weehawken, Hudson County; population, 8,027. Members and Officers—Emile W. Graunt, Clerk, Weehawken.

Westampton, Burlington County; population, 542. Members and Officers—Clarence W. Loveland, President; Wm. H. Austin, B. M. Haines, Hudson B. Haines, Clerk; Dr. Elmer D. Prickett, Inspector; all of Mt. Holly.

West Amwell, Hunterdon County; population, 858. Members and Officers—Charles A. Slack, President; Wm. J. Cane, Chas. E. Holcombe, G.H. Carr, Clerk; Dr. Frank W. Larrison, Inspector; all of Lambertville.

West Deptford, Gloucester County; population, 2,227. Members and Officers—Joseph A. Moore, President, Woodbury; R. M. Plum, Thorofare; W. R. Gibbs, Thorofare; James Hunter, M.D., Westville; James Carter, Clerk and Registrar, Thorofare.

West Milford, Passaic County; population, 2,002. Members and Officers—Samuel E. Cotter, President, Echo Lake; Wm. W. Eckhart, Newfoundland; Theo. Stickler, Newfoundland; John M. Weaver, Clerk and Registrar, Newfoundland; D. E. Drake, M.D., Inspector, Newfoundland.

\*No report received.

West Windsor, Mercer County; population, 1,320. Members and Officers—Jacob R. Wyckoff, President, Dutch Neck; Walter S. Grover, Princeton Junct.; Hiram Mount, Edinburg; Hiram A. Cook, Clerk, Dutch Neck; C. W. Hutchinson, Registrar, Dutch Neck.

Weymouth, Atlantic County; population, 900. Members and Officers—Anderson Campbell, President, Tuckahoe; Thomas Bailey, Tuckahoe; Wm. Wilber, Risley; F. R. McKeague, Clerk and Registrar, Tuckahoe; R. Marshall, M.D., Inspector, Tuckahoe.

Willingboro, Burlington County; population, 658. Members and Officers—Howard Wills, Jr., President, Burlington; J. S. Perkins, Beverly; Samuel W. Stokes, Beverly; Howard J. Hart, Clerk, Rancoocas; Dr. E. S. Adams, Inspector, Beverly.

Winslow, Camden County; population, 2,856. Members and Officers—Christopher Cheesman, President, Sicklertown; Fred Priestley, Elm; Henry Kelling, Waterford Works; Jos. H. Graham, Clerk, Blue Anchor.

\*Woodbridge, Middlesex County; population, 10,221. Members and Officers—Anton Kuhlman, Clerk, Port Murray.

Woodland, Burlington County; population, 413. Members and Officers—Victor Ritzen-dollar, President; E. C. Dunfee, C. H. Grant, W. J. Buzby, Clerk; Jacob Dunfee, Registrar; all of Chatsworth.

\*Woolwich, Gloucester County; population, 1,138. Members and Officers—W. G. Simmon, M.D., Secretary, Swedesboro.

\*No report received.



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