

EIGHTEENTH ANNUAL REPORT

OF THE

# Board of Health

OF THE

STATE OF NEW JERSEY,

AND REPORT OF THE

Bureau of Vital Statistics.

1894.



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## The State Board of Health.

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Hon. JOHN P. STOCKTON, Attorney-General, } *Members ex officio.*  
Prof. JOHN C. SMOCK, Ph.D., State Geologist, }

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Prof. A. R. LEEDS, Ph.D.....	Hoboken.
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President.....CYRUS F. BRACKETT.  
Secretary.....HENRY MITCHELL.

## Secretary's Report.

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*To His Excellency George T. Werts:*

GOVERNOR—We have the honor to furnish to Your Excellency and to the Legislature the report of the Board of Health of the State of New Jersey for the year 1894, it being the eighteenth report of this Board.

We also transmit with it the report of the Bureau of Vital Statistics for the statistical year ending June 30th, 1894.

In them, we trust, will be found material which will help to guide the Executive and Legislative departments of our State in conserving the health of the people. This great interest so concerns the personal, social, industrial, economic and charitable welfare of the State as to form an organic and practical division of public service demanding close attention. The report includes such suggestions, information and advice as, we trust, will make it of value to our citizens at large.

### DEATH OF DR. EZRA M. HUNT.

On the 1st day of July, 1894, death removed Dr. Ezra M. Hunt from his labors in the cause of public health and from his official relations to this Board.

Dr. Hunt was the pioneer in New Jersey in the promotion of State and municipal hygiene, and to him is due the honor of placing our State in an advanced position in its public health relations.

In 1866, almost unaided, he secured the appointment by the Legislature of a Commission to furnish to the Governor suggestions for improvement of the public health, and he continued with untiring energy to agitate this question until the enactment, in 1877, of a law which at once placed New Jersey in the line of sanitary advancement.

All of his rare mental abilities were thenceforth applied to the improvement of the hygienic conditions affecting the citizens of the

State, and mainly as a result of his unceasing labor New Jersey was soon recognized as one of the leading States of the Union in the adoption of successful measures for the improvement of conditions affecting the public health. He served the State Board of Health as executive officer from the date of its organization to the time of his death, a period of eighteen years.

Dr. Hunt was conspicuous by his brilliant intellectual gifts, his adroitness as a manager of public affairs and in his consummate energy in carrying his undertakings to a successful conclusion. The discussion of the most vital questions relating to the administration of government and the conservation of society was the prominent interest of his mind. He possessed a tenacious memory and lost little of the lore which his eager reading stored away for ready use. His leading mental characteristic was the union of intuitive insight with logical skill. The operations of his mind were rapid and spontaneous; his conclusions were the fruit of conviction.

He was a man of the highest principle, of the strictest integrity of purpose and purity of life.\*

#### POPULARITY OF HYGIENE.

During the past year the accumulation and application of knowledge relating to the promotion of the public health has progressed with increasing activity.

Foremost among the advances of the year has been the confirmation of the discoveries previously announced concerning the relation of bacterial life to pathological processes and the sterilization of water by filtration. An immeasurable impetus was given to the public interest in hygiene by the discovery of the bacillus of tuberculosis, and by the facility with which that bacterium was isolated and identified, together with the abundant evidence which has been available to demonstrate that the tubercle bacillus is the germ which propagates tuberculosis, and a widespread popular faith in preventive medicine has in consequence arisen, which is expectantly awaiting the further unfolding of the marvels of hygiene.

In some localities in the State the popular demand for the application of sanitary precautions has outstripped the activity of the sanitary officials.

\*For memorial notice see page —.

#### SANITARY ADMINISTRATION.

Local Boards of Health were first established in New Jersey in 1880.

In the beginning of this new effort on the part of the State to conserve the strength and energy of its citizens there was no available class of persons who possessed the requisite knowledge of the science and art of the prevention of disease who could be called into service. Not only the members of Boards of Health, but also the officers, were often taken from among persons who did not realize the great value to the State of good health among the people.

During the fourteen years which have passed since the present system, for the protection of the public health, has been in operation in New Jersey there has been in some localities a very high standard of sanitary administration established. In other health districts there has been indifferent service, and in certain localities there has been almost total neglect of all official duties relating to the public health.

The State Board of Health has no more important duty, and no more promising department of its work, than the effort now being vigorously undertaken to secure uniformity in local sanitary administration; to secure for each community the same degree of protection against preventable disease, and the same precautions against pollution of air, soil and water which have been found to be practicable and most desirable in other communities similarly situated.

Legislation in this State relating to the care of the public health has given to local authorities the right, and placed upon them the duty of preventing the spread of communicable disease in their own localities, and it is the policy of the State to encourage Local Boards of Health to perform all necessary sanitary functions for the protection of health and the abatement of nuisances; but the citizens of the whole State are dependent to some extent upon the efficiency of local administration in each district, and therefore, through the State Board of Health, every assistance which is needed should be furnished, until the time shall come when no Local Board requires advice or guidance.

#### DISTRICT SANITARY INSPECTION.

Sections four and five of Chapter sixty-eight, Laws of 1887, provide for the inspection of persons, property, boats, cars and

other vehicles, and for detention and disinfection when necessary to prevent the spread of dangerous communicable diseases.

The investigation of local epidemics, nuisances, needs for drainage, neglect of sanitary law, the condition of school-houses, tenements, manufactories and workshops; of public buildings and persons confined or employed therein, is also provided for.

To more effectually carry out the provisions of the sections referred to, and to be better prepared to meet an emergency especially endangering the public health, it was determined at the last meeting of the State Board of Health to more fully organize the inspection service of the Board.

The experience already gained in the employment of District Inspectors by the State Board has shown how essential it is to the satisfactory progress of health protection throughout the State, that the aid of the State Board should be extended to Local Boards to guide them and stimulate them in efforts to wisely apply established sanitary principles and to execute the laws. It has been found that but a few Local Boards have a clear comprehension of the very useful service which they can perform for their respective communities. It is not unusual to find a Local Board wasting efforts in endeavoring to cure some offensive but harmless stench, while polluted wells or other equally serious danger in the locality is unrecognized and neglected.

In numerous townships no action whatever has been taken toward extending to residents the protection against dangers to health which is afforded by the laws. In a number of municipalities the Local Boards have been found to be practically useless. After having adopted ordinances and appointed officers, nothing further has been accomplished.

In striking contrast with the facts just stated is the history of the sanitary progress which has been made in localities where precautionary measures have been steadily studied and applied. The advantages of public hygiene have there been demonstrated. Polluted wells have been closed; defective house drainage has been corrected; the sale of unwholesome foods has been suppressed; the spread of communicable diseases has been restricted; offensive trades have been improved; nuisances have been abated. In these districts the benefits already conferred by the operations of their Local Boards betoken the grand results which

it is possible to secure for the whole State. Doubtless it is true of sanitary progress as of every other reform, that no considerable advance can be made until public opinion supports the movement, but public opinion is stirred into existence by the object lessons which are furnished by an active Health Board. If the people of any given community are not ready for the benefits of public sanitation, they may be relied upon to join the faith as soon as the actual improvements are begun. As a beginning step in such localities, it is better to take up one class of dangers, and accomplish its effectual removal, rather than to undertake too many good works and thereby risk arousing combined opposition.

In districts where the residents are not yet ready to surrender their fancied right to pollute air, soil and water, sanitary missionaries must prepare the way before these communities can enjoy the blessings which cleanliness will bring them.

#### REPORTS OF COMMUNICABLE DISEASES TO THE STATE BOARD OF HEALTH.

One of the useful functions of a central health authority is the investigation of the causes of local epidemics. Frequently the source of infection is situated outside of the jurisdiction of the Local Board which has control of the locality in which the pestilence is most prevalent. While the laws require the State Board to make such investigation, there is, singularly enough, no provision which makes it the duty of Local Boards to report to the State Board the occurrence of outbreaks of communicable diseases. Under the present arrangement information concerning such outbreaks is generally received in a casual manner, if at all, and almost never from the locality in which the disease originates. The lack of prompt official reports notifying the State Board of Health of the appearance of any of the more dangerous epidemic diseases constitutes a serious defect in the method which it is clear the Legislature intended to establish.

The necessity for local inquiries and assistance on the part of the State Board has been well illustrated during the past summer in the investigation into the causes of five epidemic outbreaks of typhoid fever and five outbreaks of small-pox. With

two exceptions, it was found that the communities invaded by these diseases were wholly unprepared to deal with such an enemy. They could neither protect the neighboring portions of the State nor their own citizens.

Frequently no member or officer of the Local Board has ever had any personal experience with such an outbreak, and while the Board may strongly desire to apply every suitable measure for the quick control of the disease, yet the members find themselves without any proper facilities for suppressing it, and without confidence in their own exertions or any acquaintance with the methods which have been found to be effectual and which are in general use elsewhere. These inquiries have conclusively shown the urgent need of instant official reports from Local Boards, to the State Board of Health, of every case, particularly the first case, of cholera, typhus fever, small-pox and typhoid fever. This Board would then be in a position to at once co-operate with the local health officers and furnish such advice, information and assistance as each case might demand.

#### GARBAGE CREMATION.

While the experimental stage in the construction of furnaces for the destruction of garbage may not yet be altogether passed, there is almost universal agreement that fire is the only reliable means for converting rubbish and garbage into a safe and harmless material.

Thus far only two Health Districts have provided garbage furnaces, viz., Paterson and Atlantic City. A description of the apparatus which is in use in Atlantic City will be found on page 29.

#### DISINFECTION.

A principle of sanitation which is now fully established is the efficiency of steam at a temperature of about 230° F. for the destruction of bacterial life, and every municipality of more than two thousand inhabitants should possess a steam disinfecting chamber for the treatment of infected garments, bedding and household furniture. The erection of such a plant in connection with a furnace for destroying garbage would afford an economical

arrangement for the supply of steam, and the site of the garbage furnace would probably be an unobjectionable location for the disinfecting station.

The principles which underlie the construction of both of these devices are so well understood that there does not seem to be a necessity for the purchase of any proprietary apparatus. The City Engineer or any other qualified person should be able to prepare specifications covering all of the best and most approved features of these structures.

#### SUMMER RESORTS.

The ordinary sanitary problems which are common to nearly all cities and towns are complicated in the case of summer resorts by variability in the number of the inhabitants.

The resident population may consist of a few hundred persons, while the summer visitors in many cases number thousands, and in some cases tens of thousands.

Think of Jersey City with 200,000 persons in January and a million in July! Such sudden and extreme changes in population present most serious questions in relation to water-supply, sewerage and scavenging. Communicable diseases occurring in crowded hotels and boarding-houses must be dealt with quite differently from the usual manner of management in towns having a population dwelling mainly in their own homes. Satisfactory domiciliary isolation cannot often be secured, and hospital accommodation becomes absolutely necessary if prompt separation of the infected persons is to be effected. Isolation hospitals should be pleasing and attractive, and the service should be conducted upon a liberal scale. The municipality can well afford to furnish all necessary comforts to the unfortunate victims of communicable diseases in return for protection to the local commercial interests, which would be jeopardized, if not entirely suspended, by the spread of any serious ailment among the summer patrons of the place.

The larger and more populous resorts should excel in every department of sanitary progress.

They are altogether dependent upon the healthfulness of local conditions for business prosperity, and sooner or later the truth



as to these conditions will be known and claims to patronage which are based on false representations or upon insufficient sanitary precautions will meet a just measure of public condemnation.

## INSTRUCTION IN HYGIENE.

The practice of the art of hygiene is so new in America as a separate occupation that we still find in its ranks many individuals who have only a faint acquaintance with the art itself or with the science upon which it is based.

It was not until 1892 that examinations in sanitary science were required by the Local Government Board in England as a pre-requisite for the appointment of Medical Officers of Health. Sixteen British universities now grant diplomas in public health and confer degrees in hygiene.

The course of instruction in these institutions is begun only after the student has been registered as a medical practitioner for at least one year, and it embraces physics, chemistry, including analysis of air, water and food, and the detection of poisons; microscopy, parasites and bacteriology.

It would be premature at present to demand better preparation on the part of sanitary officers in New Jersey, but some concerted action should be taken by the various State authorities which will result in securing for this service a class of men who shall be educated in the departments of knowledge which particularly relate to their calling.

## BACTERIOLOGY.

All departments of medicine are yielding first place to hygiene, and this relation has been hastened by the disclosures afforded by the study of bacteriology. Medicine to-day is zealous to receive and apply every measure which promises alleviation of physical woes or prolongation of human life, and it has seized upon the facts which have thus far been demonstrated relating to the prevention of diseases which are caused by or invariably attended by certain parasitic bacteria in the true scientific spirit, and with confident faith that means for controlling, and mayhap

even eradicating, these affections will be found. Serum therapeutics is at present being investigated by medical men in hope that still grander results than those already achieved by vaccination are destined to attend this means for the prevention of disease.

The disappointment which followed the failure of tuberculin to fulfill the hope which was aroused concerning its influence upon tuberculosis, has not prevented further investigation. On the other hand, there has been an intense and increasing interest among medical men in every new fact which has been added to the knowledge concerning bacterial life.

## HOUSE DRAINAGE.

For the purpose of securing an improvement in the construction of the drainage of buildings the Legislature passed an act in 1888 (Chapter 56) to regulate such constructions, and placed the responsibility for the execution of the provisions of the law upon Local Boards of Health.

Ordinances to carry the law into effect have been adopted in the following named localities:

Name of Health District.	Number of Plans Filed to October 1, 1894.
Paterson.....	5,920
Camden.....	4,467
Newark.....	2,731
Passaic City.....	1,000
Orange.....	828
Asbury Park.....	619
Trenton.....	580
Jersey City.....	471
Long Branch.....	329
Bridgeton.....	296
Elizabeth.....	128
Freehold.....	119
Bayonne.....	97
Hoboken.....	60
East Orange.....	46
Merchantville.....	14
South Amboy.....	1
Perth Amboy.....	None.
Belmar.....	None.

Previous to the enactment of the law above referred to, New Jersey was the dumping-ground for poor plumbing material. Cast-iron drain pipe, which was riddled with cracks and sand holes and covered with tar to conceal these defects, was the usual, indeed almost the exclusive, quality of iron soil, waste and vent pipes which the house builder in this State was able to obtain. When a few of our cities and towns began to operate under the new law and a demand was thereby created for good, substantial and air-tight pipe, the plumbers found no difficulty in obtaining a first-class grade of the article, and the complaint that such pipe was not manufactured and could not be purchased in the market was no longer offered as an excuse for the use of the cheaper porous variety.

To-day the employment of the thin, cracked, leaky and varnished pipe has practically ceased, and good material and tight joints prevail in new constructions in the health districts which have made the drainage law operative and in which plumbing ordinances have been well executed.

The necessity for a high grade of intelligence, capability and integrity in the person of the Drainage Inspector requires the enactment of a supplement to the present law which shall provide for a suitable examination by a competent board of examiners of all persons who may hereafter be selected to serve in that capacity.

The value to the owners and occupants of houses of honest and expert supervision over the construction of plumbing and drainage is indicated by the fact that in the case of more than three hundred consecutive examinations of new systems of interior house drainage, not one was found to be gas-tight upon the first inspection.

Reputable plumbers throughout the State favor official supervision of house drainage construction, for they know the readiness with which scamping can be practiced in their trade by unprincipled persons, and a uniform standard requiring gas-tight joints and good material brings competition within definite lines and enables honorable men who are engaged in the plumbing business to meet on equal ground the men who have heretofore been willing to underbid in doing work because they were not watched.

In almost every other branch of the building trades there has long been some sort of supervision, either by the owner or by

the architect, but the tricks of plumbing have seemed to be incomprehensible to the uninitiated.

All of the municipalities in the State are authorized by the law to regulate this business, but they are not obliged to apply its provisions unless they choose to do so.

INSTITUTIONAL INQUIRIES.

The following circular letter was sent to the public institutions named below :

NEW JERSEY STATE BOARD OF HEALTH,  
TRENTON, October 8th, 1894. }

Please send replies to the following inquiries:

1. How many cases of consumption were admitted into your institution during the past year, from October 1st, 1893, to October 1st, 1894?
2. How many cases are in the institution now?
3. Are these cases kept separated from the other inmates?
4. How is the sputum received and disposed of?

HENRY MITCHELL, M. D.,  
Secretary.

Replies were received as follows:

ALMSHOUSES.

INSTITUTION.	LOCATION.	Number of Cases of Consumption admitted during year ending October 1, 1894.	Total number of cases now in Institution.	Are Cases of Consumption kept separate from other inmates?	How is Sputum received and disposed of?
Atlantic County, . . .	Smith's Landing, . . .	None	None.	. . . .	
Bergen County, . . .	Oradell, . . . . .	None.	None.	. . . .	
Burlington County, . . .	Pemberon, . . . . .	1	None.	Yes.	No precautions.
Camden County, . . . . .	Blackwood, . . . . .	16	2	No.	No precautions.
Cape May County, . . . . .	Cape May C. H., . . . . .	1	2	Yes.	No precautions.
Essex County, . . . . .	Bloomfield, . . . . .	1	None.	No.	No precautions.
Essex County, . . . . .	Montclair, . . . . .	1	None.	No.	No precautions.
Essex County, . . . . .	Newark, . . . . .	None.	None.	. . . .	
Essex County, . . . . .	Belleville, . . . . .	None.	None.	. . . .	
Essex County, . . . . .	Scotch Orange, . . . . .	None.	None.	. . . .	
Gloucester County, . . . . .	Clarksboro, . . . . .	None.	None.	. . . .	
Hudson County, . . . . .	Jersey City, . . . . .	26	15	No.	Received in cups and burned.
Morris County, . . . . .	Boonton, . . . . .	2	2	No.	Received in cups containing a solution of sulph. of zinc.
Woodbridge Township, . . . . .	Woodbridge, . . . . .	None.	None.	. . . .	
Piscataway Township, . . . . .	Stetson, . . . . .	None.	None.	. . . .	
New Brunswick City, . . . . .	New Brunswick, . . . . .	None.	None.	. . . .	
Perth Amboy City, . . . . .	Perth Amboy, . . . . .	1	1	Yes.	Received in cups.
Trenton City, . . . . .	Trenton, . . . . .	3	3	Yes.	Sputa disinfected.
Hopewell Township, . . . . .	Hopewell, . . . . .	None.	None.	. . . .	
Passaic City, . . . . .	Passaic, . . . . .	None.	None.	. . . .	
Bridgewater Township, . . . . .	Somerville, . . . . .	2	1	Y.s.	Buried in the ash heap.
Hillsboro Township, . . . . .	Neshanic, . . . . .	None.	None.	. . . .	
Franklin Township, . . . . .	Middl. bush, . . . . .	1	None.	Yes.	Received in vessel filled with ashes, then treated with carbolic acid.
Montgomery Township, . . . . .	Harlingen, . . . . .	None.	None.	. . . .	
Salem County, . . . . .	Sharpstown, . . . . .	None.	None.	. . . .	
Sussex County, . . . . .	Branchville, . . . . .	None.	1	No.	No precautions.
Union County, . . . . .	Rahway, . . . . .	None.	None.	. . . .	

PENAL INSTITUTIONS.

INSTITUTION.	LOCATION.	Number of cases of Consumption admitted during year ending October 1, 1894.	Total number of cases of Consumption now in Institution.	Are cases of Consumption kept separate from other inmates.	How is Sputum received and disposed of?
Atlantic County Jail, . . .	Mays Landing, . . .	None.	None.	.....	No precautions.
Burlington County Jail, . . .	Mount Holly, . . .	None.	None.	.....	
Camden County Jail, . . .	Camden, . . .	1	None.	No.	
Cape May County Jail, . . .	Cape May C. H., . . .	None.	None.	.....	
Essex County Jail, . . .	Newark, . . .	3	None.	No.	
Gloucester County Jail, . . .	Woodbury, . . .	None.	None.	.....	
Hudson Co. Penitentiary	Jersey City, . . .	1	1	Yes.	
Hudson County Jail, . . .	Jersey City, . . .	None.	None.	.....	
Morris County Jail, . . .	Morris town, . . .	None.	None.	.....	
Hunterdon County Jail, . . .	Flemington, . . .	None.	None.	.....	
Monmouth County Jail, . . .	Freehold, . . .	None.	None.	.....	
State Reform School, . . .	Jamesburg, . . .	None.	1	Yes.	
Mercer County Jail, . . .	Trenton, . . .	None.	None.	.....	
New Jersey State Prison	Trenton, . . .	21	41	{ Inadequate facilities for separating the infected persons }	
Ocean County Jail, . . .	Toms River, . . .	None.	None.	.....	Sputa disinfected except in cells.
Salem County Jail, . . .	Salem, . . .	None.	None.	.....	
Somerset County Jail, . . .	Somerville, . . .	None.	None.	.....	
Union County Jail, . . .	Elizabeth, . . .	1	None.	No.	

ASYLUMS.

INSTITUTION.	LOCATION.	Number of cases of Consumption admitted during year ending October 1, 1894.	Total number of cases now in Institution.	Are cases of Consumption kept separate from other inmates?	How is Sputum received and disposed of?
N. J. Home for the Care of Feeble-Minded Children, . . .	Vineland, . . .	None.	None.	.....	Received upon rags and burned.
Institution for Feeble-Minded Women, . . . . .	Vineland, . . .	2	10	As far as possible.	
Newark City Home, . . . . .	Verona, . . . . .	None.	None.	.....	Received in cups and disinfected.
Essex County Hospital for the Insane, . . . . .	Newark, . . . . .	None.	2	No.	
Gloucester County Insane Asylum, . . . . .	Clarksboro, . . . . .	None.	None.	.....	Received upon cloths and burned.
Hudson County Insane Asylum, . . . . .	Jersey City, . . . . .	3	2	Yes.	

The facts stated in the foregoing replies show that while in several of the institutions named the authorities recognize the communicable nature of consumption, and employ the usual means of preventing the spread of the disease, yet in others no effort has thus far been made to protect inmates against the infection. One of the purposes in sending out the letter of inquiry was to aid in drawing the attention of superintendents, sheriffs, wardens and other persons in control of these institutions to the views which at present prevail in regard to the cause of this disease, and to remind them of the most important measures which may be taken for the protection of the uninfected inmates.

Circular 83, printed in full under heading "Circulars and Laws," has been sent to every public institution in the State.

PUBLIC WATER-SUPPLIES.

Each year the necessity becomes more imperative for the adoption by the State of some comprehensive system which shall protect and render available for municipal use the sources of public water-supply.

The constantly increasing density of population and consequent inevitable contamination of local sources, whether wells or streams, including the entire flow of our largest rivers at points whence many of our cities draw their water supply, indicates the urgency which exists for abandoning all temporary methods of supply and resorting to the primitive watersheds in the north-western portion of the State. These sources of supply, although adequate for all demands if judiciously distributed, will not admit of wasteful disposition, and all of the municipalities in the central and southeastern portions of the State are justly entitled to an equal per capita allowance whenever the citizens of these localities shall be willing to pay for such supplies.

## Recent Sanitary Progress.

BY E. M. HUNT, M.D., D.SC., LL.D.

In our fifteenth report (1891), the paper of Sur. A. A. Woodhull, U. S. A., on the Seventh International Congress of Hygiene and Demography, held in London, August, 1891, gives a valuable summary which illustrates the advances and status of sanitary science and administration to that date. The various papers read at that Congress still more clearly show what had been accomplished and what theories and plans were under discussion.

It showed, more than any previous Congress, the breadth that sanitary medicine had assumed.

Demography, or the study of vital statistics, had become so prominent that it was associated as a part of the name of this Congress. Comparative pathology and animal diseases in their relation to human diseases were considered worthy of a special section.

One cannot note the six Congresses which had preceded it without being impressed with the progressive development of this division of science and art into several subdivisions, each rightly claiming specific and expert investigation.

If in addition we turn to the record of the International Medical Congresses, especially those of London and Berlin, and more recently that at Rome, and then add to the list the various conferences on special subjects that have been held in several countries, and note how the attendance at some of these has grown from hundreds to thousands, we find ourselves in the midst of the most profound questions of life and of health, and with such accumulating data as to science and administration as may well arouse us to the greatest activity and zeal in this great addition to professional life. It was an illustration of the progress of public hygiene that during the previous year Dr. Palmberg, of the University of Helsingfors, Finland, has written a large volume on "Traite de L. Hygiene Publique. D, après ses Applications dans Différents Pays d, Europe Paris, Octave Doin,"

of such value as to have been translated from Swedish to French and now into English (McMillan). It details with great accuracy the sanitary administration of England, Belgium, France, Germany, Austria, Sweden and Finland. Sweden shows the smallest general mortality (17.8 per 1000). It is not only a standard work as to the actual condition and progress of sanitation, but considers the whole scope of sanitary science and art, including vital statistics, with great ability and thoroughness. It assigns the first place in general to the methods of the English Administration. Recently the Italian Government has adopted a sanitary code second to none in its extent and thoroughness.

The period from 1891 to 1894 has been certified as to its sanitary activities, especially by conventions and conferences as to various matters of public and State medicine by the numerous commissions called upon to report on matters of national health concern, by various lectures, papers and essays which have appeared on various subjects of sanitation from notable authorities, by the books which have been written on distinct subjects and by the activity with which all questions of hygiene are now discussed both by the medical and the general press.

These conferences, beginning with such as those at Paris on Tuberculosis and ending with the International Sanitary Congress in the same city, embraces intermediately a dozen or more which have direct reference either to general or special subjects of public health.

As examples of lectures and papers we may mention the Milroy Lectures on the Etiology of Diphtheria, by Dr. Thorne Thorne; the Croonian Lectures on the Origin and Nature of Infectious Diseases, by Dr. Burdon Sanderson; the Lecture before the Royal Society, London, March 16th, 1893, on the Position of Pathology among the Biological Sciences, by Prof. R. Virchow, London; the Morton Lectures on the Etiology of Cancer, by Dr. Sims Woodhead and Dr. James Galloway; the Hunterian Address on the Laws of Partnership in Disease, by J. Hutchinson, F. R. S.; the address of Dr. Sanderson before the British Association for the Advancement of Science on Biology and the Relation between it and other Branches of Natural Sciences, or that of Prof. Bizzozero, of Turin, on the Growth and Regeneration of the Organism, at the Medical Congress at Rome, 1894.

As an example of Commissions we may refer to the Royal Commission on the Metropolitan Water-Supply; to that of Vaccination, with its fifteen blue books already in print; to the Report of the Commission on Bovine Tuberculosis, and to that of the India Leprosy Commission. There have been, besides, numerous discussions before important societies and numerous conferences as to cholera and other epidemic diseases.

Books have multiplied in every direction. The notable work of Sir John Simon on English Sanitary Institutions, with the great grasp of that grand old man, shows a definite progress and a historical record which makes of it a classic.

We have many excellent monographs, such as that of News-holme on Vital Statistics, and various works on Hygiene. But the time has now come when it is not scarcely attempted by any one person to write on the various subjects.

Such a work as the three large volumes on Hygiene and Public Health, under the editorship of Stevenson and Murphy, brings us to a period when each particular department must have its authorities and when we are to look to the encyclopedia or to compilations in which various names certify efficiency for our standard guides.

The past four years have been especially notable in the distinct bearing which sanitary science and sanitary administration have shown themselves to have upon the whole practice and art of medicine, and, indeed, of all that relates to the public health. It has resolved itself, first of all, into a closer study of the etiology, and then has proceeded to the business application of administrative methods to the prevention of these causes. Where causes could not be discovered it has looked far and near for facts as to the courses of disease, and sought by experience to interrupt these.

Whatever may be the final verdict as to disease germs, or as to the microphitic origin of very many diseases, this theory of causation has so far dominated both sanitation and medical practice that cause, prevention and cure are associated as never before. They grow out of and into each other, and have to be studied together.

The prevalent direction of study has been biological. Laboratories have multiplied here and there, and the results of experi-

ment are watched with the greatest interest. It seemed at one time as if all pathology and all chemistry would have to yield to this one vital principle.

We yet, however, know that there is some pathological study outside of biology, and that the chemistry of disease is intertwined with its biology. Not every lesion is the work of a microbe, and bacterial products so potent in effects are demanding the closest chemical study. The result has been in these regards that the line of inquiry has become more definite.

While there is still great confusion and great differences of view, we have found out better what we need to know.

The study of micro-organisms and their products, of the laws of infinitesimal life, of toxics and the chemical workings of disease, of the malignant and harmless bacteria, of their co-ordinate or opposing actions, the study of the laws and conditions of resistance thereto, whether by phagocytes or protective proteids, are some of the central inquiries around which the science of hygiene seeks fuller organization.

Large consideration is being given to what is to be done to prevent, or sterilize, the microbe, and to fortify the system against such inroads as will cause disease.

Our literature, both that of books and of the medical press, is full of bacterial lore, observation and speculation, while the secular press finds in it much to interest if not to enlighten the public. Imperfectly elaborated views as to communicability keep up popular interest, and serve to give prominence to this or that experimenter. There is enough real truth and close observation to float great nebulae of speculation or error.

"Unreasoned facts" are too readily accepted as results which prove a hypothesis.

The wonderful attainments and discoveries of Koch, and the fact that his students were at the head of the nine or ten biological laboratories on the Continent, gave such prestige to his views and authority as made his opinions almost autocratic. But workers are fast multiplying, and the discussion of facts and opinions now goes actively forward. Our own country has awakened to their importance, so that now all of our leading seats of medical learning have their biological appointments, and teach more of their pathology through the laboratory than they do from the morgue or the bed-side.

Yet, test of observations and evidence, both as to quantity and quality, is often greatly lacking. Conclusions are promulgated that are far afield from such series of classified and well-attested facts by various observers, as both science and art have a right to exact.

So evident is this, that perhaps the most forcible address at the recent International Medical Congress at Rome was that of Prof. Michael Foster, of Cambridge, England, on "Organization in Science as an Aid to Scientific Results." He alluded to many defects in work, in biological work, to the various crudities and contradictions, and said that the publication of crude material appeared to him as "sewage contamination defiling the pure streams of science," and that individual ambition needs more to give way to the love of truth.

Prof. Jacobi, in his able address at the same Congress, under the title "Non Nocere" (Don't Hurt), named among other dangers the tendency "to run after fashions and fads such, for example, as tuberculin and elixirs now in so common use."

A great deal of the recent activities in sanitary science and art have centered about special epidemics, chiefly because of the widespread prevalence of influenza and the inroads and threatenings of cholera within the last four years.

Added to these have been many severe experiences as to diphtheria, typhus fever, yellow fever and the more ordinary communicable diseases. All this has been greatly promoted by the wide-spread discussions as to tuberculosis and by the contentions and tendencies as to its certification as a communicable disease.

Nor has this study of the chief epidemics been only an extension of routine methods. One cannot, for instance, take up the literature as to influenza for these years without finding a closeness of study and an intensity of inquiry in many countries such as has brought out very fully its various types, experiments as to it and minute details as to its extension and treatment. The two excellent special reports from the Local Government Board of Great Britain, made by Dr. Parsons, 1889-90, and that of Drs. Parsons and Klein, 1890-92, are complete and thorough from an etiological and public health point of view. The resumé of the various investigations as to it in our fifteenth report, 1891, and

seventeenth report, 1893, present in brief some of the evidences as to thoroughness of details.

Still more has the method of dealing with cholera taken on new phases and been met with corresponding results.

The experiences of successive years lead us to believe that many former errors are never again to be repeated. Instead of the slow processes of ancient law we have the summary proceedings of police administration. With little greater success as to medicine, there are far more definite rules as to sanitary preparation, prevention and care. The methods pursued in Europe, the use made by our own country of Consuls, ship inspection and of detailed medical officers at ports of emigration and the extension of our quarantine and other laws in the United States, as co-operated with by local authorities, shows great advances in the application of administrative details.

More than all, the International Conference at Paris, in April last, representing delegates from the chief powers of the world, showed that no longer will we wait for this marauding pestilence to start forth on its sad mission, but that it, or the causes that produce it, will be attacked at its starting points and thus our dealing with it will be far more radical and successful. The sanitary student and practitioner of to-day breathes an atmosphere of renewed hope and cannot be accused of over-enthusiasm in claiming that a new era has dawned upon that department of medical science known as preventive medicine, and in claiming it as the greatest guarantee of greater success in combating the causes and incidents of disease.

Governments are beginning to erect monuments or bestow other honors on their sanitary officers, and what was once patronized as a philanthropy is now known to be a necessary department of political economy, to be legislated for in the interest of the masses and for the welfare of all citizens.

#### BUILDING, INSPECTION, PLUMBING, HOUSEKEEPING.

The value of brick as building material depends much on the fact that air without draught is constantly passing in and out through it unless impeded by wetness or by other ways of shutting out the air. This was well illustrated by some experiments

of Prof. Kedzie, of Michigan, and by his paper read at the meeting of the A. P. H. Association, 1892. We quote as follows:

“In plastered rooms where the walls have been left undisturbed for some time, you see the position of every beam and joist, and even the lath, by the lighter color of the wall. The part of the wall occupied by the plaster only is more permeable by air, which, in passing through, leaves the dust behind, forming a brown streak. The air holds a fine dust in suspension at all times, which dust will be filtered out and left behind, when this air passes through a plastered wall; where the air passes most rapidly, the most dust will be deposited on our filter, and where less air passes, a corresponding less amount of dust will be deposited; the solid beams and joists prevent the escape of air from the plaster, and thus limit the amount passing through the wall-surface next them; the lath will to less extent obstruct the passage of air, while the space between the lath entirely filled with the plaster will most readily permit the passage of air. Thus a glance at our wall filter, especially if it has been long in use, will enable us to determine the position of all the frame-work of the room, concealed by the plaster until revealed by the tell-tale dust.

“Let me digress for a moment to speak of this subject of wall respiration, and point out how admirably a plastered wall is fitted to make the walls of a healthy dwelling, because it permits the free passage of air, without causing draughts or unhealthy currents. Let us see how this wall respiration may be affected by some common practices. I am often asked, what is the influence of wall-paper on the healthfulness of a room? Let us test this question by seeing whether air will readily pass through wall-paper. I place a piece of wall-paper over the bowl of this pipe and try to blow air through it; you see the flame is only very feebly swayed; but if I use this filter paper in the same way I readily blow out the flame. The sizing used to lay on the colors of wall-paper fills the pores of the paper so as to nearly prevent the passage of air, even when we blow forcibly; but with the additional paste used to fasten the paper on the wall, the papered wall becomes impervious to air. Over the plastered mouth of this pipe I have pasted some thin wall-paper; it is now

dry, but you see I cannot blow the least air through it. A papered wall is a strangled wall, so far as wall-respiration is concerned. When a wall is calcimined, the whitening and coloring material being laid on with a solution of glue, the wall becomes impermeable by air. Here is a pipe, the mouth of the bowl filled with mortar, and this covered with calcimine; it has been thoroughly dried, but only a minute trace of air can be forced through it. The same is true of a painted wall. Here is another pipe filled with mortar; I have very thoroughly whitewashed the exposed face of the mortar, applying two coats of whitewash; yet you see I can blow air through it nearly as easily as I can through rough plaster.

“The amount of air that will pass through this diminutive surface is small, but when we come to apply it to the dimensions of a room, it becomes large. The experiments of Professors Marker and Shultz show that the passage of air through brick walls is by no means difficult. The difference of 20° F. in temperature between out-door and in-door air will cause the passage of about eight cubic feet of air each hour through every square yard of wall-surface made of brick.”

This is but an illustration of how much the health of a house depends upon the material of its construction, upon damp courses or other means of securing porosity to building material. As we shall hereafter see, the same applies to walls and to various matters connected with inside house finish.

Next to the person must ever come the home. Indeed, in its general relations to health administration it is more intimate than the person, except when the person is in some way directly identified with contagion or as the carrier thereof. It is in vain that we rely upon outside sanitation. Important as it is it presupposes that the house and household are neither breeding nor nurturing disease. This, first of all, means right construction. In addition to such structure as is safe from accident, there must be such attention to all details as shall be promotive of health. The duty of the Building Inspector becomes widened or must have associated with it all the details that relate to pipes, fixtures, light, air, heating and various other subjects. Hence it is that a large part of sanitary administrative progress has of late

years concerned itself with the interior arrangements of dwellings. Law has been and must be explicit, and skilled Inspectors must be provided who have diligence and honesty, and who will find out what is essential and insist upon its performance. This house-to-house inspection and this provision of healthy homes for all classes is the one pressing need which must be insisted upon more and more. It is for this reason that Local Boards must be strict in securing inspection returns, in correcting the evils found and in obtaining a higher class of skill among Inspectors. Our Inspectors' Guide and various circulars point out the line of study and methods of work.

Plumbing and the care of house pipes in general are so important that it must be regarded as a specialty.

With all structural arrangements secured, there must then be continued oversight of what we associate under the general head of housekeeping. While so much has to be trusted to the family by reason of incompetency or lack of money, the State or city will often have to conduct a part of this cleansing work. Hence here, too, is a broad field for labor, energy and skill quite apart from the special work required where there has been sickness or where there is some special source of foulness. We can only once more urge upon all Boards and all Inspectors a habit of close record as to household conditions, a thorough attention to the remedy of evils found and a constant insistence upon cleanly conditions in the house and the ground attached to it.



## Garbage Cremation in Atlantic City.

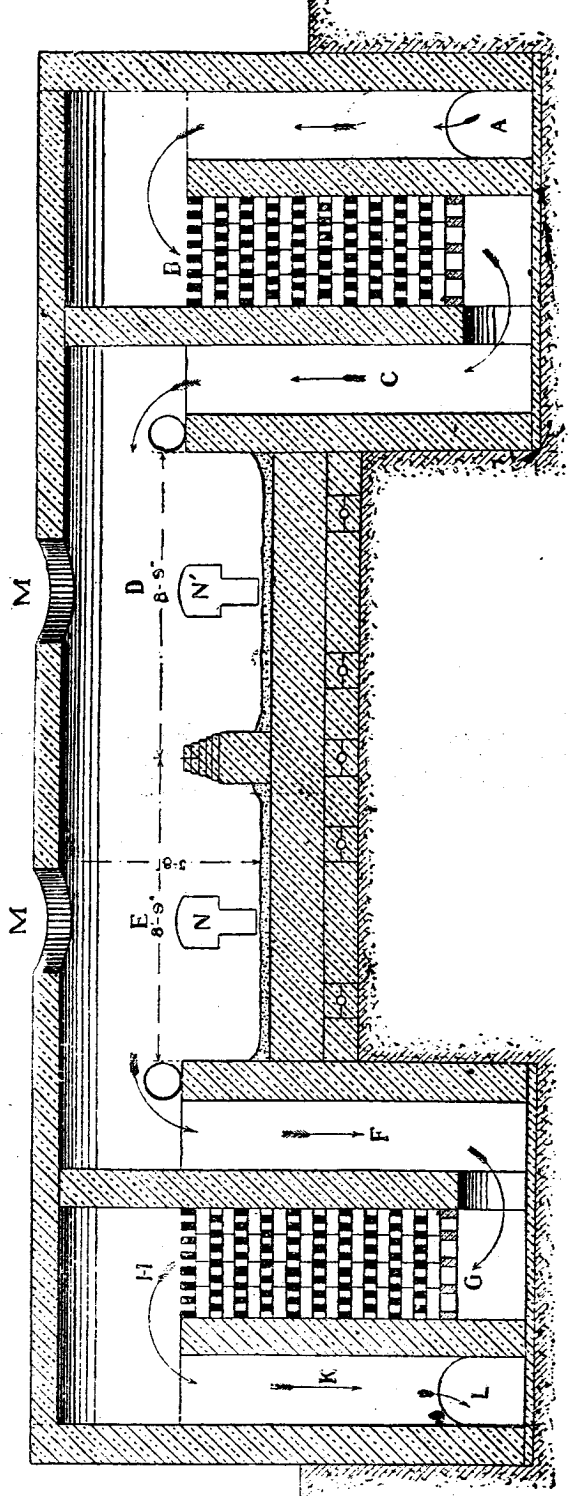
BY H. S. SCULL, SECRETARY ATLANTIC CITY BOARD OF HEALTH.

As mentioned in our last report, the City Council, by ordinance, placed under control of the Board of Health all sanitary matters, and with also the appropriation formerly made to the Sanitary Committee of Council for the collection and disposal of the city's garbage. The Board promptly availed itself of the opportunity thus given to change and improve the method of caring for the animal and vegetable waste, and gave considerable time to an investigation of the different systems of disposal that came to their notice. The Board visited several cities and personally examined the details of construction and operation of plants working under both the cremation and utilization systems. The result of these inquiries impressed the Board decidedly and unanimously in favor of the cremation method, and of these the committee reported in favor of the M. V. Smith system of garbage incineration, which, operated with producer gas obtained from bituminous gas coal, reduces all waste to a small ashy product without odor and in a manner to prevent noxious or offensive odors being carried in the smoke. Having decided upon the system, an order was given for a plant of an estimated capacity of about fifty tons per day. This was completed about June 1st, 1894. Since that date the fires have been kept continuously burning, and during the summer months from forty to seventy-five tons per day of animal and vegetable waste were received and destroyed.

The accompanying cut represents a reversible garbage furnace, so constructed that garbage, night soil and other offal may be consumed by hot air. The heat generated by the burning substance acts directly on the fresh garbage in the opposite end of the furnace, so as to make the substance treated furnish, as far as possible, the heat for its own destruction; that is to say, the

charred substance burning in one end of the furnace removes the water from and chars the substance in the other end of the furnace, which, in turn, is acted upon by hot air regenerated from the products of combustion, suitable regenerators being placed between the combustion chamber of the furnace and the chimney.

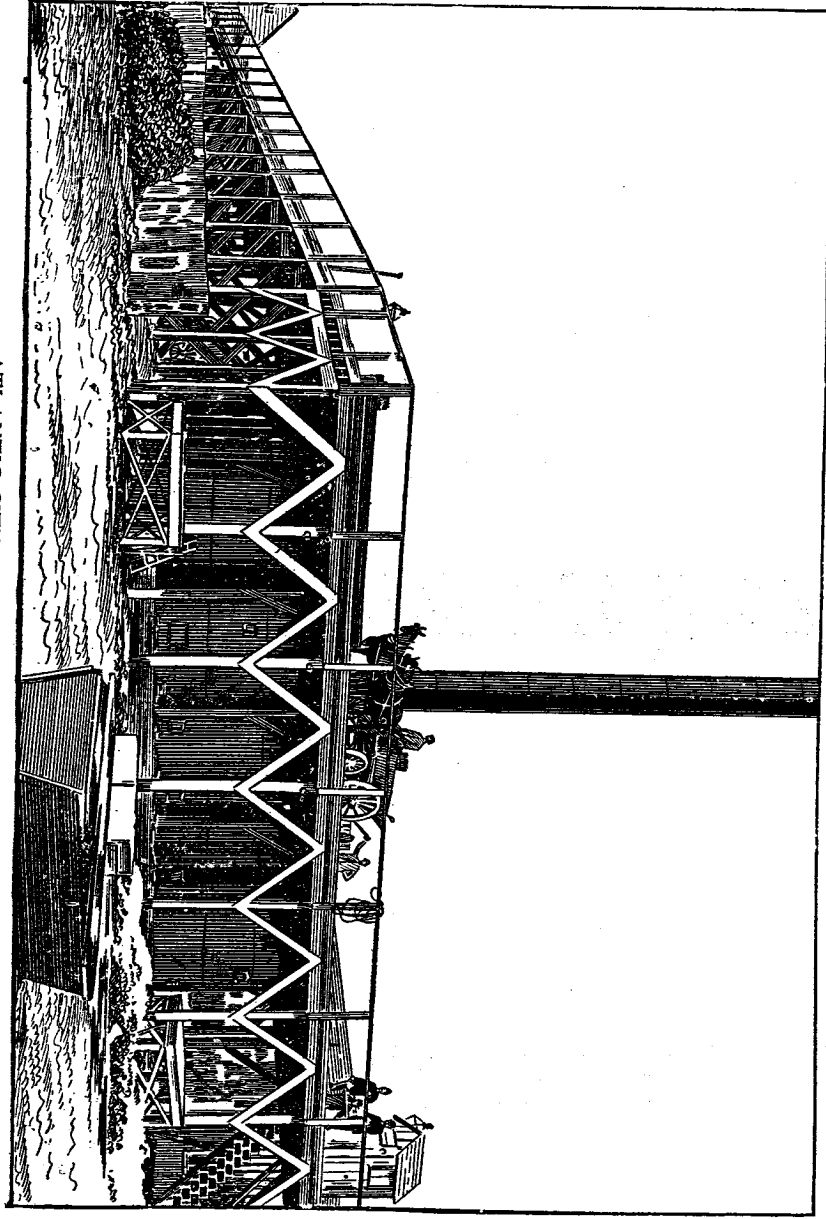
Before operating the furnace it is necessary to bring the chambers and regenerators to a bright red heat, then fill the chamber at E, with garbage. The air to support the combustion is admitted, following the line of the arrows, and enters underneath the furnace at A, passes to the top of the regenerator B, then down through the regenerator into the flues C, thence into the furnace chamber D, where it comes in contact with gas admitted at the opening over the bridge. Combustion of the gas and air taking place at this point, the heat produced acts on the garbage in the chamber E, the products of combustion passing down through the ports F, under the regenerator G, thence up into the chamber H, thence down through the outlet K and into the flue L, thence into the stack S. The valves may be allowed to stand in this position until the garbage at E has become thoroughly charred, after which the gas is shut off. The direction of the currents can be reversed, and then the air to support combustion enters at L, passing through the generators H G, where it becomes heated, thence through the ports F and acts on the garbage at E. While the combustion at E is going on, a fresh supply of garbage may be put into the chamber at D. The heat produced from the burning garbage in E drives the water out of the garbage in chamber D, the products of combustion passing out through the port C and the regenerator B, thence down into the flue A through the valve into the chimney S. By this it will be seen that the garbage furnishes heat for its own destruction—gas being required only when the nature of the substance to be destroyed is not sufficiently heat-producing for that purpose. Where natural gas or oil is obtainable, it may be applied through small openings immediately over the bridge next the ports; or, producer gas may be applied to make up the heat units necessary to carry off the water. After the garbage in chamber E has been reduced, the charge at D would necessarily become charred. The water and products of combustion passing through the



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SECTION OF GARBAGE CREMATORY, ATLANTIC CITY, N. J.

ATLANTIC CITY GARBAGE CREMATORY.



from the Health Office in answer to complaints. Proprietors of hotels and boarding-houses appreciate the efforts made by the Board to remove their kitchen waste without offense, and many of them have provided convenient receptacles, and introduced easily-handled sanitary garbage cans, and in other ways assisted the contractor in his work. Daily collections are made from February to September, and tri-weekly the remaining months of the year. During the months of July and August the Monday collections amount to more than one hundred and fifty tons for each of those days, and it is a proud record for a health resort to be enabled to successfully collect and destroy this vast amount of household waste. A problem that has been for years a cause of anxiety to Atlantic City's health authorities has been thus solved to their entire satisfaction.

## Epidemic Outbreaks in New Jersey during the Past Year.

BY A. CLARK HUNT, M. D.

Effective work done by a Local Board of Health during an epidemic of any preventable disease is one of the best proofs of proper organization and well-applied sanitary knowledge and experience.

While in our larger cities there are to be found Boards of Health which are active and efficient, we find that there are a large number of Boards in smaller places which are either unorganized or, if organized, are unable, through lack of experience, to cope with any serious outbreak of disease. Such outbreaks in rural districts are so rare that from the time of one epidemic to another there has been an entire change in the membership of the Boards, so that the same instruction and assistance have to be again given.

It therefore becomes of the greatest importance that, for the sake of protecting the State at large, there should be immediate notification to the State Board of Health of any outbreak, so that assistance may be given at once. Although in a number of instances the notification is given, there are often times when assistance has been asked for after the mischief had already been done. It is by instruction and direction that the State Board can render much needed assistance, and it has often been able to head off epidemics by a timely visit.

We have, in most instances, found the Local Boards exceedingly willing to receive suggestions and act upon them.

But this aid to Local Boards should be constant, and there should never be an outbreak where the State Board failed to receive timely notice, so that the exact conditions might be ascertained, and, also, the complete history of the epidemic.

Thus, by following these histories for a series of years, much valuable information can be collected which will result in the ascertaining of the local causes of disease and their removal.

As illustrating how uncertain and often delayed our information has been, we may say that during the past year we have received timely notice in but two or three instances, and that in nearly all the others the knowledge came at a time when already our ability to assist was greatly diminished by the foothold the disease had obtained. We therefore desire to impress upon all interested in health work in our State the necessity of assisting in obtaining legislation which shall secure prompt notification, and, also, to co-operate with us in systematic effort to reduce the death-rate from preventable diseases.

During the year there have been a number of localities where small-pox has appeared, namely, Jersey City, thirty-five cases; Hoboken, nine cases; Bayonne, seventeen cases; Harrison, five cases; Newark, ninety-seven cases; Asbury Park, eight cases; Rutherford, fourteen cases; Washington, two cases; Paterson, six cases; Englewood, one case; Mt. Olive township, Morris county, one case.

There seems to be increased risk from year to year of the spreading of this disease on account of hidden cases or from cases where the disease is so mild that the patient is able to be up and often to go from place to place.

In Newark great difficulty was experienced in locating some of the first cases, and it was not until a close house-to-house inspection of some of the districts was made that the real number of cases was ascertained.

At Rutherford a single case in the family of a fruit dealer had probably convalesced and the patient been sent to New York. To this case nearly all the others could be traced.

The cases at Washington were easily traced to exposure to the disease at Hoboken.

Where isolated cases have occurred in smaller places the Boards of Health were unusually active, and in most instances, by rigid quarantine and proper caution, a spread of the disease was prevented.

## TYPHOID FEVER.

As in previous years, there has been the usual number of outbreaks of this disease, and in various portions of the State there have been a few scattering cases.

Our attention has been more especially called to three localities where more cases than ordinary have occurred, *i. e.*, Montclair, Bayhead and Seabright.

The following account of the outbreak at Montclair has been kindly furnished us by Richard P. Francis, M. D., Health Officer, and J. S. Brown, M. D., of the Local Board of Health:

*An Account of the Outbreak of Typhoid Fever in Montclair in the Spring of 1894.*

The spread of typhoid fever by means of contaminated milk and water-supplies is well known. It is not often, however, that an outbreak of the disease can be traced so directly and conclusively to one source as was done in the town of Montclair last spring.

On the 11th of February, 1894, the son of a Verona milkman, who delivered milk in Montclair, fell sick. He was first seen by a doctor a week later, and on the 20th the disease was pronounced typhoid fever. About the 1st of March report of the case was made to the Montclair Board of Health. A representative of the Board visited the farm, and reported the facts to the State Dairy Commissioner. It was found that since the patient had come under a doctor's care the stools had been buried away from the farm buildings. The dairy was in a poorly-kept condition, but little attention being paid to cleanliness, the washing of the bottles and the cleaning of the stable and cattle being done in a careless and perfunctory manner. The milk-bottles were washed at the back door with water from an adjacent well that stood some sixty feet distant from a privy, which was on a higher level. It is possible that the well-water was contaminated by the privy contents, and this, of course, would contaminate in turn any articles with which it might come in contact. Some time later it was learned that the patient had used the privy vault before he was seen by a doctor. As the well was covered with a

poorly-built platform of boards on which the pump rested, it is also possible that it might have become contaminated by dirty water, as slops, washings from chamber vessels, &c., thrown from the back door. Possibly both causes were factors.

The representative of the State Dairy Commissioner after visiting the farm did not deem it necessary that the milk should be quarantined without further investigation. About three weeks later there were reported to the Local Health Board two cases of typhoid fever in a family supplied with milk from the suspected farm. Forthwith the Local Board ordered that none of the milk should be delivered in Montclair and again notified the State Dairy Commissioner, who at once ordered the quarantine of the milk. It was subsequently learned that previous to the time when these two cases were reported there had been nine unreported cases of typhoid in various families, all directly traceable to the same polluted milk.

From this time on, cases developed more or less continuously until the end of May, when the outbreak can be said to have ceased. All told, there were 115 cases in Montclair, Bloomfield, Glen Ridge and Verona, and all but eight of these drank of the infected milk at some time. Of the 44 families that were regularly supplied with this milk, 28, or 63.6 per cent. were afflicted with the fever in one or more members. Of the 107 cases attributable to the milk 15, or 13 per cent. died.

An analysis of the milk was made by Prof. Leeds, of the Stevens Institute in Hoboken. His report is as follows:

STEVENS INSTITUTE OF TECHNOLOGY,  
HOBOKEN, N. J., April 11th, 1894.

GEO. W. MCGUIRE, Esq.,

*State Dairy Commissioner:*

DEAR SIR—I transmit herewith report on sample marked "N. J. Dairy Commissioner, No. 6851," delivered March 31st, by Inspector John C. Tracy.

The sample was of whitish color and quite acid. Its specific gravity and total solids were quite low, the latter being 12.84 per cent. It contained:

Fat.....	3.87 per cent.
Lactose.....	4.95 " "
Albuminoids.....	3.30 " "
Ash.....	0.72 " "
Total solids.....	12.84 " "

Besides the bacteria usually present in milk it had a number of those more especially found in water. The total number of colonies was enormous, being

2,187,000 per cubic centimetre. Though the specific bacilli of typhoid were not found in this particular sample, I regard the milk on the above showing as unsafe and contaminated with impurities introduced subsequent to milking.

Very respectfully,

(Signed),

ALBERT R. LEEDS.

This does not necessarily mean that the milk was intentionally diluted with the well-water. The fact that the milk-bottles were washed with the contaminated water would be enough to contaminate the milk. And that the water in the well and in the cisterns was polluted was shown by analysis made by Mr. D. H. Baldwin, chemist, of Montclair. His conclusions were endorsed by the Board of Health of New York City.

Some of the facts noted concerning the outbreak may be of interest. Nine cases were infected from drinking the milk only once, while in a number of families where the milk was habitually used there were persons who were not sick—showing that not only is the infective agent necessary to cause the disease, but this agent must find a suitable habitation for its development. In nearly all the cases the eruption was marked, in some extending thickly over the body and limbs. There were nine cases of intestinal hemorrhage, one of which proved fatal. As a rule, the bowels were constipated. There were thirteen relapses noted. As far as has been ascertained, there are no marked sequelæ except that in one patient, a young man, who had a long and severe attack, followed by a relapse; a so-called "typhoid spine" developed some six weeks after convalescence had become thoroughly established.

Acting on knowledge obtained from investigations made during and subsequent to the outbreak, the Montclair Board of Health has adopted several measures that tend to reduce to a minimum the chance of any communicable disease being spread through the community by the milk-supply. First—Regular and systematic inspections of all the dairies supplying the towns are made, having special reference to the following points: the general condition of the plant, the manner of collecting and distributing the milk, the cleansing of the bottles, the feed and care of the cattle, and the health of all connected with the dairy. Second—All the milkmen have been given full directions about sterilizing bottles. Third—Whenever a case of communicable

disease is known to exist in any dwelling in the town, notice is sent to the milkman supplying milk to such dwellings that either the milk must be left in receptacles belonging to persons living in the dwelling, or, if left in the ordinary milk-bottles, no bottle may be removed from the premises until the sickness has ceased and permission is given by the Board; and when such bottles are removed they must be immediately sterilized by boiling or steaming before being brought in contact with bottles, cans or other articles by which the milk might be contaminated.

Later in the summer another epidemic occurred and the following report is given of it by Thomas Horton, Sanitary Engineer:

*An Account of the Later Epidemic of Typhoid Fever in Montclair, N. J.*

"During August of this year there appeared in Montclair a small epidemic of typhoid fever, numbering in all nineteen cases, resulting in one death. Its close succession to the more severe epidemic in the early spring caused a natural anxiety in the town, and placed the Board of Health in a responsible position. As agent and Inspector of such Board much of the work was left to me, and an outline of the epidemic and the efforts of the Board of Health in dealing with it is briefly as follows:

"About July 20th, there appeared simultaneously in the town two cases of typhoid fever, one in a hotel and the other in a French bakery and ice-cream saloon situated about half a mile from the hotel. Little attention was given these cases beyond the ordinary precautions of the attending physician until about August 1st, when the appearance of two new cases, one in each of the above buildings, caused a slight suspicion of an outbreak. All the cases were removed to the hospital, and on the development of five more cases by August 4th, a systematic investigation was begun to discover the course of the epidemic.

"I visited the house of every case, made an inspection of the premises, left instructions to be observed in the care of the patients, and filled out a blank form to aid in discovering any common source of infection which might exist. In each instance the water, milk and ice-cream supply was investigated, and the date of sickness and the occupation and place of business of the

patient obtained. Of the nine cases thus far developed, nothing was found in common but the public water-supply and the use of a few of the old wells which are so numerous in the town, and which, in many instances, I knew to be badly polluted. At this time I hardly suspected the wells, because three or four would have been involved, and I thought it very improbable for so many wells to be infected at once, and besides, two patients claimed not to have used well-water at all. We made, however, an investigation of the public water-supply, which is a mixture derived from driven wells and the Newark aqueduct. There was practically no typhoid in Newark and other places supplied by the aqueduct, at the time, so that only the well-water was examined. Samples taken from the driven wells and suspicious, large crevices in the pump wells, showed the water to be of high organic purity and that the typhoid had presumedly no connection with it.

"Being confident of the purity of the milk and public water-supplies, I again turned my attention to the wells and the possibility of secondary infection. On closer investigation I discovered that in the case of the hotel, the first patient was a transient guest who had arrived only two weeks before developing the disease. Two weeks is barely within the 'incubation period' for typhoid fever, and the assumption is more strongly in favor of this being an imported case than that infection took place almost immediately on arriving in Montclair. Continuing on this assumption, I discovered further that great carelessness had been practiced in the care of the patients before the attending physician had been called, and that the four cases which developed later in the hotel were either in the direct family of the first patient or among those who had acted at times as nurses. This information, added to the fact that the cases developed in successive intervals during three weeks, seemed to justify my opinion that these cases spread through secondary infection, being transferred from one to the other through some of the many conceivable ways where careless habits and ignorance prevail. In fact these cases may be considered a small epidemic in itself, being situated away from and having no connection with the other typhoid cases in the town.

"The other portion of the epidemic, numbering fourteen cases, was confined almost wholly to the locality of the bakery, and I

am inclined to believe originated in much the same manner, being infected in some way from an old case in the building a month previous. On inspection the bakery was found to be a filthy place, kept by filthy people. The cellar, from leakage and want of proper drainage, was little more than a mire, and was dark and mouldy. Old cloth sacks, bottles and ice cream cans were piled promiscuously on the floor, and the ice was delivered through small windows on to a wooden grating, or into the mud, as chance happened. On learning that the ice cream was made in this cellar, and further, that those who made the ice cream and worked in the bakery had helped in the care of the first patient, I saw the dangers which might possibly follow. Moreover, by this time another case had already developed in the house, and if, as it appeared, the case was secondarily infected from the one a week previous, there was a great possibility that the ice cream might be infected also and the disease spread very rapidly.

"I had the bakery immediately closed, and to leave no stone unturned I began an analysis of the suspicious wells in this vicinity. The worst two wells I had closed—one of which was used by the bakery, and, as was soon seen, by most of those who developed typhoid later. That this well was infected at the time of the outbreak I very much doubt, or else the remaining cases would have developed earlier. That it could have been infected by the people in the bakery is very possible, for the germs may have been washed from infected hands or utensils on to the floor of the well or into a wooden catch-basin connecting with the pump, and from thence sipe through into the well.

"At all events ten cases developed within the two weeks following the closing of this well and the bakery, and of these, eight had used the ice cream and milk from the bakery, and seven had used this one well. Whether both these influences acted together, or whether the use of the well was merely incidental from its public location, can hardly be settled. But since all these cases developed within the following two weeks and a half, or within the "incubation period," there seems the strongest evidence that they originated from one or both of the above sources, and that by cutting off these sources of infection we prevented a further spread of the epidemic.

"After this epidemic no case of typhoid fever appeared in Montclair for over two months and a half."

## ENTERIC FEVER AT BAY HEAD.

A telegram was received July 26th, requesting investigation of the causes which had resulted in a number of cases of fever at this place.

Bay Head is a small borough located between the ocean and Barnegat bay. Its population is principally made up of summer residents, there being but few persons living in the locality the year around. Permanent population, 150; summer, 1,200. The soil is of pure sand and there is some salt meadow low-land on the bay side.

The following is the history of cases, which can probably be best illustrated by a table showing the date of onset, source of milk-supply and total number of cases:

Number of case.	Date of physician's first visit.	PATIENT.	Milk supply obtained from.	By whom reported.	REMARKS.
1	July 13.	{ A boy working } at a dairy. }	.....	Dr. Katzenbach.	This boy, Fred. Johnson, was collecting milk and delivering it to Cramer, for distribution in Bay Head. This is the case which introduced the typhoid fever in this locality.
2	" 14.	Servant.	A. B. Cramer.	"	
3	" 16.	Boy aged 10 yrs.	"	"	
4	" 18.	Mrs. C.	"	"	
5	" 23.	M. F.	"	"	
6	" 25.	Boy aged 4 yrs.	"	"	
7	" 25.	Miss S.	"	"	
8	" 27.	Servant.	"	"	
9	" 30.	Waitress.	"	"	
11	" 17.	Miss B.	"	Dr. Hawley.	
12	" 16.	Servant.	"	Dr. Miller.	
13	" 23.	Child aged 12 yrs.	"	"	
14	" 24.	Servant.	"	"	Went to Philadelphia July 2d; admitted to Hospital July 24th. This case may be excluded from the others in estimating the total number of cases. Same family as No. 13.
15	" 30.	Child aged 10 yrs.	"	"	
16	" 22.	G. P.	"	Dr. Whittaker.	This patient drove for Cramer and delivered the milk in Bay Head; he, therefore, probably drank some of it.

Total number of cases, 16; excluding No. 14 as sporadic leaves 15. No deaths.



## INVESTIGATION OF POSSIBLE CAUSES.

*Water-Supply.*

The source of supply is two artesian wells, both of which are over 700 feet in depth. There is no other source of supply east of the railroad. All residents, therefore, use the artesian water. The fact that analysis shows the water to be above suspicion and that the disease did not attack the residents more generally would exclude this as a cause of the outbreak.

*Milk-Supply.*

Mr. Cramer, who lives at Point Pleasant, supplied milk to forty-eight customers in Bay Head and forty-nine in Point Pleasant. He purchased milk from nine different parties and distributed it from his place at Point Pleasant.

He went each morning to Bay Head, and as the Johnson farm, where the boy Fred. Johnson was attacked with the fever, was on his way, would take a clean can and leaving it, get the filled can, containing usually about thirty-five quarts. This milk, one of the drivers informed me, was delivered directly to Bay Head customers and none of it reached Point Pleasant. It is a significant fact that Dr. Whitaker states that to his knowledge there was not a single case of enteric fever in Point Pleasant.

Since the outbreak Mr. Cramer has stopped the Johnson milk by order of the Dairy Commissioner, and July 28th, by the same authority, has stopped delivering milk in Bay Head entirely.

The Cramer place is situated back of Point Pleasant, beyond the school-house. The barn is across the road from the house. Formerly all cans were washed at the barn where there is an old well 26 feet deep, adjoining the cow yard. In a report made by Mr. McGuire, July 10th, all conditions were unsanitary and a change was ordered. The cans were dried on a platform by the pig-pen where 11 pigs are kept. At the time of our visit there was a heap of decaying garbage in the cow-yard. Cans are now cleaned at the house. The house well is in the extension kitchen and is 26 feet deep—a driven well. Next to where the cans are

now washed is a house drain, open and containing foul water. The closet is 80 feet away and was cleaned this spring.

The place where the Johnson boy was ill has a well so situated on a porch that all leakage runs directly to it, the ground around it is uncleanly, and there is also an old wooden trough leading from the pump which empties on to the ground at the edge of the porch.

Samples of milk and water were taken at the Johnson and Cramer places and all the other sources of milk-supply were visited and no one was found ill at any of the places. The following letter states the result of this examination :

TRENTON, N. J., August 20th. 1894.

*Henry Mitchell, M. D., Secretary State Board of Health, Trenton, N. J. :*

DEAR SIR—I herewith enclose you copies of certificates of analysis of water samples taken at Bay Head on July 18th, during the prevalence of typhoid fever. The history of the typhoid cases having been furnished your Board by your Inspector it will not be necessary for me to state in detail the action taken by me during my investigation further than to say that the Bay Head sickness was caused, in my opinion, by the use of milk furnished by A. B. Cramer, of Point Pleasant. Cramer obtained his milk from nearly a dozen sources, all of which were inspected by my officers, who were satisfied that the infected milk came from the farm of one Mr. Johnson in the suburbs of Bay Head. This milk was collected by one of Mr. Cramer's employes and all sold in Bay Head. Johnson's son, 21 years of age, after ailing for a week or two, was confined to bed about July 13th and his physician pronounced his sickness to be typhoid fever. Young Johnson was employed by his father as a farm hand and milked the cows and handled the milk for delivery up to the time he went to bed. Our investigation disclosed the fact that all of the persons who were stricken with the disease used Cramer's milk, and, as near as we can judge, the milk produced by Johnson. Among the number stricken by the fever was Cramer's driver, who daily collected the milk at Johnson's place. All the samples of milk taken at Bay Head have been pronounced of good quality and free from infection.

Very truly yours,

GEO. W. MCGUIRE,  
*Dairy Commissioner.*

*Local Causes.*

All the places where the disease occurred were visited and although there were objections to be made to the cess-pool system and to the method of dealing with sanitary details, yet cleanliness was apparent and no direct local cause could be traced.

*Conclusions.*

The inquiry seems to point directly to the infected milk from the Johnson farm delivered by Mr. Cramer as the cause of the epidemic, this being made particularly impressive by the fact that no persons in Point Pleasant were ill and that the Johnson milk was delivered exclusively in Bay Head. The infection could have taken place in many ways when we consider that while ill with the disease the boy Fred Johnson both milked the cows and handled the cans.

*General Remarks.*

As the origin of the disease was clearly traceable to milk infection and not to local conditions the milk-supply was immediately stopped from the Cramer dairy and the epidemic abated with great rapidity. The outbreak teaches a plain lesson and shows how great is the necessity of strict dairy inspection and of care in all the details of milk collection and distribution.

The physicians of Bay Head were very willing in giving information and promoting investigation and by their co-operation hastened the exclusion of the milk from the borough and thus materially aided in limiting the epidemic.

An active Board of Health is now organized in the borough and every effort will be made to improve any existing sanitary defects.

## SEABRIGHT.

We were called upon late in July to investigate some cases of typhoid fever in this locality. There had been eleven cases, and as they all used the milk obtained from one dealer, it seemed reasonable to suppose that this might be the source of infection. Mr. Albert Ivins' place was therefore visited and we ascertained that he collected milk for delivery from seven different milkmen. These places were also visited and samples of milk and water taken.

At no one of them was there any one ill. The analysis of water from the wells revealed varying degrees of impurity. The

water-supply of Seabright is obtained from Long Branch, and the analysis of this was very satisfactory. The sewage empties into the Shrewsbury river. The houses where sickness had occurred were visited, and, although the examination was continued with the hope of reaching a definite conclusion, no direct cause was ascertained.

The fact that the well-water which was taken to wash cans was in every instance impure only shows how little is often known as to these details of milk collection and how urgent is the necessity for legislative action and proper oversight.

## Thoughts for Sanitary Workers.

BY EZRA M. HUNT, M. D., D. SC., LL D.

THE CAUSE OF DISEASE AND ITS REMEDY.

In 1876 it was my privilege to hear Sir Joseph Lister in his own private room, and afterward in his clinic, illustrate and enforce the then new doctrine that a micro-organism was the cause of inflammation and that with this excluded, there was scarcely any limit to the possible achievements of surgery. So it seemed, as under the constant spray he exposed fully the interior of the elbow joint and in a leisurely way lectured on the safety of opening or exposing joints if only thus we could exclude the germ.

It was even a grander scene when, in 1881, we listened to that wonderful discussion of Pasteur, Lister and Bastian at the International Congress, when these views were still more extended and enforced. It marked indeed a great era in preventive hygiene. The need of exact, organized cleanliness, before enforced by Sir J. Y. Simpson and others in the study of hospitalism, was made definite by the studies of micro-organisms and marked a progress, both in medicine and surgery, the benefits of which the world will never lose. Yet we are not to forget that the doctrine just as then taught has ceased to be a truth. Not only has the doctrine of antisepticism become modified by that of asepticism, but the word antiseptic is applied quite differently from what it was then.

We would not like to say with Lowsen Tait, "that the doctrine and practices of Lister have been the basis of the strangest surgical craze of the nineteenth century," but it is nevertheless true that the exclusion of germs is no longer the sole condition for the prevention of inflammation. We would not like to "use germs to make a poultice of," but simple, scrupulous cleanliness

and attention "to the nidus," or condition of parts, is of equal if not paramount importance.

Prof. Burden-Sanderson, in his recent lectures on the "Progress of Discovery Relating to the Origin and Nature of Infectious Diseases," places this in a clear light. He first states that the word "inflammation is still to be understood as meaning a process characterized by the formation of pus and having its seat in the capillaries."

Then premising that "under ordinary conditions the efficient cause is always a morbid microphyte; it being understood that there are several species of microphytes, which can more or less replace each other as pus-producing agents," he goes on to show that the dictum of Weigert—"no suppuration with bacteria" is no longer tenable. Contrary to this he restores the old doctrine so far as to show that "inflammation *that is* suppurative can be produced by chemical agents in the absence of microphytes; and second, that when it is produced by microphytes the action is chemical." When we remember that inflammation includes not only acute processes, but all those degraded changes which are found in tubercle, cancer, etc., it is easily seen that the statement of causation is greatly modified. "The readiness," says he, "with which pus is formed depends on conditions which belong to the animal rather than the noxa," *i. e.*, the harm-bearing contagium.

"Once more the individual and his particles of matter come up as regnant powers in determining results. It is not only true that inflammation can be produced without the co-operation of microphytes, but that when these organisms are directly concerned in its production their mode of action and its proximate cause are still chemical."

"All disease-producing microphytes die—some rapidly, others more gradually—when they are surrounded by living tissues of man or the higher animals. All are sentenced to death"—(*Sanderson*). "Virulence is one of the most variable attributes of a microphyte—one which is most affected by its environment."

In the midst of the great wave of germ pathology, which has, for the last twenty years, swept over the profession so that, as one has expressed it, "all pathology threatened to be but a study of germs," we once more take hope. All the more since so much

light as to our ability to modify microbial virulence and as to natural powers and processes in readiness to combat disease appear through the researches of Pasteur, Chaveau, Metchnikoff, Buchner, &c.

We now have in vogue the great doctrine of immunity, or a resident power or process by which the human system counteracts the biology or chemistry of disease. The causes and methods thereof are differently stated by different authorities, but the fact that there is such a power of resistance in the system, as also that it can be bestowed by the use of the serum of animals beforehand rendered immune, seems to be quite certain. The two prevalent doctrines as to immunity are those of Dr. Elie Metchnikoff (1884) and Buchner and others of the German school. According to the first, immunity depends on the presence of phagocytes, the ordinary leucocytes of the body having come to "exercise a protective mechanism," or mode of action by which they devour the invading micro-organisms. (See recent lectures in London by Burden-Sanderson, Woodhead, Dr. Ruffer, etc.)

The other view is that immunity depends more on the soluble constituents of blood serum. Buchner maintains "that the causes of recovery of an animal from an attack of infective disease is not due to the action of phagocytosis, but to the disinfecting action of the serum, and that phagocytosis is merely the result of an attempt on the part of the organism to get rid of the devitalized micro-organisms." He infers "that the antibiotic power is associated with the proteid serum of the system." In this view the destruction of bacteria is secured by the body fluids, or proteids of the blood, through their germicidal power, their removal only being effected by the phagocytes. Alongside of this we need to study the group of phenomena, called by its discoverer, Professor Pfeffer, "chemotaxis," being the definite relation between vital movement and chemical action. "All this brings before us in the clearest way the possible existence of a chemical agency in the living organism—an agency in which cells, as such, take no part—capable of destroying infective microphytes as rapidly and effectually as corrosive sublimate." The doctrine of toxins and anti-toxins grows out of this.

Whichever of these doctrines, or any similar one, is maintained, the fact as to result seems quite certain. Burden-Sanderson, at

the close of one of his lectures, thus expresses it: "We have learned to-day that the organism of man and of the higher animals possesses a self-protecting power, which it can exercise either in arresting the development of the living excitors of disease or in counteracting their poisonous products—in other words, that it is endowed not only with a general *vis protectrix*, but that it is able to bring into existence specific vital activities by which it guards itself against the specific infections to which it is exposed, and (what is practically most important) that these activities have chemical embodiments which are within the reach of experimental investigation. To have learned this is to have entered on the beginning of a new progress—to have turned over a new leaf in Pathology and in Preventive Medicine."

#### THE DE NOVO ORIGIN OF DISEASES.

From ancient times to the present there has been discussion as to the causes of disease. Superstition, reason, philosophy, science and hypothesis have each and all uttered their voices, but still the contention ceases not. From Hippocrates down many a great leader has had his doctrine, or dogma of belief, around which have centered principle and practice, associated with definite views as to cause. We flatter ourselves that the real science of the present, with our instruments of precision, has cleared the field of vision. It has reduced the number of working hypotheses and has here and there pointed out some important law as to causes. But it yet fails us when we come to the primal origin of some new disease.

The first resort is to prove that there is no such thing as a new disease; that diphtheria occurred in the days of Aristotle, and that typhoid fever is older than the pyramids.

Yet for all this, the disappearance of old diseases and the occurrence of new diseases belong to the mysteries of the ages. We even discuss what the sweating sickness was. We know that the leprosy of to-day is totally a different disease from that of Bible record. The croup diphtherite of Bretonneau was not our modern diphtheria, however analogous thereto.

We still have occasion to ask why new diseases arise. Physiology, experiment and technical inquiry had shown (see Dalton,

&c.) that dead matter cannot be stimulated into life, long before Tyndall had made his important experiments, and before biology had shown that spontaneous generation, abrogenesis, or any form of life elaborated from deadness was untenable. Yet we aver that many diseases occur which did not once exist. Some of them have had their first cases even in our day. It is doubtful whether measles and scarlet fever were as distinct in the days of Sydenham as now, or whether typhus fever and typhoid were always as distinct as Sir William Jenner showed them to be so late as about 1850. Cholera as a specific disease has had its birth within a hundred years, and probably the same can be said as to yellow fever. We still can ask whether there is never a case of hospital gangrene without a case of the same disease from which it was caught; never a case of hydrophobia in a dog that never was bitten by another mad-dog; never a case of typhus or typhoid fever that did not come from an antecedent case of precisely the same disease; in fine, whether all diseases now on the earth, and which are communicable, were always in existence? Such, it is well known, is not the view of the writer. While it is admitted that in any given epidemic the vast majority of cases arise from an antecedent case, it is also contended that various diseases become so modified as to become virulent, or as to assume a specific type and so are practically new diseases.

It is a part of the law of development and of that evolution and mixture of type which we so often see illustrated in the vegetable world.

Some of these departures are accidental and transient, since there is always a tendency to lapse back to original forms. A few only, like the gentian among plants, acquire fixity of type and so secure for themselves permanency. Not a few that seem to have secured permanency after a time of distinct existence revert, or in some way fail to secure permanency.

The answer to these views we long since set forth as to typhoid or enteric fever.

The answer to all such views used to be the dictum of Harvey "*Omne vivum ex ovo.*"

This with the prevalent view that departures from the norm are not fixed, or if so are never fertile was regarded as settling forever the question of new sources of life, or of that life which we now so often call disease.

Let us settle this matter with a quotation from the Croonian lecture of Prof. Virchow before the Royal Society, London, March 16th, 1893: "Owing to the more extensive researches of modern investigators, this dictum, as is well known, proved too narrow for the whole animal kingdom, and is no longer exact when applied to plant life."

It is not wise to prophesy too freely in the domain of biology. So we only present as a working hypothesis that we are continually to expect new diseases derived from other diseases, but so changed by host, by environment and by various circumstances as to create new types of old diseases and diseases actually new, all prove to reversion, but some of them acquiring a fixity of type which is immovable and thus taking their place in the nomenclature of diseases.

#### POTABLE WATER.

There are several ways in which we are to be helped in forming accurate judgement as to the fitness of a water-supply.

It may be said to be a self-evident truth that the water which we are to drink should be protected from all animal, vegetable and excremental foulness. There are intuitions and primary beliefs for the body as well as for the soul, and hence a consciousness, which we call instinct, commands us not to drink water thus polluted. When we come to a scientific and practical study of the subject the only modification is that we attempt by various tests to find out how far these pollutions, which should not have occurred, are overcome by the natural forces of nature, such as air, soil, aeration by agitation in flow, by plant life and various other influences. Here we call to our aid the chemist, the microscopist, the biologist, the physician. By knowing the usual chemical condition of good water, and testing by analysis the make-up of other waters we arrive at important facts.

By the microscope we find what there is in the water foreign to its composition. Thus if the botanist with his microscope finds a flourishing plant life, which is never sustained except by faecal products, he knows that somewhere these find access to the water.

The biologist goes further, and seeks all the varieties of plant life and the significance of quantity as well as of quality.

The physician watches the effect of the use of such waters on individuals and so seeks to obtain his portion of the evidence.

All of these have their limitations. The person who sees a stream being befouled may be told that the stream itself will correct the evil.

The chemist may be told that the salts he finds, or the organic matter, may have incidental sources, and, that so long as there is no specific poison, experience proves that the departures from the standard are not necessarily injurious.

The microscopist, who exhibits his infinitude of botany and his millions of bacteria, may be told that numbers prove little, since many bacteria are useful.

The physician who thinks he sees results can be confronted with the statement that it is almost impossible, amid a multitude of unfriendly exposures to bad air, wrong food and extremes of heat and cold, to attribute results to water, and that it takes a classified number of cases—greater than falls under the eye of any one physician—to assign water as the disturbing cause.

We could give scores of illustrations to show that very often each of these specialists may put too high a value on the facts he furnishes, and too often claim as a demonstrated proposition what is only a good working hypothesis.

Yet it would remain that the astute sanitary enquirer, who knows how to study the laws of life and to collect and sift evidence, is able to use all of these as testimony and from them to derive valuable information as to individual supplies, or to point out methods for recording doubtful evidence and holding it for further study. There is just the same difficulty and just the same skill as there is with the lawyer as to law and evidence. He must judge of the credibility of the testimony. Having satisfied himself as to this it is an equally great task to know what weight to give to each part of the testimony. Such skill is attainable, but not by all. Some good observers are not good logicians, or do not well assort all facts.

#### NOTES ON ADULTERATION OF FOODS AND DRINKS.

Laws as to the adulterations of foods and drinks naturally come under the oversight of Boards of Health. Yet their relation is somewhat different from that of most of the laws of the

State relating to public health. A large proportion of these adulterations are commercial frauds, and while important subjects for legislation have very remote relation to the general health of the people. There are other adulterations, however, which quite directly affect the people. These are of two kinds: First, those which diminish the nutritive value of an article, or mislead as to it, and those which add to it something that is directly prejudicial to health. Thus the addition of good, pure water to milk is not only a commercial fraud, but misleads as to the quality of an article, the purity of which greatly concerns public health. As an example of the second kind, we may mention the addition of copper to canned peas so as to give them color.

While there have been falsifications of foods and drinks almost as far back as civilization and trade have existed, there has been great change in methods.

With new and more skillful combinations and the multiplied resources of chemistry it has become much easier to falsify without the use of substances deleterious to health. On the other hand, commercial temptations have increased, and the reduction of foods and drinks by inert substances is more common than ever. This has resulted in some difference of opinion as to how far the examination of foods and drinks should be committed to health boards. The agricultural and chemical departments of government have viewed the subject as within their sphere, and much of the work formerly attempted by health boards has been given over to these.

#### WORK OF THIS BOARD UNDER THE FOOD LAWS.

As early as 1879, in its third report, the State Board of Health gave attention to this subject, and one of its members, Prof. A. R. Leeds, contributed a valuable paper as to these adulterations. He was then able to say as follows: "Deleterious adulterations are limited to a few commodities, and with the exception of the use of poisonous pigments to a very limited degree in candies, and of arsenic in wall-papers and articles of use and wear, there is no good evidence of the use of poisonous adulterants whatsoever. The statements which have been going the rounds of the press to the effect that cayenne pepper, mustard, curry powder and other spices are adulterated with compounds of lead and

mercury, that sulphuric acid is commonly used in the making of vinegar and certain wines, that milk is ordinarily adulterated with anything more dangerous than water, that pickles are frequently colored green by copper, that teas contain salts of copper and arsenic, etc., etc., are, in the light of any investigations made by chemists of good repute in this country, utterly false."

In 1887 President Bayles, of the New York City Board of Health, speaks thus: "The adulterations usually encountered are made in the interest of bulk and cheapness, and the materials used for this purpose are seldom in any other respect hurtful than that they are likely to be indigestible. \* \* \* \* It is difficult, if not impossible, to find on sale in New York a sample of confectionery with poisonous coloring or flavoring."

Such testimonies as this are on the increase. Even the pigments used for coloring are of a more select order, and since the multiplication of aniline dyes almost any coloring or shade can be produced without resort to metallic substances. The interests of trade, the ease of detection as to most hazardous adulterations, the greater alertness of analysts and the damaging results to business, as well as the absence of substances injurious to health, combine to reduce very much of the injury to the domain of merchandise and to narrow the field of scientific analysis to dangerous frauds.

He would be a reckless manufacturer or one very ignorant in his calling who would now run much, if any risk, with poisons. Hence, it appears that in many instances where there have been ill-results, these are owing, not to substances which have been introduced, but to changes that have happened by keeping or decomposition. Thus the appearance of tyrotoxin in milk from which so often cases of sickness have arisen is not due to the original quality of the milk or to what has been added to it, but to errors in handling and transportation or an improper exposure to foul air.

In a paper on "The Infection of Meat and Milk," read before Section Third of the International Congress of Hygiene, in London, August, 1891. Prof. Vaughan, of Ann Arbor, Mich., related the following as shown in an investigation made by him of a case of poisoning by custard:

"The custard made from the milk was divided into two portions, one flavored with lemon, the other with vanilla.

"The lemon custard was harmless, while a teaspoonful of the other caused vomiting and purging. It was proved that the vanilla was not the poisonous agent. The explanation of the difference was found in the fact that the vanilla custard stood for two hours in a very filthy room with the air in a most polluted condition, while the lemon had not done so." (See Public Health, vol. 3, page 110).

In the English Local Government Report, 1890, Dr. Ballard reviews fourteen instances reported upon since 1879 in which disease of a specific character has resulted from the use of infected articles of flesh food. The general conclusion was that in these cases of food poisoning "the *morbific quality has commonly not been inherent* in the animal furnishing the food, but has been obtained by the food from its surroundings during the time that the food material was being kept. His lesson is, that more care should be given to secure the most cleanly and wholesome conditions for pantries, larders and kitchens, where food is stored, as well as for places where flesh-meat is being kept during any process of preparation for sale." The occasional sicknesses from canned foods arise generally, not from any metallic substance in the foods, but from changes that take place after the cans have been opened and from their being left in the opened cans for some time instead of being placed in a glass dish or covered away from impure or stagnant air as soon as they are unsealed. Thus in the Third Report of the Dairy Commissioner, 1888, Shippen Wallace wrote as follows:

"In all the goods examined no lead was found, while tin was detected in traces merely, in all the tomatoes, unless the contents were in a bad condition, and then, of course, in larger quantity. There was but one can in all which was not in prime condition. This, however, may, and undoubtedly does, occur in the goods of all packers to a small extent; but because one can should be of poor quality, is no reason why the remaining ninety-and-nine should be condemned. The fact cannot be too thoroughly impressed on the community, that the present system of canning vegetables is of inestimable value; but the same rules should be followed which are made use of with fresh vegetables in their use, that is to say: if on opening a can the contents are spoiled, act as one would with fresh vegetables under similar circum-

stances—throw them away. This done, there is no possible danger in their use; but if not, the same risk is run as would be in the use of spoiled fresh vegetables, only to a greater extent.

"In the case of canned asparagus, a large amount of tin was found, and the interior of the can was invariably blackened. This comes from the acid of the asparagus, or what, in my opinion, is more likely, from the use of certain ingredients in the process. I am of the opinion that there may be a slight danger from this cause, and that it would be better, and should be so recommended, to use glass in the place of tin, as is done by a few. With the exception of asparagus, there cannot be the slightest danger in the use of any canned goods that I know of, if they are in good condition, and are not allowed to remain in the can after being opened. This last rule should be strictly followed."

Of all cases of sickness caused by eating canned goods, the cause has always been found to have been that the contents were spoiled when opened, or the can had been allowed to remain open for a day or more before the contents were used.

Samples from over fifty canners were examined.

Kenwood, in his recent volume on "Public Health—Laboratory Work," 1893, states that alum, owing to improved processes in the manufacture of bread, is very little employed, and it is comparatively rare that its presence is detected in amounts which denote an excess over that which may be normally present.

The color of oleomargarine no longer needs to depend upon an artificial dye.

Vinegar made from properly-distilled acetic acid and in a proper way is now recognized as a proper article of food and commerce. (See circular by Dr. Squibb as to it.)

In a recent trial in England the director of a vinegar works stated that half the vinegar in the country was made from acetic acid.

There are substitutes for lard having food value quite equal to the porcine product.

The adulteration of spices is so general that there is little need of yearly examination in order to show it. These are uniformly harmless and must probably be left to the laws of price, of trade guarantee, rather than be pursued.



There is a large class of commercial adulterations as to which the law has probably reached the limit of its expediency, when, by its government or experimental stations, it keeps dealers apprized of the usual adulterations, when it requires retail dealers to take and give guarantees as to the quality of what he purchases and gives to individuals or local Boards of Health power to investigate, to bring suit and collect fines.

There are some few things that need to be reduced or adulterated in order to be salable. Thus pure mustard is too strong for ordinary use. It is generally changed by the extraction of much of its essential oil and the addition of inert compounds. Our State law recognizes that it can be thus sold as "compounded mustard." Question can be raised as to the necessity of this if only the mustard strength is stated.

One needs only to look over the records of English analyst boards, as well as those in our own country, to see how comparatively narrow is the range of adulteration to be reached by any extended inspectional system. It can be said that the importance of protection of the milk-supply practically exceeds the importance of attention to all the other adulterations combined. Inasmuch as this is so important a food, and as the mode of vending is such as to admit of more direct and personal test and conviction, it can be singled out from other adulterations and be made the subject of specific inquiry and inspection.

We therefore think that all laws relating to the examination of milk should be rigidly enforced, since it can be so much more easily reached than other falsifications and because its good quality is so important to the public health. While the assistance of the State Inspector is often needed, yet it is entirely within the power and province of local Boards of Health and local authorities to take charge of this oversight. (See Chapter 74, Laws of 1882, and Chapter 82—also Chapter 207, Laws of 1893.) Most of our cities need, and some of them have a distinct corps for attention to this service. It can only be made successful by the work of local boards. While the services of the chemist are sometimes needed, yet the Dairy Commissioner in his last report speaks thus:

"The experience I have gained in the inspection and handling of milk strongly impresses me with the necessity of a more

thorough system of dairy inspection. This could be done by this department with probably the addition of one more Inspector, were the law so changed as to give the State Board of Health power to make certain regulations relative to the care and handling of milk, and requiring the Dairy Commissioner to enforce such regulations for the better protection of consumers against impaired milk-supplies."

#### *Oleomargarine Law.*

The Oleomargarine Law presents many more difficulties as to detection and enforcement. It is in fact far less important. As Chemist Wallace says: "Oleomargarine, as at present made, is not injurious to health, but is simply a fraud if sold for butter." Even the use of coloring matter is not so common as formerly, since "an article possessing all the appearance of butter is produced without the use of annatto." It is a very important article of food and much better than poor butter. There now seems to be but little reason for singling it out from other commercial frauds as a subject for special legislation, when the United States has a special law on the subject and when it is subject to the general laws as to the adulteration of foods.

#### *General Remarks.*

We are compelled to regard much of the oft-repeated examinations of various articles as impracticable, except as made for the information of retail dealers and then left mostly in our cities to the care of the local boards. The chief point is to furnish notice of new adulterations, to give facilities to dealers for examination of suspected articles and means of legal redress where there is imposition upon themselves or their customers.

From our experience of many years we are forced to the conviction that the laws previous to and including those of 1883 were sufficient, and that some of the legislation since has been impracticable, notwithstanding the efforts put forth to make it of real service in securing a higher quality of foods.

## Obituary of Ezra M. Hunt, M.D.

The committee appointed to prepare resolutions commemorative of the late Secretary of the State Board of Health submitted the following:

Dr. Ezra Mundy Hunt was born in Metuchen, January 7th, 1830. He was the son of the Rev. Holloway W. Hunt, who was for many years settled in the Presbyterian Church, in Metuchen. Dr. Hunt received his preliminary education at Tarrytown, N. Y., and entered Princeton College in the year 1845, graduating therefrom in 1849. The same year he entered the office of Dr. Abram Coles, the gifted translator of the "Dies Iræ," and the author of the "Cosmos," a poem delivered at the centennial of the New Jersey Medical Society. At the same time he attended the lectures at the College of Physicians and Surgeons in New York City, graduating there in the year 1852. Subsequent to graduation, he commenced the practice of his profession at his native place, but in 1853 he received the appointment of Lecturer on Materia Medica at the Vermont Medical College. The following year he was chosen Professor of Chemistry in the same institution. He did not long continue this connection, but in the year 1855 resumed his practice at Metuchen, where he remained until the year 1862, when he enlisted in the Union Army as Surgeon of the Twenty-ninth New Jersey Infantry, for the period of nine months. At the end of two months he was placed in charge of the Calvert Hospital at Baltimore. At the expiration of his term of enlistment he resumed his practice. In the year 1864 he was elected President of the State Medical Society. In the year 1866 Dr. Hunt introduced the subject of sanitary science to the notice of the Medical Society, and he was appointed chairman of a committee to present the matter to the State authorities. As a result, a State Sanitary Commission was formed with Dr. Hunt as its President.

He continued active in the State Medical Society, furthering plans for the establishment of a Board of Health for the State, and when it was finally formed he was made Secretary and its executive officer. From this time forward, despite opposition and discouragement, he advanced on all lines the development and efficiency of vigorous sanitary measures. To him we owe whatever has been accomplished of sanitary science in this State. Nor was it only in this State that Dr. Hunt's labors were recognized. He was a member of National Sanitary Associations, notably the American Public Health Association, of which he was President. He was elected one of the Vice-Presidents of the American Medical Association, received the degree of LL.D., and in every public position reflected honor upon his profession and his State. Your committee would recommend the following minute:

IN MEMORIAM.

To drop the tear of affectionate sorrow and crown with honor the memory of the dead is the privilege of the mourner. Such is our attitude to-day. In life-giving service he meets death. It is with such sentiments that we recall the memory of our stricken brother. Life to him was a constant service—labor for others more than for himself. He aimed at a high standard of excellence, and with what success let this Association and the State Board of Health attest. It is not a bad rule to estimate life by its accomplishments—what has been the result upon humanity and communities; upon those with whom we daily walk.

If such be the measure by which we rate the life but recently gone out, there can be no hesitation in placing it in the front rank. The great dramatist has said: "The evil that men do lives after them; the good is oft interred with their bones." This may have a truth in heathen philosophy, but when to disinterested benevolence is added a high degree of Christian philosophy, it is utterly devoid of application.

It is with pride and gratitude that we can point to a shining refutation of this statement in the present instance. An acquaintance and intimacy stretching over more than a generation as physician, counselor and always as a friend, enables the speaker to bear willing testimony to the sterling qualities which

graced and adorned our departed friend. An omnivorous reader, an industry which absorbed all selfishness, an activity which seemed impossible to his delicate organism, a sagacity ready to seize any opportunity for improving untoward circumstances, a judgment of affairs and of men which rarely erred, a faithfulness to friendship, and above all a conscience which dominated the whole man, presents a picture of a life stimulating to his fellow-physicians and ennobling to every citizen. In a conversation held with Dr. Hunt some months ere he was released from earthly care, and having reference to future duties and the hopes of the beyond, he uttered these memorable words: "Wishing to live but ready to die." What nobler sentiments could fall from human lips. Sublimity here reaches a climax. The following resolutions are recommended for adoption:

WHEREAS, In the death of Dr. Ezra M. Hunt this Association has been sorely bereaved and the State of New Jersey lost one of its most eminent citizens; and,

WHEREAS, The cause of sanitary science has sustained a most serious disaster; therefore be it

*Resolved,* That we record our high appreciation of his valuable services in originating and promoting the various Associations and Boards of Health in this State with which his name must be ever associated;

*Resolved,* That we tender our affectionate condolence to his family and commend them to the gracious care of the God who was ever revered and worshipped by our departed friend;

*Resolved,* That a suitable record be entered upon the Journal of this Society.

HENRY R. BALDWIN,  
*Committee.*

Action of Mercer County Medical Society in Reference to the  
Death of Dr. Ezra M. Hunt.

The Mercer County Medical Society records with profound sorrow the death of their esteemed fellow-member, Ezra M. Hunt, M. D.

In the life of Dr. Hunt we recognize that devotion of life and service to the best interests of humanity, which is characteristic of one whose constant aim was to relieve the suffering, to aid the needy, to comfort the sorrowing, and by word and deed dedicate the energies of their life to the benefit of their fellow-men.

We recognize his devotion to medical and sanitary science in his faithful, life-long career of active professional duty as a physician, and in the honored position he occupied in public service—both State and National—in connection with the State Board of Health. Ever watchful of the responsible duties entrusted to his care, ever active by tongue and pen in their thoughtful consideration, he fulfilled their various demands to the distinguished credit of himself and the improved welfare of the community. By his death the State loses a valuable official and the profession a noble member.

We recognize in his social life that regard for the well-being and happiness of others—that courteous urbanity of manner toward all, which endeared him as well to the sick in the retirement of their chamber as to those in the every-day walks of life—alike to the needy and the affluent, to all who in public or private life were brought into association with him. He was a friend, a helper, a philanthropist.

And especially do we recognize in his devotion to religious duty, the earnest, God-fearing Christian, who, while day by day walking humbly with his God, so let his light shine before men as to “adorn the doctrine of God, his Saviour in all things,” and was an ensample to us, his fellow-physicians, and to all others, to follow him as he followed Christ.

*Resolved*, That this Society spread this memorial upon their minutes, and that a suitably prepared copy be sent to the family of the deceased.

W. ELMER.  
H. G. WETHERILL.

WHEREAS, An allwise Providence has been pleased to remove from this earthly life our friend and colleague in this Board, Dr. E. M. Hunt; be it

*Resolved*, That the State Board of Health of New Jersey would hereby place on its records this testimonial of its deep sense of loss in the death of its late Secretary, who has long been one of the foremost workers and exponents in sanitary science, as well as a wise and judicious executive of the orders of this Board;

*Resolved*, That we extend our warmest sympathies to the family of Dr. Hunt and commend its members to the kind care of Him who doeth all things well.

Passed at a regular meeting of this Board held at its office October 12th, 1894.

# Summary of Reports From Local Boards,

AND LISTS OF MEMBERS AND HEALTH INSPECTORS, WITH  
ABSTRACTS FROM MOST OF THE REPORTS, AS  
SUMMARIZED AND ARRANGED BY  
A. CLARK HUNT, M. D.

We furnish the usual summary of reports from Local Boards as sent to us each year. The following is the schedule:

## SUBJECTS FOR REPORTS.

- |  |   |
|--|---|
| A. Location and population.                  | N. Almshouses, hospitals and other charities.                   |
| B. Geology, topography and contour.          | O. Police and prisons.  |
| C. Water-supply.                             | P. Fire-guards or escapes.                                      |
| D. Drainage and sewerage.                    | Q. Cemeteries and burial.                                       |
| E. Streets and public grounds.               | R. Public health laws and regulations.                          |
| F. Houses and their tenancy.                 | S. Registration and vital statistics.                           |
| G. Modes of lighting.                        | T. Quarantine or care over contagious diseases and vaccination. |
| H. Refuse and excreta (how managed).         | U. Sanitary expenses.   |
| I. Markets.                                  | V. Heat and ventilation for dwellings.                          |
| J. Diseases of animals.                      | W. Prevalent diseases of the year.                              |
| K. Slaughter-houses and abattoirs.           |   |
| L. Manufactories and trades.                 |   |
| M. School-houses and other public buildings. |   |

Other subjects may be named under X, Y, Z. The subjects may thus be referred to by the letters.

If the sheet provided is not sufficient, add others, marked with the letters which designate the topics treated.

Some of these subjects are so fully treated in former reports as not to need repetition. This report is not mere formality. It should actually state facts and conditions. It should especially report what has been done the last year as to the prevention and abatement of nuisances, as to house-to-house inspection, water-supply, cesspool management, garbage collection, plumbing oversight, examination of stations, schools, public buildings, separa-

tion of sick in Health Board hospitals, reports of disease and various other items.

The faithful inspector or member of a Health Board, if he will read this or the record of former years, will not fail to see the kind of work that active Health Boards attempt and secure and the failure of some others.

The Township Boards may not be so conspicuous as City Boards, but in dealing with special outbreaks of disease, with the houses and yards of village streets and with various other items, often have much to do or much to neglect. Instances are often before us of valuable service by these boards.

While selecting with care from the large material furnished us, lack of space or the substance of former reports leads us often to publish only brief abstracts and place the rest on file for reference.

We urge upon all Local Boards promptness and care in these yearly returns.

We send with the October blanks a circular of directions, and from the returns received often can judge still more than before what is being done. We generally send the blank to the city clerk or assessor, because these are most in correspondence with the State Board. We are glad also to send a blank to the secretary or other member, where this is requested. We at least wish it to reach the one who will report to us the fullest statement and the real truth. We have passed the period of mere talk about the importance of hygiene and good advice.

It is now the period for definite and advanced methods of local sanitary administration. We earnestly urge upon our boards an early spring meeting, a year of exact plans and executions and an annual report of just what has been done, of failures and of the most pressing needs. While the great work is thus local we are ever ready, by correspondence, by technical advice and by the visit of inspectors, to assist in this important work of preventing preventable disease and of moderating or checking its effects when it occurs.

The following memorandum for October 1, 1894, was sent to all Local Boards:

MEMORANDUM FOR OCTOBER 1ST, 1894.

Section thirty-seven of chapter sixty-eight of Laws of 1887 reads as follows:

“37. *And be it enacted.* That the local board of health of every township, city, borough, town and other municipality, shall, on or before the first day of October in each year, in addition to other reports required, prepare an annual report of the condition of the public health within the limits of its jurisdiction, stating therein any special cause for the deterioration of health or of hazard thereto, and shall therein answer any inquiries which may have been addressed to such local board by the State Board of Health, and such local board shall forward a copy of such report to the State Board of Health on or before the fifteenth day of October in each year.”

In addition to the inquiries contained in Circulars 39 and 74, the following questions are presented, and each Local Board is requested to include replies to these inquiries in the annual report to be prepared in accordance with the provision of the law above quoted.

#### SPECIAL INQUIRIES FOR 1894.

1. Does your Board require by ordinance, rule or regulation that notice shall be given when communicable disease occurs within your health district?
2. Are such reports of the existence of communicable disease uniformly made?
3. What action does your Board take when such a report is received?
4. Does your Board cleanse apartments which have been contaminated by communicable disease? If so, how?
5. Name the date of the last meeting of your Board.

Local Boards are requested to transmit, when forwarding the annual report in October, a copy of all ordinances, rules, regulations and by-laws which are at present operative in their respective districts, and to state what amount of money is appropriated or allowed for the uses of the Board during the present year.

## ATLANTIC COUNTY.

## ATLANTIC CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William G. Hoopes, President; William B. Loudenslager, Maurice D. Youngman, M. D., Joseph H. Borton, Jacob H. Leedom, Julius Coty, Henry S. Scull, Secretary; Alfred T. Glenn, Health Inspector; Alfred T. Glenn, Jr., Clerk. Post-office address of all, Atlantic City.

Our water-supply is from two sources, viz.: artesian wells and from springs on the main-land near Absecon. It continues adequate for all demands and of a high standard of purity. A few cisterns are in use but no private wells. The public supply is furnished by a water company.

House drainage is by connection with the sewerage system. It has been extended to about 150 properties within the year and the Board has thus been enabled to secure the removal of that number of privy vaults and cesspools.

A house-to-house inspection was made during the spring months and a record kept, in a book for that purpose, of all properties not up to the standard of sanitary requirements, noting the date when the inspection was made and when the property was put in sanitary condition. Houses have no cellars, but a number of them have basements, built above ground, which are frequently occupied.

Sewers are extensively used, probably 75 per cent. of the houses being connected, and all new buildings, with very few exceptions, put in sewer connections. All vaults and cesspools must be cemented and built with tight sides and bottom. An amendment to the code makes a wooden vault a nuisance. Vaults and cesspools are required to be emptied frequently and by the odorless system. Garbage collections are made at public expense by contracts made with the Board of Health, and contractors and all other persons connected with the collection and disposal of refuse waste are under the direction of the Board of Health. For description of garbage furnace see page 29 of this report.

## ATLANTIC COUNTY—Continued.

Markets, and other places where food supplies are kept, have been inspected at intervals, and, with but one exception, no unwholesome food has been found.

School buildings are in a good sanitary condition, but overcrowded. Measures are being taken at this date to rent additional rooms outside, but convenient to the central schools, until such time as the present buildings can be added to, or a new school building erected.

The Board has ordinances, in the form of a code, regulating matters affecting the public health. A committee is now working on a revision of both the sanitary and plumbing code, made necessary by the rapid growth of the city and a demand for more stringent rules regulating its sanitary requirements and necessities.

Collections of vital statistics are regularly made and recorded by the Registrar, and all those upon whom the duty of making such reports fall have been prompt in making returns to this office.

Contagious diseases are immediately reported to this office by the physician in charge of the case, and strict quarantine is ordered and maintained during the continuance of the disease, and upon recovery or the death of the patient all rooms and contents and surroundings are thoroughly disinfected and fumigated by or under the direction of the Health Inspector.

Sanitary expenses are provided for by an appropriation by the City Council, to whom the Board submit an annual budget covering the ordinary expenses of the Board for salaries, abating of nuisances, &c., and also for the collection, removal and destruction of garbage and all animal and vegetable waste. The appropriations made for the ensuing year amount to twenty-three thousand five hundred and fifty dollars (\$23,550).

No prevalent diseases during the year. We have had a few isolated cases of typhoid fever, scarlet fever, measles, and the milder contagious diseases, caused mainly by visitors who brought the germs in their systems and which developed after arrival. With the large floating population of the place it is natural that these diseases should occur, but the quarantine regulations are so complete that spread is almost impossible.

ATLANTIC COUNTY—Continued.

Under our code it is required that notice of communicable diseases be immediately made to the Health Officer.

Such reports are uniformly made on blank forms as follows :

ATLANTIC CITY, N. J.,.....189  
*Health Inspector.*  
 Name.....Age.....Sex.....  
 Parent (or Guardian).....  
 Residence.....  
 Has.....  
 Due notice will be given when convalescence is complete.  
 Number of other children in family attending school.....

When such report is received the Inspector immediately takes charge of the premises, and takes such action as will prevent the spread of the disease.

Apartments are, after the death or recovery of the patient, thoroughly fumigated by or under the direction of the Inspector, and upon the report of the attending physician that all danger is past, a certificate is issued by the Inspector on the following blank form :

CERTIFICATE  
 No.....  
 Notice to.....  
 Name.....Parent.....  
 Residence.....

OFFICE OF BOARD OF HEALTH,  
 ATLANTIC CITY, N. J.  
 Date.....189

I hereby certify that the above named person and premises have been properly disinfected and permission is hereby given said persons residing in said premises to return to school.

.....  
*Health Inspector.*  
 H. S. SCULL,  
 Secretary.

BUENA VISTA TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS.

Dominick Corsegliia, Vineland; Charles Kohler, Buena; William S. Chew; Cedar Lake; John Faux, Vineland; Douglas Reed, Buena.

ATLANTIC COUNTY—Continued.

EGG HARBOR CITY.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George F. Breder, Chairman; V. P. Hofmann, Secretary; Lawrence Berchtold, Henry G. Regensburg, William Mueller. Post-office address of all, Egg Harbor City.

The construction of a main sewer is still in abeyance. The County Court has the subject of awards for condemnation of lands in consideration, and a decision thereon is expected at an early date. Upon receipt of the decision the matter will be pushed by the Common Council.

As per ordinance of June 26th, 1893, in reference to registration of cattle, the respective committees examined all the stables, and found the same in good sanitary condition.

From April 15th to May 29th, 1894, fifty cases of measles were reported by our physicians, of which three resulted fatally. Although the Board devised all possible means to check the epidemic, it, in its latter stage, reached such a scope that we were compelled to order all the day and Sunday schools closed for several weeks. The physicians, as per respective ordinance, are punctual in reporting cases, so that the Board may take cognizance thereof, but the trouble is with parents, who evade or avoid giving notice.

Regular meetings have been held on the Monday preceding the first Saturday of each month, and special meetings whenever deemed necessary.

V. P. HOFMANN,  
 Secretary.

EGG HARBOR TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John C. Fifield, Bakersville; John J. Corson, Bargaintown; Samuel A. Smith, English Creek.

W. H. LEEDS, Bakersville,  
 Assessor.



## ATLANTIC COUNTY—Continued.

## TOWN OF ABSECON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George B. Lutts, President; E. C. Bates, Secretary; J. R. Steelman, Assessor; T. P. Waters, M. D., Physician; Willetts Cordery, Clayton Higbee, Daniel Walters, Japhet Adams; Dr. T. P. Waters, Health Inspector. Post-office address of all, Absecon.

Absecon is located upon Absecon Heights, on the west shore of Absecon bay, on the Atlantic coast, eight miles from Atlantic City and fifty-two miles from Philadelphia. The population is about five hundred.

Absecon was incorporated February 25th, 1875, the territory taken from Egg Harbor and Galloway townships. It extends from north to south one and a half miles, and from east to west about two miles, having an area of about two thousand acres. The western part is woodland.

The soil is principally sandy with loam and clay in the ravines.

The land is high and rolling, with natural water sheds. Absecon creek running through the town in an easterly direction emptying into the bay, with its ebb and flood tides, makes a good natural sewer.

The inhabitants are favored with the purest of well-water from a deep, white, gravely strata. Some of the water is *hard* and some *soft*.

Drainage, on account of the lay of the land, is naturally good.

The streets are graveled.

The houses are built of wood and not near together, giving good air circulation.

Markets are well kept.

No diseased animals.

The public schools and town halls are well heated, lighted, ventilated, and provided with proper out-buildings.

The cemeteries are on rolling ground.

The Board of Health is supplied with laws, codes and regulations.

Vital statistics are well collected.

Contagious diseases are properly quarantined.

## ATLANTIC COUNTY—Continued.

Sanitary expenses are light.

The dwellings are properly heated, lighted and ventilated.

No prevalent diseases.

The Board have caused dead animals to be properly buried; garbage taken care of; sewers put in; out-houses cleaned, and supposed diphtheria cases investigated by the Board physician.

During the past year the Board has held two special and two regular meetings.

T. P. WATERS.

## BOROUGH OF PLEASANTVILLE.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

L. H. Barrett, President, Pleasantville; Samuel Bartlett, Secretary, Pleasantville; R. M. Sooy, M.D., Health Inspector, Pleasantville; S. B. Jones, Pleasantville; James Lafferty, Pleasantville; Hon. Isaac Collins, Smith's Landing; Richard Risley, Smith's Landing.

One piece of property opened for building purposes has a water plant and has a sewer emptying into the bay. The water is pumped into an elevated reservoir from a common well by wind power.

Aside from a very mild type of whooping-cough, there has been no contagious or infectious diseases present in the borough. The past summer Atlantic City has had in place of a steam scow and transportation for the garbage, a crematory, which, with one or two exceptions, succeeded in disposing of the garbage, thus preventing the farmers here from procuring large quantities. This about settles the "Garbage Question," that has so long agitated our people at the spring elections. Our Board of Health is composed mostly of young men who appreciate the usefulness and importance of the Board; who attend strictly to duty and seek to minimize expense and promote efficiency and good will. The expenses of the Board last year were more than fifty per cent. less than during some former years, and will this year not exceed last year's amount. The people have learned the value of a Board, and since it is sought to run it upon an economical basis they try to aid our efforts for the public good.

ATLANTIC COUNTY—*Continued.*

Our meetings are regular and public, and well attended by members and the public. Health topics are discussed by both and much useful information imparted.

There have been a few cases of disease among swine. All physicians, ministers, midwives and those interested are furnished with the code of laws and vital statistic blanks, and the Secretary is particular to see that all are properly reported. All the public buildings are inspected, and one school-house that was in poor sanitary condition as to light and ventilation was so remodeled as to remedy the defect. The Common Council cheerfully appropriate all moneys required by the Board.

R. M. SOOY, M.D.,  
Inspector.

## TOWNSHIP OF GALLOWAY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph M. Collins, Port Republic; John Huenke, Egg Harbor City; Isaac Strickland, Oceanville; Anthony Kienzle, Egg Harbor City; M. S. Lyon Health Inspector.

There is no public water supply in this township.

No malaria.

Houses generally have cellars.

No house-to-house inspection.

No sewers.

The assessor has not inquired as to how many losses of animals, but there have been but very few.

No slaughter houses.

No manufactories.

The Board has passed no new ordinances this year.

The township is in first-class condition as far as health is concerned.

ANTHONY KIENZLE,  
Secretary.

## BOROUGH OF BRIGANTINE.

No report received.

ATLANTIC COUNTY—*Continued.*

## HAMILTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James M. Blaisdell, Mays Landing; John V. Beckett, Mays Landing; Andrew Stewart, Weymouth; Lewis W. Cranmer, Mays Landing; Mulford C. Hoover, Mays Landing; H. C. James, Health Inspector, Mays Landing.

The general health of the township has been exceptionally good during the last year. There have been no local epidemics. The Board of Health has had several meetings, and there have been few complaints made to them, but upon notice to the owners the nuisances were abated.

H. C. JAMES,  
Health Inspector.

## TOWN OF HAMMONTON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Theo. B. Drum, Wm. Cunningham, A. J. Smith, Edward North, M.D., Health Inspector. Post-office address of all, Hammonton.

The sanitary condition of Hammonton is all that could be wished. Drainage, natural. The past season has been very dry, and, as a result of the dry weather, we have had but very little sickness. The Board, through the Health Inspector, watches the town very closely, and anything detrimental to health is immediately looked after and removed. The Board meets as often as required and gives the citizens an opportunity to make complaints or obtain information. No complaints made to the Board this year. During the winter there was quite an epidemic of measles, mostly among the Italian population. It is almost impossible to make them understand the necessity of care during convalescence, and as a result of their carelessness a number of cases proved fatal from exposure, producing congestion of the lungs.

EDWARD NORTH, M.D.,  
Health Inspector.

ATLANTIC COUNTY—*Continued.*

## MULLICA TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles Saalman, Egg Harbor City; George W. Huntsman, Nesco; Reuben Brooker, Elwood; William W. Phillipe, Assessor, Elwood; John T. Irving, Secretary, Elwood; H. W. Smith, M.D., Health Inspector.

Since the last annual report of the local Board of Health of Mullica Township there have been no special cases demanding the attention of the Board. There have been no epidemics and the general health of the community has been very satisfactory. In consequence of there having been no urgent cases of sickness or of violation of the health laws no meetings of the Board have been held since March 17th, but the President has power to call them whenever in his judgment they are deemed necessary.

In answer to your "Memorandum for October 1st, 1894," would state—

We have no ordinance requiring that communicable diseases be reported.

All communicable diseases have thus far been promptly reported.

Since the Board has been organized we have had but a few cases (diphtheria) of communicable diseases, which were isolated at once.

The Board fumigates and usually scrubs and otherwise cleans dwellings where such diseases have occurred.

JOHN T. IRVING,  
Secretary.

## WEYMOUTH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William Hoffman, Tuckahoe; Anderson Campbell, Tuckahoe; Anderson Bourgeois, Estellville; W. H. Campbell, Scullville, Assessor.

ATLANTIC COUNTY—*Continued.*

## BOROUGH OF SOMERS POINT.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Mark S. Somers, Frederick Stuth, Amos Lewis, Robert P. Strong, William H. Keates, H. H. Vansant. Post office address of all, Somers Point.

Somers Point is situated on the west side of Great Egg Harbor inlet, bay and river. Population, 400. Area, 1,600 acres. Water from springs and wells. It is soft and clear. No malaria and no swamps near by. Cesspools, half cement and half surface. No slaughter-houses; one school-house. Canvas fire-escapes to hotels. Stoves and heaters are used for heating purposes. Sanitary condition satisfactory. No ordinances passed in regard to plumbing and no changes from last year. The Board has not met lately.

N. D. VAUGHAN,  
Clerk.

## BERGEN COUNTY.

## BERGEN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Frederick Kohbertz, Woodridge, Chairman; Adolph Kruger, Carlstadt, Secretary; J. McMahon, Carlton Hill; William Foose, Woodridge; A. Richter M.D., Carlstadt, Health Inspector.

I have very little to add to report of last year. The general health of the people in our township has been remarkably good. Our Board holds monthly meetings, and our code of ordinances provides that notice of communicable diseases shall be given at once by medical attendant under heavy penalty, and so far such reports have always been promptly made. Our Board takes action at once and posts notice of sickness on the house, and, if it is thought necessary, at once quarantines the

BERGEN COUNTY—*Continued.*

house in which sickness occurs. We invariably fumigate houses where contagious disease has occurred.

We had a general vaccination ordered about three months ago, when smallpox broke out in our adjoining district, and succeeded in keeping the disease away from us.

Our last meeting was on October 2d, 1894.

ADOLPH KRUGER,  
Assessor.

## BOROUGH OF CARLSTADT.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry C. Bratling, President; Dr. Aug. Richter, Inspector; Theodore Bloecher, Charles Isdell, Herman Foth, Clerk.

As our Board has just organized, you could hardly expect a report from us.

## ENGLEWOOD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Oliver Drake Smith, President; James Harris, Joseph Thomson, Hardy M. Banks, M.D., M. E. Springer, Assessor; Hugh Smith, Inspector. Post-office address of all, Englewood.

Have nothing to add to previous reports, except that last Spring measles were quite prevalent here; only two cases, however, proved fatal. We also had four cases of small-pox to deal with, the disease having been brought from the city of New York and communicated to others before discovery, but prompt action and stringent measures on the part of the Board of Health prevented its being spread beyond the few cases mentioned, and it was soon crushed out. None of the cases proved fatal.

There have been only four cases of scarlet fever reported, all of which recovered; two cases of typhoid, both ending fatally.

BERGEN COUNTY—*Continued.*

Aside from the above, the general health of the town has been good.

M. E. SPRINGER,  
Assessor.

## FRANKLIN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Wm. J. Packer, Wyckoff; Albert Lozier, Wyckoff; George C. Demarest, Crystal Lake; John W. Ackerman, Assessor, Oakland; E. W. Hamilton, Health Inspector, Oakland.

## HARRINGTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph F. Mount, Closter; John H. Lindemann, Closter; John H. DeWolf, Tappan, N. Y.; R. Newton Sneden, Northvale; L. B. Parsell, M.D., Closter.

The township of Harrington is the northeastern township of Bergen county. It is bounded on the north by the State of New York, on the east by the Hudson river, on the west by the Hackensack river, on the south by the township of Palisades. It has an area of about twenty-five square miles and a population of about three thousand. No record of temperature has been kept.

The eastern part of the township embraces the highest portion of the Palisades on the Hudson, with their well-known trap-rock formation resting upon a sandstone base. The soil of the western slope is clay with a mixture of loam and sand which gradually becomes all sand as you reach the valley. The surface is rolling with marshes between the elevations.

Water is supplied from wells, cisterns and springs, which are numerous throughout the township.

There is no system of drainage other than by natural means, refuse and excreta being disposed of in cesspools and privies, and eventually used as fertilizer.

BERGEN COUNTY—*Continued.*

There are no regularly laid out streets or public grounds, other than usual highways.

No markets.

Eight schools and school-houses. No other public buildings.

Three burial grounds.

Code and regulations conform to the State laws.

In case of contagious diseases patients are removed to an isolated place if practicable.

We have abated all public nuisances brought to the notice of the Board.

JOSEPH F. MOUNT,  
Chairman.

R. NEWTON SNEDEN,  
Secretary.

## HOHOKUS TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. C. P. Deyoe, Physician, Ramseys; Jacob J. Young, Ramseys; Wm. J. Wilson, Ramseys; John Ackerman, Secretary, Wyckoff; David F. Smith, Health Inspector.

Hohokus township is situated in the most northerly part of Bergen county. Population, about 3,000. Area, about 19,000 acres. Soil is a series of gravel and boulders.

The public health is as a general rule *good*.

The water-supply, principally, is from wells and cisterns and is excellent.

The mode of lighting is from the use of oil.

There are five (5) school-houses in the township and all in very good condition.

The Board of Health found it necessary to close the Ramsey school for three weeks during December, 1893, on account of diphtheria. They also had the school thoroughly cleaned and disinfected.

Hohokus township voted \$100 for the use of the Board of Health in March, 1894.

BERGEN COUNTY—*Continued.*

There occurred, from November, 1893, to April, 1894, fourteen (14) cases of diphtheria, resulting in six (6) deaths.

During June, 1894, two (2) cases of scarlet fever were reported by Inspector; no deaths. During September, 1894, two cases of typhoid fever with one death.

The Board generally meets every three months. We have only two post-office villages in our township—Ramsey and Mahwah. The township is principally agricultural, with the exception of the two towns mentioned above.

We have nothing but natural drainage for our streets and cess-pools for the village.

Have two slaughter-houses, but all in good condition.

There have been no complaints of diseased animals during the year.

Houses are frame, mostly occupied by owners.

Our Board has met, organized and posted ordinances, abated nuisances and ordered several water-closets cleaned, &c.

Houses generally have cellars.

The Inspector has acted in every case with promptness and firmness, and without favor or partiality in doing his duty. He has posted notices when necessary and allowed none to be removed until he was satisfied there was no further danger, and all complaints of nuisance have been looked after promptly, and in every case detrimental to the public health the same has been removed or abated at once.

The collection of vital statistics is not very satisfactory because of neglect of some sextons and undertakers. There has also been neglect in reporting births in cases where no physician is present.

JOHN ACKERMAN,  
Secretary.

## LODI TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George Kiel, Chairman, Hasbrouck Heights; John Hagerty, Lodi; Charles Foose, Woodridge; Jacob Van Hook, Lodi; George S. Davenport, M. D., Garfield; George S. Davenport, Health Inspector.

BERGEN COUNTY—*Continued.*

Little Ferry and Hasbrouck Heights have become boroughs, and each has a post-office under their own name.

The borough of Hasbrouck Heights is supplied by the Hackensack Water Company. The quality of the water fairly good. Other parts of the township depend on wells and cisterns.

There is no general drainage. Cellars are usually dry. Ditches have been opened in the meadows, with the exception of a few.

Basements are the exception. Cellars used for storage. Houses generally occupied by one family, with exception of very few. There is no yearly house to house inspection.

Lighting is very nearly all with kerosene oil of the standard 150°, water white.

There is no general sewerage. Many of the homes have cess-pools built with open bottoms; contents used to fertilize the soil.

There has been no disease prevalent among animals.

There are no slaughter-houses or abattoirs.

There are nine churches and three schools and several club houses and halls in the township. The village of Lodi is building a two-story brick school house with six class-rooms, with all the latest improvements of heating and ventilating and dry-earth closet system.

No public charities.

There are three cemeteries.

The Board of Health has made every effort to do its duty faithfully.

The vital statistics have been carefully collected and returned, although sometimes slow from doctors.

About mid-summer there were four cases of scarlet fever in two families which lived in close proximity to one another. The houses and their occupants were quarantined. All recovered and the disease did not spread.

The older buildings are generally heated by stoves and ventilated in a primitive manner. The newer ones are supplied with furnaces and steam heat and hot water, and ventilated by modern methods.

There has been no prevalent disease.

The Board has kept a general supervision over the health of the township, trying to remove all known causes of disease and

BERGEN COUNTY—*Continued.*

to prevent contagion when single cases of that character have occurred.

JACOB VAN HOOK,  
Secretary.

## BOROUGH OF LITTLE FALLS.

The following communication has been received:

LITTLE FERRY, N. J., December 5th, 1894.

Henry Mitchell, M. D.:

DEAR SIR—In reply to your letter of 4th inst. I would say that Little Ferry has been a borough only for the past three weeks and has as yet no Board of Health, but upon their appointment I will notify you.

Most respectfully,

ELMORE N. MELUHOF,  
Clerk.

## MIDLAND TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Nicholas R. Voorhis, Chairman, Cherry Hill; George Grassick, Maywood; C. T. Zabriskie, Ridgewood; Nicholas G. Hopper, Assessor and Secretary, Ridgewood; Dr. Herbert S. Jones, Health Inspector, Oradell.

Our Township Board of Health was organized March 17th, 1894. On April 28th complaints were made in reference to the unloading of manure cars at the Oradell depot, which matter was attended to at once.

Soon after no less than three boroughs were formed out of Midland township, leaving only two officers who were residents of the township.

Since then we have not re-organized.

The general health of the township has been good.

NICHOLAS G. HOPPER,  
Secretary.

BERGEN COUNTY—*Continued.*

## NEW BARBADOES TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

R. P. Paulisor, A. Dederick, Edward Schmults, John McD. Gamewell, G. Howard McFadden, M. D.; G. Howard McFadden, M. D., Health Inspector. Post-office address of all, Hackensack.

During the past year our township has been free from epidemics of all kinds—have had sporadic cases of scarlet fever and diphtheria and one case of small-pox. The houses were quarantined and later well fumigated and disinfected. We require that all contagious diseases be reported to the Health Inspector, and he makes an investigation and sees that the patient is isolated as much as possible from the rest of the family and that all necessary precautions are taken to prevent the spread of the disease.

Our school-houses are in thorough sanitary condition as also the out-buildings and closets well cleaned and disinfected.

There have been but few complaints of nuisances, and those were promptly abated.

## HACKENSACK CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. S. C. Wells, President; D. G. Jeffers, Secretary; Chas. Conklin, Treasurer; Chas. F. Adams, M.D., Frank H. White, M.D., Louis Perrot, A. V. Moore. Jas. E. Church, Sanitary Inspector; Robt. Ballagh, Plumbing Inspector. Post-office address of all, Hackensack.

The village of Hackensack is in a good sanitary condition. The usual complaints of nuisances have received our careful attention, and where they have been found to exist have been promptly abated. Several cases of diphtheria and scarlet fever have been reported during the year, resulting in two deaths; precautionary measures were taken in all cases by our Sanitary Inspector. Last year we purchased two regulation tents for the use of any case of disease that it might be necessary to remove to prevent contagion. During September we had occasion to use them. A boy, one of a large family, contracted small-pox while

BERGEN COUNTY—*Continued.*

visiting in Newark, N. J. The Board acted immediately, removed the boy to an isolated place in charge of a trained nurse and made him as comfortable as possible, two of our medical members volunteering to give necessary medical attendance. The house of the patient's family was thoroughly quarantined, officers employed by the Board guarding the house night and day. The patient has recovered and we have not had a second case.

The sewerage system is being constantly extended to meet the demands of new houses; one hundred and seven plans of buildings being filed during the year. Under the supervision of our Plumbing Inspector all plumbing work is done in accordance with our ordinance regulating the plumbing and drainage of buildings.

Garbage and ashes are collected by scavengers and dumped within the village limits, and this has been the cause of many complaints, and the question is now receiving our attention.

The Hackensack creek, running through the lower part of the village, which is practically an open sewer, has been the cause of vexatious legal proceedings and of many complaints for years, may be placed in a more healthful condition. The private sewer connections, numbering more than one hundred, have been ordered discontinued after the 1st of May next.

Our ordinary expenses are about \$350 per annum; the one case of small-pox will cost about \$500 additional.

D. G. JEFFERS,  
Secretary.

## ORVIL TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

O. W. Jennings, Saddle River; Albert Mowerson, Ramsay; Henry L. Hopper, Waldwick; A. H. Ackerman, Saddle River; Charles W. Badeau, Allendale, Health Inspector.

Health of people in township very good. No disease or sickness reported. The diphtheria scare the past summer at Saddle River at one time seemed quite serious. Every precaution was

BERGEN COUNTY—*Continued.*

taken and the disease was controlled. The day school and the Sunday school were closed and no services were held in the church. An investigation was made, and it was found that the four children who contracted the disease had been playing horse, probably using the same stick for a bit. Three out of the four died. Every household took precautionary measures by request of Board of Health, and no new cases developed. Two died from the disease at Paramus, and every precaution was taken there and no others contracted the disease. I do not know of anything more than has been reported before.

A. H. ACKERMAN,  
Assessor.

## PALISADE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

David D. Blauvelt, Schraalenburgh; James H. Brinkerhoff, Bergenfield; Jacob B. Christie, Riveredge; John R. Demarest, Cresskill; J. M. Simpson, M. D., Schraalenburgh; J. M. Simpson, M. D., Health Inspector.

Most all the subjects here mentioned have been treated in previous reports so that I do not think there is any necessity to treat them again.

There is no necessity to treat the question of health because it has been so remarkably good. There has been but one or two outbreaks of scarlet fever and these have been easily controlled and no spreading of the fever from the house in which it first appeared.

Our Board requires that all cases of communicable disease shall be given in writing.

There has been but one case of scarlet fever and that was so mild that it was not thought worth while to report it.

We met last about the 1st of June, 1894.

BERGEN COUNTY—*Continued.*

## BOROUGH OF CRESSKILL.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Garret Ferdon, Cresskill; John Demarest, Cresskill; A. C. Demarest, Cresskill; J. P. B. Westervilt, Cresskill; A. T. Ferdon, Cresskill; W. W. Fraser, Cresskill; J. B. W. Lansing, M. D., Tenafly.

Location, Bergen county.

Population, 500.

Number of acres, 1,690.

No malaria at present.

Improved streets. No public grounds.

Houses generally have cellars.

No public lights.

No sewerage.

No contagious disease has been reported.

Two hundred dollars was appropriated for sanitary expenses.

As our Board is comparatively new, we have done little as yet in the way of sanitary improvements.

Our Board requires notice from physicians of all disease within our district. Such reports are uniformly made on notice of same. We have our medical inspector, Dr. J. B. W. Lansing, inspect and report to the Board. We then take such measures as he may suggest. Our last meeting was held on the first Tuesday in September, 1895. Enclosed find copy of our sanitary code, rules, regulations, etc. [Copy received.]

We have a small stream passing through our town called the "Tenakill." The stream in question becomes almost stagnant at times and at others overflows our meadows, impairing public health, which fact is caused by a private dam on private property, at Demarest; therefore we wish said dam removed for reasons stated above. Much complaint has been made from time to time, hence we think we have ample grounds for making said report.

W. W. FRASER.



BERGEN COUNTY—Continued.

BOROUGH OF TENAFLY.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. J. Haring, M. D., President; J. B. W. Lansing, M. D., Secretary, Treasurer and Registrar of Vital Statistics; Jas. E. Butler, S. G. Clark, Esq., Richard Delahanty. Post-office address of all, Tenafly.

Regular meetings of the Board are held at the Council Chamber, on the second Tuesday of May, August, November and February, at 8 P. M.

The state of public health has been unusually good during the past year. No epidemics have occurred, and only a few isolated cases of contagious diseases.

J. B. W. LANSING, M. D.,  
Secretary.

RIDGEFIELD TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph Schlosser, Fort Lee; Peter Spindler, Nordhoff; Albert Ravekes, Ridgefield Park; Henry Benecke, Secretary, Fort Lee; Dr. Joseph Hüger, Fort Lee, Inspector.

The health of the township in general has been good during the past year. No epidemic diseases whatsoever. Public water-supply is being introduced through the valley. Our schools are arranged for the comfort and health of the children. All children attending school in the township have been vaccinated by our Inspector during the past year and a certificate of vaccination presented in each case. The few complaints that have been presented to the Board concerning nuisances have been of a trivial nature and were remedied by the Board. Sewerage in general we have not yet, but it should and must come in the near future.

HENRY BENECKE,  
Secretary.

BERGEN COUNTY—Continued.

RIDGEWOOD TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Abm. G. Hopper, President, Ridgewood; Thomas Terheun, Secretary, Hohokus; Henry W. Hales, Treasurer, Ridgewood; William J. Fulerton, Health Inspector, Ridgewood; Dr. John T. DeMund, Medical Inspector.

There is no material change in our report from last year other than we have had a few cases of diphtheria, which were promptly attended to.

We use the following blank for reports of contagious diseases:

REPORT OF CONTAGIOUS DISEASES TO BOARD OF HEALTH, OF RIDGEWOOD TOWNSHIP.

RIDGEWOOD, N. J. ....189

Name of patient.....Age.....

Residence.....

Disease.....

No. of Families in house.....on what floor.....

Condition of premises....., M. D.

Residence.....

~~Be~~ In case of Death a Report is requested Immediately.

SADDLE RIVER TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Tennis W. Vreeland, Fair Lawn; Peter Alyea, Dundee Lake; John G. Garretson, Garfield; Peter J. Smith, Secretary, Rochelle Park; Dr. Moak, Health Inspector.

There is nothing new to report from Saddle River township. The general health is good.

DR. MOAK,  
Health Inspector.

UNION TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William Brandenburg, President, Kingsland; W. W. Taylor, Kingsland; John Kehoe, Lyndhurst; Alex. J. Davison, Secretary, Kingsland; Dr. Wm. E. Trautwein, Health Inspector, Kingsland.

BERGEN COUNTY—*Continued.*

There is no public water-supply. The water is all from wells. When any draining is done, it is done with pipes in the ground leading to some stream.

The houses are mostly two stories, and have but one family. They have been inspected this last year and found in good condition.

There are three school-houses, which have been inspected and found in good condition.

We have one cemetery, which is kept in good condition.

The Health Board has a code printed and sent a copy to every house in the township.

All the certificates for the deaths, births and marriages are forwarded to the Assessor, and he sends them to Trenton.

When any contagious disease is found the house is quarantined.

There was some small-pox in Rutherford this year, and the people in the township were nearly all vaccinated.

The heating of the buildings is done with heaters in the cellars and stoves.

Malarial fever has prevailed during the last year.

The Board of Health has met the first Tuesday of each month. They have had several complaints of water stagnated on property, but on notifying the owner the nuisance has been abated.

Enclosed find a code of the public health. [Code received.—M.]

ALEX. J. DAVISON,  
Secretary.

## BOROUGH OF RUTHERFORD.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Chas. Van Winkle, President; J. C. Sares, Treasurer; H. H. Hollister, M. D., S. E. Armstrong, M. D., S. H. Rhodes; Jos. W. Burgess, Secretary.

As there have been some changes in this Board, it is unable to make a full report.

JOS. W. BURGESS,  
Secretary

BERGEN COUNTY—*Continued.*

## BOROUGH OF EAST RUTHERFORD.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Martin Tygert, M. D., President, Rutherford; Geo. Hagelweide, Secretary, Rutherford; J. H. Vernoy, Rutherford; Aaron Devries, Carlton Hill; Hooper, M. D., Rutherford, Health Inspector.

The township of Boiling Springs changed its government in May, 1894, forming and incorporating a borough named East Rutherford. The area of the new borough covers the entire ground of the old township from Hackensack to Passaic river.

Water supply, drainage, etc., remain the same as heretofore.

Contagious diseases—We have had a few cases of scarlet fever and some diphtheria. Neither of these could be called epidemic, and their spread was quickly checked by prompt isolation.

Small-pox made its appearance in our midst about July 20th, and was evidently brought within our borough by some of our people coming in contact with infected persons in the adjoining borough of Rutherford, where the disease broke out previous to showing itself here.

This Board took at once the most energetic measures possible to prevent any further spread, though there were no facilities whatever on hand for isolation or proper treatment. Two camps, consisting of tents and all necessities, were at once established, each being about one block apart. One of these was for persons having the disease, the other for those who had come in contact with them and whom it was necessary to keep in quarantine. Five persons had the disease, and nine were kept as suspects for ten days. A general vaccination was carried out in the entire borough and no deaths occurred at the camp. All persons recovered in about thirty days and were then discharged. The costs have been very heavy on this town. Everything had to be procured new, and labor and watchmen demanded unusually high prices on account of the nature and danger of the disease. The total outlay amounts to nearly \$1,500. The entire outfit, tents, etc., have been destroyed by fire to avoid the danger of communicating the disease.

This Board requires by ordinance notice of all contagious diseases. They are uniformly made on printed slips for that pur-

BERGEN COUNTY—*Continued.*

pose, and brought to the attention of the entire Board at each meeting. Whenever this Board formed the opinion that the inhabitants of apartments contaminated were too poor or otherwise unable to cleanse their rooms sufficiently, the Inspector was authorized to use all means to have this properly done.

The meetings of this Board are held every fourth Wednesday of each month.

GEO. HAGELWEIDE,  
Secretary.

## BURLINGTON COUNTY.

## BASS RIVER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. Garrabrant, M.D., Township Physician; W. C. Irons, R. A. Mathis, M. W. Adams, Committee; Chalkley S. Cramer, Assessor; C. Garrabrant, M.D., Health Inspector.

The general state of the health has been good. There has been no epidemic in the town, either among man or animals. The public buildings are in good condition.

C. GARRABRANT,  
Health Inspector.

## BEVERLY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS.

Robert Stuart, Beverly; W. W. Weiler, Delanco; R. S. Adams, Beverly; Jos. B. Carter, Delanco.

Replies to special inquiries for 1894:

1. Does your Board require by ordinance or regulation that notice shall be given when communicable disease occurs within your health district?

BURLINGTON COUNTY—*Continued.*

Yes.

2. Are such reports of the existence of communicable disease uniformly made?

Yes.

3. What action does your Board take when such a report is received?

A record is made and persons are cautioned against visiting such houses.

4. Does your Board cleanse apartments which have been contaminated by communicable disease? If so, how?

The physician is advised to notify the occupants of premises to cause thorough disinfection.

5. Name the date of the last meeting of your Board.  
August 30th, 1894.

The Board organized at the usual time, and has held but one meeting since. No contagious diseases have appeared since the last report, and but few complaints of violations of the health ordinances have been made. All nuisances have been promptly abated when the attention of the proper persons has been called to them.

JOSEPH B. CARTER,  
Assessor.

## CITY OF BEVERLY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. J. Carrie, M.D., President; Dr. B. F. Sooy, Secretary; C. F. Richardson, Inspector; George A. Smith, William K. Vansciver, Charles H. Peast; C. H. Richardson, Health Inspector. Post-office address of all, Beverly.

Our Board has held eighteen meetings during the past year, at only two of which was a quorum lacking.

In April last, some question being raised as to the quality of some of the milk served here, a State Milk Inspector visited the city and took samples of the milk, but the Board has not heard that any of the samples were in fault.

As the Board requires prompt notification of any contagious diseases, that they may be properly dealt with, we are glad to

BURLINGTON COUNTY—*Continued.*

report but two light cases of scarlatina and but one of diphtheria. This last case was a man who was lodging with a family and working in an adjoining town. As soon as the Inspector received the notice he investigated the case and found the man in the street, he not having been confined to his bed, yet his throat was in a badly diseased state. His friends declining to receive him, the Overseer of the Poor found a man living in a shanty in an open lot, some distance from any house, who received the patient and nursed him to recovery, the shanty being quarantined. No further spread of the disease occurred.

Some evident lack of reports of births being made to the Board, a notice is to be sent to all the physicians in town, and it is believed that such reports will be promptly made hereafter.

Numerous complaints have been made to this Board as to disregard of sanitary requirements, all of which have been investigated and remedied with but little trouble. A general disposition exists to co-operate with the Board in preserving the public health.

It is curious to note how the presence of the Inspector in some localities has the effect of subsequent cleaning up, &c., without any complaint being made.

The Board hopes ere long to report that a system of sewerage will be adopted. It is necessary in a place which has a public water-supply, and each year's delay increases the danger of typhoid fever and kindred diseases.

Replying to the memorandum for October 1, 1894 (see page 69):

1. The Board requires notice of communicable disease.
2. They are uniformly made.
3. The places where such diseases exist are quarantined and a card notice is tacked on or near the front door of the house, and this notice is not removed until the attending physician notifies the Board that danger no longer exists. The family are required to remain on or away from the premises while the danger exists.
4. The people in the house disinfect under the directions of the attending physician and the Inspector is informed that it is done. The State circular as to disinfection is also furnished the family.

BURLINGTON COUNTY—*Continued.*

5. Last meeting of the Board, September 28th. Annual meeting, October 12th.

One hundred dollars is annually appropriated for use of Board, but all of this sum has not been used in any one year since 1890.

There are but very few copies of complete ordinances of the Board in print—say five, all in the hands of the Board. A circular was published in April last and a copy put in every house in Beverly. It embraces the more prominent ordinances, or those of more general interest.

C. F. RICHARDSON,  
Inspector.

## BORDENTOWN TOWNSHIP.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

R. K. Allen, Chairman, Bordentown; William Warrack, Secretary, Bordentown; Frederick Schaffer, Bordentown; H. B. Ford, Assessor, Bordentown; B. W. McFarland, M.D., Inspector, Bordentown.

This Board was organized May 17th, 1894, in conformity with the act approved March 31st, 1887, and in accordance with instructions contained in Circular 60 of the State Board of Health. A sanitary code was adopted June 26th, 1894.

Two cases of typhoid fever were reported July 15th, and one case August 9th.

WILLIAM WARRACK,  
Secretary.

## CITY OF BORDENTOWN.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

D. R. Brown, President, Bordentown; William H. Shipps, M.D., Secretary, Bordentown; Edward L. Thompson, Bordentown; I. D. Young, M.D., Bordentown; L. D. Tebo, M.D., Bordentown; Fred G. Wiese, Bordentown; Robert Bantle, Bordentown; H. N. Jobes, Inspector.

BURLINGTON COUNTY—*Continued.*

## BURLINGTON CITY.

No report received.

## CHESTER TOWNSHIP (INCLUDING MOORESTOWN).

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John B. Worrick, Chairman, Hartford; Levi L. Lippincott, Maple Shade; Charles F. Hugg, Moorestown; Benj. Rogers, Assessor and Secretary, Moorestown; F. G. Stroud, M.D., Health Inspector, Moorestown.

Moorestown is situated on the Amboy Division of the Pennsylvania Railroad, with estimated population of 3,500 to 3,800, with a climate that is mild and comparatively free from malarial and kindred tendencies. The ground on which the town stands is generally level, soil sufficiently porous to dry quickly after storms and thus prevent the formation or existence of stagnant pools. Dwellings are well separated by large inclosures, and generally have but one family in each. Wells have an average depth of twenty feet. There are also a few cisterns, but the principal water supply is from a reservoir (owned by the Moorestown Water Company) of excellent spring water, obtained at a distance of one mile from the town. The water is clear, soft, and free from any taste. No sewerage or surface drainage runs into it. There is no general drainage or sewerage in Moorestown. Many of the houses have cesspools, built with open bottoms. The contents are cleaned out under the ordinances of the Board of Health and removed beyond the borough limits and used to fertilize the soil. Sidewalks paved on main street; the balance are heavily graveled. Road-beds graveled once a year, under the supervision of the Township Committee.

Houses are lighted by electricity and petroleum, which latter is gradually giving way to the former. Streets are lighted by electricity only.

Garbage and rubbish is collected by private individuals and carted outside of borough limits.

There are no public markets.

BURLINGTON COUNTY—*Continued.*

There has been no contagious disease among cattle. There are two slaughter-houses. No manufactories.

We have five public and three private schools in the township, and all of these are in very good sanitary condition. The majority of school children have been successfully vaccinated. The schools are heated by hot air and by steam.

No almshouse, hospital nor other public charity.

Jail is heated by hot air.

Four cemeteries in the township.

A good fire department is under the supervision of the Board of Fire Commissioners.

There is no yearly house-to-house inspection.

A system of sewers is badly needed in Moorestown, and the Board is doing what it can to press the matter. During the past year there have been twenty-one complaints of nuisances, which have been promptly abated. All contagious diseases are under the care of the Health Inspector.

No epidemics of contagious diseases have prevailed, with the exception of a few cases of typhoid fever, scarlet fever, measles and diphtheria, which were all isolated.

Our Board requires by ordinance that notice shall be given when communicable disease occurs, but I am very sorry to state that the reports are not uniformly made, but when received the Board take action. Our Board cleanses apartments which have been contaminated by communicable disease.

The Board held its last meeting to hear complaints October 29th, 1894.

The Board meets on the last Monday evening of each month.

F. G. STROUD, M.D.,  
Health Inspector.

## CHESTERFIELD TOWNSHIP.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS.

George H. Warner, Chesterfield; Edward M. Ridgway, Crosswicks; Edmund Satterthwaite, Bordentown; Charles B. Halloway, Chesterfield.

Water-supply is from wells and is generally pure and hard.

BURLINGTON COUNTY—*Continued.*

No sewers; no swamps of any considerable size. But few cases of malaria have occurred. Houses are mostly frame structures, with cellars. Cellars are dry except during very rainy season. But few houses are occupied by more than one family. No yearly house-to-house inspection.

Cesspools have open bottoms, and the contents are spread upon the land. There have been no prevalent diseases this year, the general health of the township having been very good. There is only one slaughter-house in the township and that is kept in good condition. There are five school-houses, and they are in good condition. There was one complaint made to the Board in regard to a nuisance which was immediately abated.

CHARLES B. HOLLOWAY,  
Assessor.

## CINNAMINSON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Isaac Eraul, Palmyra; Clayton Conrow, Cinnaminson; Joshua D. Janney, Cinnaminson; Timothy Morton, Parry; Alex. Marcy, M.D. Jr., Secretary and Health Inspector, Riverton.

The old township of Cinnaminson has been divided during the past year by the formation of the borough of Riverton and the township of Palmyra, which takes from it the most populous part of the old township.

The health of the remaining portion has been very good during the year. We have had no epidemics or contagious diseases among animals.

We have adopted the code of ordinances as recommended for townships.

We have no regular sum appropriated for the use of the Board.

ALEX. MARCY, JR.,  
Secretary.

BURLINGTON COUNTY—*Continued.*

## DELRAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Chas. G. Robeson, Martin Schlendwine, Emerson Haines. Post-office address of all, Riverside.

ROBT. W. BABINGTON,  
Assessor.

## PALMYRA TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

R. Lobert Temple, President; James Hartley; Henry Kerswill; Frederick Blackburn, Secretary; Lewis L. Sharp, M.D., Health Inspector. Post-office address of all, Palmyra, N. J.

Palmyra township is situated on the Delaware river, six and one-half miles from the city of Camden, and has a population of about 2,500 inhabitants. The Township Committee have during this past year been grading the streets, thereby greatly improving our surface drainage.

We have no sewers.

Have plenty of good water, supplied by a private corporation; and all our new houses, and many of the old ones, are introducing this water. Other houses are supplied by wells.

Houses are all frame, and they are each occupied by but one family. The mode of lighting is by kerosene oil.

Garbage disposal and the cesspool question are both being considered by our Board. Cesspools are open and shallow.

One slaughter-house is situated on the outskirts of the town; it is seldom used.

Our two school-houses are full to running over. There is opportunity in these buildings for sanitary improvement.

We have one cemetery in the centre of the town and one on the outskirts; both well kept.

The greatest nuisance that our Board had to contend with during this past year was the dumping of garbage in Pensauken township, the odors caused thereby leading a hundred of people

BURLINGTON COUNTY—*Continued.*

to make complaint. The source of the trouble was out of our jurisdiction, but we succeeded in securing its abatement.

There has been no epidemic of any kind during the past year. The few contagious diseases that have occurred have been of light form, and the Board has used with these cases the greatest care to prevent spreading.

There is a growing disposition on the part of our citizens to recognize the value of preventive measures in the maintenance of health, hence our young board has hearty co-operation in its effort to protect the public health.

LEWIS L. SHARP, M.D.,  
Inspector.

## BOROUGH OF RIVERTON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John C. S. Davis, President; W. G. Wilson, Treasurer; A. J. Briggs, C. A. Wright, Alex. Marcy, Jr., Secretary; Alex. Marcy, Jr., M. D., Health Inspector.

The Borough of Riverton has been incorporated but a few months and there is but little to report. Having been a part of Cinnaminson township many of the facts relating to local conditions have already been reported.

The special inquiries for 1894 are answered as follows: (For schedule see page 69.)

1. No ordinance has yet been adopted to require that communicable disease shall be reported to the Board of Health.
2. No.
3. None.
4. Apartments which have been occupied by persons having communicable disease are not cleaned by direction of the Board of Health.
5. The Board meets on the second Monday evening of each month.

Only one case of typhoid fever has occurred in Riverton during the past three years.

ALEX. MARCY, JR.,  
Secretary.

BURLINGTON COUNTY—*Continued.*

## DELRAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Emerson Haines, President; Charles G. Robeson, Martin Schelendwine, Thomas S. Lippincott, M. D. Post-office address of all, Riverside.

A new water company has been formed; a stand pipe has been erected and pipes laid in a number of the streets of Riverside. The water comes from deep wells sunk at the edge of meadows of Rancocas creek.

We have no Inspector for this year. We have four shoe factories, three stocking factories, one paper factory, one wooden box factory, and one watch-case factory.

Garbage is used as fertilizer on gardens and farm lands.

There are two slaughter-houses in the township. There have been no complaints concerning them. Some complaints of pig pens were received, and they were attended to by owners as soon as notified.

One new school-house containing four rooms.

There are four cemeteries in the township; no burials permitted in either of them when the death occurs outside of our own township.

It often happens when a death takes place that the body is conveyed by the undertaker to some cemetery outside of this township, and often taken out of the county, and the doctor's certificate accepted instead of a permit from this Board. By this action I am unable to record all deaths occurring in our township.

All contagious diseases are quarantined. Free vaccination was provided at our public school-houses last June.

About one hundred dollars was expended last year in the protection of the public health.

Typhoid fever, measles and scarlet fever appeared in the township last year.

The Board has met but a few times during the year.

BURLINGTON COUNTY—*Continued.*

## EASTAMPTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Chas. G. Hatcher, Prentice Comegys, Jackson L. Nippins, Joseph Powell, Jr.  
Post-office address of all, Smithville.

Village of Smithville has a population of about 500. Sanitary conditions apparently good. No sickness of any consequence past year. Water-supply furnished by good wells and also many of the dwellings supplied by cedar swamp water forced to the respective dwellings by means of water power.

No cesspools about village, and the garbage is attended to regularly and with care. Everything is in good order.

Held meetings according to law and received no complaints.

JOSEPH POWELL, JR.,  
Chairman.

## FLORENCE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles Lynch, John Peacock, Charles Bowne, John Kale, David Baird, M. D., Health Inspector. Post-office address of all, Florence.

The water-supply here is from ordinary wells.

There is no system of drainage.

All the houses have cellars.

There are no houses occupied by more than two families.

There never has been a yearly house-to-house inspection.

Excreta is stored in out-door privies, which are cleaned out occasionally.

Don't know of any disease that has prevailed this year among animals.

Our Board has passed no ordinances.

There has been no epidemic disease during the past year.

J. KALE,  
Assessor.

BURLINGTON COUNTY—*Continued.*

## LUMBERTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Albert Middleton, Hainesport; Edwin T. Crispin, Lumberton; William D. Mason, Masonville; Dr. William C. Parry, Hainesport; Edwin Rogers, Masonville.

We have had no cause for organization.

## MANSFIELD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. N. Dobbins, George Black, John Burtis, E. A. Ingling, Assessor. Post-office address of all, Columbus.

There is nothing new to report.

The health of the township is generally good. There has not been any contagious disease in the township the last year.

E. A. INGLING,  
Assessor.

## MEDFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

E. H. Kirkbride, Chairman; Henry L. Garwood, J. Reeves, M.D., Secretary; Wm. M. Potts. Post-office address of all, Medford.

Water-supply from wells. Inspection when necessary. Garbage removed by private parties. No epidemic. Collection of vital statistics only by assessor. Sanitary expenses, none.



BURLINGTON COUNTY—*Continued.*

## NEW HANOVER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William G. Johnson, Pointville; George C. Davis, Wrightstown; Martin V. Pullen, Cookstown; Benjamin Remine, Wrightstown; Amos Shaw, M.D., Health Inspector, Jacobstown.

Our township has no report to make.

BENJAMIN REMINE,  
Chairman.

## NORTHAMPTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel T. Egle, Chairman; Thomas W. Nippins; Charles C. Cowperthwait; Harry B. Dill, Secretary; Dr. Richard Parsons, Health Inspector. Address of all, Mt. Holly.

The public water-supply is obtained from Upper creek, and has been taken from its present source about three years. It has a cedar flavor, is very dark and translucent. The pipes are flushed once a week during the summer season. Nearly all of the houses are connected with the water-supply. The Board has no record of those premises which are not connected to the water mains.

The surface drainage, with the exception of one end of the town, is good. On the south and east are low lands, and at certain seasons these localities are very wet. There does not seem to be much malaria.

As to sewers, we have about three miles. They are equipped with Waring's siphon flush tanks, which have been in operation about four years.

Nearly all houses have cellars; very few basements in the township.

We have no record to show how many houses are connected with the sewer. Cesspools are built with cement bottom and sides, and when they are emptied the material is carted away and sold to farmers in the surrounding country.

BURLINGTON COUNTY—*Continued.*

The Board has dealt with and corrected thirty cases of violation of sanitary law during the past year. Outhouses were neglected, and there were defects in house drainage which required the attention of the Board.

The disinfection of houses and clothing in cases where diphtheria occurred was done under the immediate supervision of the Inspector.

H. B. DILL,  
Secretary and Treasurer.

## PEMBERTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Franklin Keeler, Pemberton; Charles Stevenson, Brown's Mill; Joseph L. Budd, Pemberton; B. W. Hampton, Pemberton; Dr. E. Hollingshead, Pemberton; Dr. Webb, Pemberton.

Works for a water-supply have been recently constructed to supply the village of Pemberton. The water is pumped from the north branch of the Rancocas creek. About 80 houses have agreed to use it.

We have no particular system of drainage. We aim to have no stagnated water.

No complaints of nuisances. No prevalent diseases reported. No cases reported for sanitary inspection.

We have three health resorts in the township, viz., Brown's Mills in the Pines, New Lisbon Park and Birmingham Inn. All situate along the north branch of the Rancocas creek.

The Burlington county almshouse is located in the township. We have seven public schools.

The soil of the township is variable. Part of it is a very productive agricultural district which is mostly underlaid with marl. A large proportion of the township is composed of what is known as the pines, and many swamps of the pine district are used for the cranberry culture, which has proven very profitable.

JOSEPH L. BUDD.

BURLINGTON COUNTY—*Continued.*

## SHAMONG TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles Decou, Chairman, Tabernacle; George W. Haines, Treasurer, Tabernacle; Edward B. Stokes, Oriental. Winfield S. Haines, Assessor, Oriental.

## SOUTHAMPTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Allen Fenimore, Samuel Kelly, Wm. Bramin, Granville S. Woolman, Assessor. Post-office address of all, Vincentown.

## SPRINGFIELD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

David Stockton, Jobstown; Edwin Newbold, Jobstown; George M. Kimble, Jacksonville; Aaron H. Burtis, Assessor.

## WASHINGTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William Taylor, Batsto; A. E. Koster, Green Bank; T. K. Sooy, Green Bank; Wm. Johnson, Lower Bank; John E. Cary, M. D., Health Inspector, Lower Bank.

We have had no contagious diseases during the year.

The local Board of Health held one meeting for organization, electing Wm. Taylor, President; A. E. Koster, Secretary, John E. Cary, Health Inspector.

A. E. KOSTER,  
Assessor.

BURLINGTON COUNTY—*Continued.*

## WESTAMPTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. Frank Gaskill, Rancocas; R. Shannan Haines, Rancocas; Firman Dubell, Mt. Holly; Wm. L. Martin, M.D., Township Physician, Rancocas; J. Barclay Hilyard, Assessor, Rancocas.

The township is in the northwestern part of Burlington county. There is about 6,500 or 7,000 acres of land in the township, varying from heavy loam to light sand. A mean between the two would describe most of it. There is some gravel and some clay.

It is bounded on the north by the Mill creek and on the south by the Rancocas. With the exception of a few houses in Timbuctoo and other places along the Rancocas creek which have an altitude of from ten to fifteen feet above sea level, most of the dwellings are on land having an elevation varying from twenty-five to sixty feet.

Most of the water is from wells direct. Some, however, is pumped by windmills into tanks and cisterns. A few families in the colored settlement of Timbuctoo use a spring or springs. I know of no trouble from this cause.

Most dwellings have cellars.

There has been no house-to-house inspection.

Cesspools are cleaned out when thought necessary and contents mixed with earth or other deodorizer and used for fertilizer.

I know of no prevalent disease, unless I except influenza or common colds early in the year. I believe it is not the practice of the assessors in this county to inquire as to diseases of animals. I have not made such an inquiry.

There is one schoolhouse in Timbuctoo, one on Jacksonville road, one private school in Rancocas.

There is one cemetery in Timbuctoo, but not near enough dwellings to affect health; one on Rancocas and Centerton road, three-quarters of a mile from Rancocas. The ground slopes toward the creek and from nearest house.

J. BARCLAY HILYARD,  
Assessor.

BURLINGTON COUNTY—*Continued.*

## WILLINGBORO TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel E. Stokes, Beverly; Jacob H. Leeds, Rancocas; J. M. Stoke.

## WOODLAND TOWNSHIP.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Chas. H. Pittman, Brown Mills; J. W. Thompson, South Park; Walter Sloan, Chatsworth; Geo. Bozarth, Assessor, Buchanan.

There is no change in report since last year, as everything is in a healthy condition.

## CAMDEN COUNTY.

## CITY OF CAMDEN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William S. Moslander, M.D., President; Charles Watson, Allen C. Wood, George F. Hammond, B. S. Lewis, M.D., William Shafer, M.D., M. F. Middleton, M.D.; John D. Leckner, M.D., Health Inspector. Post-office address of all, Camden.

The water-supply is taken from the Delaware river. During the past year experiments have been made for the purpose of getting a purer and better supply by means of the artesian well system. Several wells have been sunk to the depth of over one hundred feet, and the water, after being tested, was pronounced to be of good quality, but not of sufficient quantity to supply the city. The work has been partially abandoned for the present. All houses use the present supply, with few exceptions.

CAMDEN COUNTY—*Continued.*

We have an aggregate length of 40 miles of sewers. As soon as a sewer is completed all property-owners are required to connect. During the year ending October 15th, 1894, six hundred (600) houses have been under-drained and separately connected to sewer.

All slaughter-houses are regularly inspected during the year. The Board passed an ordinance for the appointment of a Meat and Food Inspector, who has charge of all slaughter-houses and inspection of all meats sold, which has caused a marked improvement.

All schools and public buildings are kept in good sanitary condition. One school has been built during the year, which has the latest Latrine system of drainage; the rooms are all thoroughly ventilated.

We also have in contemplation the building of a crematory, with a capacity of 40 tons daily. The Committee of City Council will report on the one selected at next monthly meeting. The Board has been endeavoring to have such for the past four years, and now we hope to be rid of any kind of refuse within the city limits.

During the year there were five hundred and twenty-nine (529) cases of contagious diseases reported, two hundred and thirty-one (231) of typhoid fever, forty-four (44) of scarlet fever, two hundred and fifty-two (252) of diphtheria, one (1) of typhus fever, and one (1) of small-pox. Of the above number there were 27 deaths from typhoid fever, 1 from scarlet fever, 49 from diphtheria, and 1 from typhus fever, making a total of 78 deaths in all from contagious disease.

There has been a marked decrease in the number of contagious diseases and deaths over the two preceding years.

The number of nuisances reported during the year was 1,799.

The Board held regular monthly meetings, and called specials when necessary.

CAMDEN COUNTY—*Continued.*

## CENTRE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John D. Glover, Mt. Ephraim; Abraham E. Rowand, Chews Landing; Samuel Brown, Snow Hill; John H. Jackson, Magnolia; Dr. Wm. B. Jennings, Health Inspector, Haddonfield.

The health of our township for the past year has been good. There have been no cases of contagious diseases, to the best of our knowledge.

Our Board has not been called out for the abatement of any nuisances.

Our rule requires that due notice shall be given of any communicable disease, which reports are, as a rule, uniformly made. When receiving due notice of such diseases, an isolated building is prepared as a hospital, and nurses employed; then at once remove all of the patients to it, in order to prevent any spread of the disease. After this has been done, we cleanse thoroughly the apartments from which such patients have been removed, by washing and using the proper disinfectants.

We have not held any regular meeting since our re-organization in April.

There has been no special appropriation made by the township for the use of the Board of Health.

J. H. JACKSON,  
Secretary.

## DELAWARE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John A. Meredith, Haddonfield; Samuel T. Matlack, Haddonfield; William Groff, Haddonfield; William T. Lippincott, Moorestown; W. B. Jennings, M. D., Health Inspector, Haddonfield.

Water-supply is from wells and springs. It is generally good. The only drainage is the natural slope of the land. Very few swamps and no malaria.

CAMDEN COUNTY—*Continued.*

Houses generally have cellars; they are largely used to store vegetables. No tenement houses and no house-to-house inspection.

No sewers.

No prevailing diseases of animals.

No slaughter-houses.

No manufactories.

School and town hall are kept in good hygienic condition.

Cemetery at Colestown is well cared for.

Board has passed ordinances.

Reports of births are slow coming in.

There has been very little sickness during the past year. La grippe, rheumatism and bronchial affections were the most prevalent diseases.

Our township is solely a country one and there is very little requiring the attention of the Board.

## GLOUCESTER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joshua B. Sickler, Chews Landing; Charles H. Jenkins, Kirkwood; Albert J. Driver, Kirkwood; Robert W. Jaggard, Clerk, Clementon; Wm. J. Brown, Assessor, Kirkwood; Dr. J. E. Hurff, Physician, Blackwood.

Gloucester township is surrounded by Centre, Waterford and Winslow townships and the south fork of Timber creek. Population over 3,000. Its surface is moderately level, is partially wooded and interspersed with several running streams. Water-supply is mainly from wells, except the county buildings, where provision is made for an ample supply of pure water for daily use, as well as a perfect equipment in case of fire. Drainage is mainly natural, on account of the numerous streams and undulating surface. Houses are mostly frame, and are occupied largely by owners, except in the new towns, which have numerous renters. Lighting as yet entirely by oil. The new villages have sunk cemented cesspools. Township contains but one slaughter-house, and so far there have been no complaints regarding it.

CAMDEN COUNTY—*Continued.*

The extensive agricultural works of the Bateman Manufacturing Company are located at Grenloch. There are two small plants for the making of rubber cement and pepper-boxes and small miscellaneous tinware, located respectively at Clementon and Overbrook.

There are twelve schools, in good sanitary condition.

The county almshouse, with a well-equipped and separate hospital, and the county insane asylum, are located in Gloucester township, and are furnished with modern sanitary appliances.

The public health has been generally good. There has been no epidemic disease the past year, and no call on the township Board of Health.

WM. J. BROWN,  
Assessor.

## GLOUCESTER CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John W. Warner, President; Dr. Duncan W. Blake, Chairman Sanitary Committee; John C. Stinson, Henry M. Harley, Patrick Mealey, Edward J. Steer; Daniel F. Lane, Secretary; John J. Haley, Health Inspector. Post-office address of all, Gloucester City.

We have nothing new to report from last year. Our city has been free from epidemics of all kinds for years. This is owing to our water supply from artesian wells, which is of excellent quality.

DANIEL F. LANE,  
Secretary.

## HADDON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Stoy, Haddonfield; Samuel Wood, Haddonfield; William H. Harrison, Haddonfield; W. B. Jennings, M.D., Haddonfield; Richard T. Collings, West Collingswood; W. B. Jennings, Health Inspector.

CAMDEN COUNTY—*Continued.*

The water supplied by the Water Company at Collingswood, after having been in use for over two years, was unsatisfactory. The water had a bad odor and was discolored. Pipes have been laid from Haddonfield Water Works, which is to be forced into the stand-pipe at Collingswood. The distance is three miles. The water is excellent. About fifty connections have been made.

Drainage is entirely surface. Many cellars in Collingswood are damp. No swamps. Little malaria.

No tenements. No yearly house-to-house inspection.

Cesspools are entirely used. Very few are cemented. They are generally emptied once a year and the contents are buried.

No diseases of animals.

No slaughter-houses or abattoirs.

No manufactories.

School-houses are kept in first-class condition.

No almshouses. An Old Women's Home at Collingswood is kept in good sanitary condition, having all modern improvements.

No cemeteries or burial grounds.

We have ordinances.

Returns come in, as a rule, promptly.

An epidemic of diphtheria in Collingswood is about over. There were about fifteen cases and three deaths, generally among school children. The cases were promptly isolated and the houses quarantined as soon as reported. Some of the cases were not reported immediately. No child from any family that had the disease was allowed to re-enter school until two weeks had elapsed and the house had been disinfected.

Houses are as a rule heated by stoves, with some heaters. Steam or hot water is not used at all.

Our Board requires that immediate notice shall be sent it of every case of contagious disease. Most physicians are prompt in their notification. A few have not done it at all. At our last regular meeting, notices were sent to every physician practicing in our midst to notify us at once under penalty. When the notification is received the Inspector visits the house and instructs the inmates as to isolation and disinfection. We instruct the

CAMDEN COUNTY—*Continued.*

family after the termination of a case how to disinfect their premises.

Our last meeting was held October 23d.

The prevalent diseases of the year have been influenza, rheumatism and diphtheria. No cases of typhoid fever have been reported to us.

## BOROUGH OF HADDONFIELD.

## NAMES AND POST-OFFICE ADDRESSES OF MEMBERS AND HEALTH INSPECTOR.

George D. Stuard, President; John R. Stevenson, M.D., Secretary; George T. Haines, William H. Harrison, J. Morris Roberts; William B. Jennings, M.D., Health Inspector. Post-office address of all, Haddonfield.

There has been no change in the sanitary arrangements of the borough since the last report, except that grease traps have been introduced by ordinance. This was passed to provide a remedy against turning kitchen waste-water into the street. As but few of the houses have a smaller lot than 50x150 feet, and many are much larger, the economical disposal of waste-water, freed from grease and sediment—was thought to be perfectly safe if passed into cesspools; or, in outlying sections allowed to run upon the surface near plants.

All complaints of nuisances have been promptly abated and the borough is now in good sanitary condition. The cases of contagious disease reported during the year were, scarlet fever, 13; diphtheria, 7; typhoid fever, 2.

All the cases of diphtheria were isolated except two, and with but one exception all are believed to have been contracted elsewhere. The two cases of typhoid fever which were widely separated, were young men previously in poor health, who were employed in Philadelphia, where they no doubt contracted the disease. The type of these contagious diseases was mild, and the few fatal cases were persons previously in a feeble or diseased state.

The year past has been an unusually healthy one, even malarial disease has been less frequent here than in previous

CAMDEN COUNTY—*Continued.*

years, while in the adjacent country it has been increasing. This is substantial and practical proof of the good sanitary condition of the borough.

JOHN R. STEVENSON,  
Secretary.

## BOROUGH OF COLLINGSWOOD.

No organized Board of Health.

## BOROUGH OF MERCHANTVILLE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. D. H. Bartine, Dr. J. W. Marcy, A. H. Moses, F. W. Kleinz, H. S. Abel, W. B. Stewart. Post-office address of all, Merchantville.

Located in Pensauken township, Camden county, N. J., four miles northeast from Camden, about 99 feet above high-water mark, lying upon a ridge of sandy soil, very porous, of an average of one mile wide, sloping gently to the north, toward the Delaware river; to the south and east to Cooper Creek valley. The soil has a sub-strata of marl running at a depth of from 12 to 20 feet.

Water-supply is from wells having an average depth of 16 feet, and a few cisterns; the principal supply being from springs about two miles from the town. From biennial examination the water has proved of excellent quality.

The sewage runs into cesspools constructed under rules governing the same.

Houses are well separated, have large surroundings, and usually but one family to a dwelling.

No public markets.

No manufactories.

One large public school and two private ones.

No charitable institutions.

Fire escapes to public halls.

CAMDEN COUNTY—*Continued.*

The public health has been very good. Early in the spring a mild form of scarlet fever was quite prevalent, no cases of which proved fatal, and most of them hardly deserving to be classed as serious. Some measles also existed. All cases, both of fever and measles, were carefully looked after to prevent spreading.

Our Board has used the utmost caution relative to preventing diseases by making careful inspections of all cases reported, and whatever complaints have been received relative to existing nuisances, &c. We have also had a house-to-house inspection made by a thorough and competent special inspector, who rendered an exhaustive and carefully-indexed report on every individual's property in our borough limits, reporting the exact condition, whether good, bad or indifferent. By this means the Board at all times can refer to their reports which are on file, and which will be added to each year in a like manner.

The Board believes this to be the only means by which a full and thorough knowledge of the exact sanitary condition can be maintained successfully. The cost of proceeding in this manner fully repays for the extra labor and guarantees the utmost satisfaction.

D. H. BARTINE, M. D.,  
President.

## WATERFORD TOWNSHIP.

No Board organized.

## WINSLOW TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph G. Strock, Cedar Brook; Charles Albright, Elm; Enoch Cordery, Elm; Michael G. Burdsall, Wilson.

The general water-supply is from wells.  
As a rule cellars are used for storage.

CAMDEN COUNTY—*Continued.*

There is no yearly house-to-house inspection.

Cesspools usually have open bottoms and sides, and the contents used for fertilizer on land.

There has been no prevalent disease in our township.

The township has been healthy.

We have had no cases to investigate.

MICHAEL G. BURDSALL,  
Clerk.

## CAPE MAY COUNTY.

## CITY OF CAPE MAY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Alonzo L. Leach, M. D., President; J. Stratton Ware, Charles P. Foster, Lewis T. Stevens, Secretary; Walter S. Ware, Thomas W. Millett; George Young, Health Inspector. Post-office address of all, Cape May.

Seven hundred dollars was appropriated this year by City Council for Board of Health. The Board was re-organized Sept. 10th, 1894, by City Council, the personnel being as reported herewith.

No general epidemic the past year.

Board requires all physicians to report contagious diseases and has prepared blanks for physicians to notify Board.

LEWIS T. STEVENS,  
Secretary.

## DENNIS TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John F. Goff, President, East Creek; Morris Warwick, Secretary, Dennisville; Eugene Way, Health Inspector, Dennisville; Edward W. James, Dennisville; Charles E. Foster, South Seaville; Eugene Way, M.D., Health Inspector.

CAPE MAY COUNTY—*Continued.*

But little sickness has occurred and no complaints have been made.

No ordinances have been passed by our Board, but the physicians of the township are requested to report to our Health Inspector all cases of contagious diseases, the matter of isolating such patients and cleansing apartments contaminated by them being left to the physicians in charge of such cases. Our Board stands ready, however, to act in any case of necessity.

EUGENE WAY, M.D.,  
Inspector.

## SEA ISLE CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles H. Clouting, President; Elwood J. Reeves, Joseph I. Scull, Lawrence Cauffman, M.D., Health Inspector; Joseph D. Norcom, Secretary. Post-office address of all, Sea Isle City.

The borough of Sea Isle City is located on the South Jersey coast, 39° 27" north latitude; 2° 42" east longitude, about twenty miles north of the most southern point of New Jersey, and is cut off from the mainland by Ludlam's bay and the Thoroughfare. It has an ocean frontage of about six miles. The island averages in width from one quarter to one and one-quarter miles.

The resident population numbers about 700, scattered over an area of about two square miles. Many of the houses are unoccupied during the winter.

The surface of the land is a white, clean sand for about ten feet deep, then a stratum of marshy clay, then gravel, sand and clay again.

Most of the houses at the present time derive their water-supply from cisterns, but before the next report there is but little doubt that a system of water-works will be erected, either from artesian wells or by bringing it from the main land. There are two artesian wells on the island, one supplying the electric light plant and some few private houses, and the other at the Continental Hotel.

CAPE MAY COUNTY—*Continued.*

The drainage is chiefly surface, the outlet being to the meadows and Thoroughfare, with no sewerage system at present.

The streets and the avenues are kept in excellent order.

All the houses are occupied either by the owner during the summer time or else rented to visitors.

The town and many of the houses are lighted by electricity.

Garbage and all refuse are carted away and dumped in the Thoroughfare.

Our school-house is in good shape, well ventilated and ably looked after by the Board of Trustees.

The police and prison are all that a town of like population would require.

There is no fire department, and few fire escapes.

No cemeteries within five miles of the town.

The collection of vital statistics is made by the Assessor, and all necessary matter is reported to the Health Office and nuisances properly abated.

No general vaccination has been done, as there has been no dread of small-pox, and up to the present time have had no need of quarantine.

An appropriation of \$500 by the Borough Council is made annually for the use of this Board of Health in enforcing sanitary regulations.

There has been no prevalent epidemic of disease, and but two cases of a mild form of scarlatina have been reported. The general health of the community is satisfactory.

We have filled up fifteen low lots and put them in good condition. Have removed filth of every kind found in vacant lots. Have had some vaults cleaned and disinfected. Have spent about \$800 this year.

JOSEPH D. NORCOM,  
Secretary.

## LOWER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George Dickinson, Chairman, Erma; William L. Cummings, Fishing Creek; Amaza B. Walters, Cold Spring; William C. Rutherford, Secretary, Cold Spring; Dr. W. R. Lake, Physician, Green Creek.



CAPE MAY COUNTY—*Continued.*

The Board of Health of Lower Township submit the following as their report for the year ending October 1st, 1894:

Our Board has had a good bit of work to do in the way of abating nuisances during the summer months, complaints having been made to the Board of Health on account of hog pens being in a very bad condition. After examination of them by our Board they were ordered to abate the nuisance; they did not do so in a reasonable time and they were bound over to September term of court, when they were indicted by the grand jury.

The health of our inhabitants has not been as good as last year. Several cases of typhoid fever have occurred and as many as three deaths. With that exception there has not been any sickness worth mentioning. Our Board looked into the matter closely and did all they could to keep things in a sanitary condition.

The Board of our township will have ordinances next year whereby they will keep Cape May City from making Lower township a dumping place for their refuse vegetable matter and all kinds of refuse from their hotels.

The subjects for report as laid down remain the same as previously reported.

WILLIAM C. RUTHERFORD,  
Secretary.

## BOROUGH OF WEST CAPE MAY.

## NAMES AND POST-OFFICE ADDRESS OF COUNCILMEN.

Elridge Dougherty, Daniel Stevens, John Craig, Daniel C. Elridge. Post-office address of all, Cape May.

## HOLLY BEACH CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William Paul, President; William E. Forcum, Martin L. Harrison, Edward Potts, Peter Farrell, Secretary; William E. Forcum, Health Inspector. Post-office address of all, Holly Beach.

CAPE MAY COUNTY—*Continued.*

The Board of Health of Holly Beach City has the past year carried on a number of sanitary improvements, and while not having passed any number of new ordinances, have paid more attention to the enforcement of the code that we have been working under, and find them amply sufficient for most all purposes. We have the past year passed an ordinance compelling the removal of all hogs from within the borough limits, and have had quite a number of low, marshy lots filled up, and more work of the same kind progressing. Our members have taken more interest in the work than ever before, and attend all meetings. Our greatest trouble is in our dealings with the non-resident property owners who fail to pay any attention to the sanitary condition of their properties and ignore all notices calling their attention to the same, and compelling us to proceed in a summary manner.

PETER FARRELL,  
Secretary.

## MIDDLE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Andrew J. Tomlin, Goshen; V. N. Errickson, Dias Creek; T. W. Garretson, Cape May C. H.; Julius Way, M.D., Cape May C. H.; Stillwell H. Townsend, Secretary and Health Inspector, Burleigh.

Dug or drainage wells are used.  
Surface drainage exclusively.

A small percentage of houses have cellars. In most cases they are used for storing vegetables in winter. Most of them have water in them in very wet times.

Nine-tenths of the refuse from the kitchen is emptied into the pump-box and allowed to run out on the ground a few feet away. In case of cesspools, they do not have cemented sides and bottoms.

No diseases among animals.

The past year has been unusually free from contagious disease, a few cases of whooping cough being the only ones noticed. Very few cases of nuisance have been reported. People have

CAPE MAY COUNTY—*Continued.*

learned to be more careful, except with kitchen slops, which, in far too many cases, are allowed to soak around the back door or a few feet away in some hole. The drinking of water from wells dug within a few feet of a cemetery is a subject, I think, that needs more attention.

STILLWELL H. TOWNSEND,  
Secretary and Health Inspector.

## BOROUGH OF ANGLESEA.

Since my last report of '93 our Board has done nothing, not having had a meeting. By removals, and expiring terms of office, there is but myself left. No complaints of nuisances or otherwise have been made, for the simple reason the public knows that there is no money on hand to abate any if reported, and the borough therefore has been dilatory in supplying the vacancies.

G. W. DOUGHERTY.

## UPPER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James Smith, Petersburg; Albert Corson, Palermo; Reuben S. Robinson, Tuckahoe; Jesse Young, Secretary, Beesleys Point; Josiah W. Baker, Tuckahoe; Randolph Marshall, M.D., Tuckahoe.

The Local Board of Upper township has been re-organized. Dr. Randolph Marshall was re-elected Township Physician and Health Inspector for the term of three years.

Complaint was made to the Board that the carcass of a horse was left unburied along the public highway, when action was promptly taken and a proper disposition made of it.

There have been no epidemics of disease since the last report, excepting that of measles, which was mild in character.

RANDOLPH MARSHALL, M.D.,  
Inspector.

CAPE MAY COUNTY—*Continued.*

## OCEAN CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. S. Waggoner, M. D., President; Wm. Lake, Secretary; George O. Adams, Jesse Conver, Elmer B. English; Jesse Conver, Health Inspector. Post-office address of all, Ocean City.

Located on an island situated in the northeasterly part of Cape May county. Bounded on the northwest by the Great Egg Harbor bay and other small bays and thoroughfares; on the south-east by the Atlantic ocean; on the northeast by the Egg Harbor inlet; on the southwest by Corson's inlet. Population about 800 to 1,000. Climate, moderate.

All the older buildings use the cistern water, also some of the newer ones. A very large majority of the new ones are however taking water from the artesian wells, of which we have two, the first being 620 feet deep, the second 805 feet.

Dr. Henry Leffman, a chemist of Philadelphia, has analyzed the water and gives the following result:

Parts.....	1,000,000
Condition .....	Clear
Color.....	None
Reaction .....	Alkaline
Total solids (on evaporation) .....	7.00
Ammonia by alk. permang. (albumoid ammonia).....	Trace
Ammonia (free ammonia) .....	0.12
Nitrites .....	None
Nitrates.....	None
Poisonous metals.....	None

He then adds: "This is pure water, suitable for drinking and all household purposes. It remains clear and without odor on standing."

Surface drainage of 17 feet to the mile, with a sewerage drainage of 10 feet to the mile, all emptying into the thoroughfare in the rear of the island. The constant flow of the tide carries off sediments from the pipe, and no sign thereof is found a few feet therefrom.

Our streets are from 60 to 100 feet wide.

The buildings are all frame, costing from \$400 to \$15,000. They are principally lighted by coal oil lamps. Some few have

CAPE MAY COUNTY—*Continued.*

electric lights. They are gradually putting them in. All of our streets are lighted by electric lights.

Garbage is removed in the summer season daily and deposited about one and one-half miles from the town. In the winter season it is removed by the truckmen to their farms and used for fertilizing purposes.

A certain amount is appropriated by the Borough Council to the Board of Health and they yearly report to the Council for what the money is expended.

We have kept our streets and alleys cleaned of all refused matter, and have had the garbage removed daily during the summer months. That which gave us the most trouble was the millions of small surf clams that came upon the beach during the summer season (the first we ever had), and decomposition taking place at once they soon become very offensive. We had to gather up, remove or bury at once on the ground.

WM. LAKE,  
Secretary.

## CUMBERLAND COUNTY.

## CITY OF BRIDGETON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

P. Kennedy Reeves, President; Theodore B. Woodruff, Secretary; A. C. Sharp, Treasurer; Isaiah W. Barnes, Philip E. Souders, David R. Streets, M.D., Theodore G. Davis, M.D., Joseph H. Powell; Jesse C. Davis, Health Inspector; Charles F. Reeves, Plumbing Inspector; M. K. Elmer, M.D., Physician; James S. Ware, Solicitor. Post-office address of all, Bridgeton.

The city of Bridgeton does not seem to be subject to serious epidemics. The population of about 13,000 is distributed over a wide area. The streets are from 50 to 70 feet in width, and dwellings are almost without exception built back from the streets and are surrounded by yards. Many of the houses are double, it being customary to build double houses on lots 50 feet front by 150 feet

CUMBERLAND COUNTY—*Continued.*

deep. While this style of building does not conduce to the beauty and variety of our residences, yet it is better than rows of tenements. Our population is largely composed of the middle class.

Our water-supply is for the most part drawn from a large well fed by springs. Analyses of the water are occasionally made, indicating a high degree of purity. A large amount of water is used on our streets and lawns in midsummer, and this has sometimes taxed the well beyond its capacity, necessitating the use of water drawn from a neighboring lake which receives the surface drainage of a considerable area of the city. This action is obviously fraught with danger, and some of our physicians claim that an increase of cases of typhoid fever in September could be traced to this cause. In this connection it might be well to refer to efforts now being made to have the city install a sewerage plant on the Waring system. As in all reforms of like nature, this enterprise is being opposed by people who should know better, as well as others from whom nothing of a public-spirited nature is to be expected. Some disinterested, energetic citizens are pushing the matter and have clearly shown the desirability of such a system from every standpoint. Our Board has unanimously declared for the improvement.

A circular letter was prepared by the Board early in the year and sent to each householder. This letter contained a request that premises should be carefully examined and all garbage and filth of any kind removed at once. This communication was followed in due time by our Inspector, who made a house-to-house examination. The good effects were apparent even before warm weather set in.

There seemed to be an unusual amount of diarrhoeal disease among young children in midsummer, and mumps and whooping cough were prevalent earlier in the year. A mild form of scarlet fever also prevailed for a time, but scarcely any fatalities resulted therefrom. Few cases of diphtheria have been reported, and these of a mild form. We placard all houses containing patients suffering with scarlet fever, diphtheria and the more serious contagious or infectious diseases. We have also had prepared special placards for schools, calling attention to our quarantine regula-

CUMBERLAND COUNTY—*Continued.*

tions. All physicians are required, under penalty, to notify the Board within twenty-four hours after his first professional attendance on any person suffering with dangerous communicable diseases. We do not include mumps or whooping-cough in this category. We have reason to believe that these reports are uniformly made. If the patient happens to be a child, we immediately inform the supervisor or principal of the school in the district where the child resides. Our Inspector sees that the apartments which have been infected by communicable disease are properly cleansed.

We meet regularly the first Thursday evening of each month and in addition have occasional special meetings. The City Council appropriates \$600 annually, as provided by law, for the use of the Board.

We have recently passed an ordinance providing for the registration of cows, and have appointed a competent veterinary surgeon as inspector.

Bridgeton has somewhat of a reputation as a health resort. Being situated in the southern end of the pine belt, in the same parallel of latitude as Baltimore, the winters are never severe and the heat of summer is tempered by breezes from the ocean not many miles distant. The members of the Board are determined to supplement these natural advantages by all the means in their power to keep the health standard at the highest attainable point.

P. KENNEDY REEVES,  
President.

## COMMERCIAL TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Seth Bowen, President; H. C. Mayhew, N. P. Love, E. J. Cook; D. McElma, Secretary. Post-office address of all, Mauricetown.

There is no cause for complaint, everything working satisfactorily. General health is good.

D. McELMA,  
Secretary.

CUMBERLAND COUNTY—*Continued.*

## DEERFIELD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Elijah R. Parven, Inspector, Deerfield street; Pierce A. Krespack, Inspector, Rosenhayn; William S. Garrison, Rosenhayn; James Hand, Seeley; Dr. Charles C. Phillips, Deerfield street.

The health of the township of Deerfield has been uniformly good, with the exception of an epidemic of whooping cough in a mild form during early spring. There were quite a number of deaths through the winter among the aged, from chronic diseases belonging to advanced life.

The trouble experienced among our Jewish population at Rosenhayn and Carmel has in a great measure abated, but they require constant surveillance to keep them in a good sanitary condition. One obstacle in the way is the transient abode of the people, many of them remaining but a few months, and when they remove they will not clean up, but leave their filth, and those that succeed them do not think it their duty to do what the former tenants should have done.

Our slaughter-houses are generally kept clean and good, but one source of complaint has been the canning factory in our midst. The great difficulty is the removal of the refuse, &c., from the place, which is now done by using a small stream as a drain and by spreading the skins, &c., over the fields; but this causes a great stench, which is very annoying to the nearby neighborhood. The proprietor appears very willing to do all things necessary to prevent a nuisance, and we hope in time a plan may be devised whereby the trouble may disappear.

CHARLES C. PHILLIPS,  
Secretary.

## DOWNE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

P. C. Henderson, Newport; R. H. Leaming, Newport; Nathaniel Lore, Dividing Creek; George E. Butcher, Dividing Creek; A. P. Glanden, Health Inspector.

## CUMBERLAND COUNTY—Continued.

Water is obtained from open wells.

Houses are generally in good condition.

Natural surface drainage.

Slaughter-houses are in cleanly condition.

Four school-houses, well kept.

Scarlatina and epidemic grip have occurred.

We have kept a general supervision over the sanitary condition of the township.

GEORGE E. BUTCHER,  
Clerk.

## FAIRFIELD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. H. Elmer, R. M. Elmer, E. C. Swing, H. B. Bamford, J. B. Thompson.  
Post-office address of all, Fairton.

Located on Cohansey creek; population 1,700; climate mild.

Level land; light loam and clay bottom.

Natural drainage is good.

Streets in good condition.

There is one slaughter-house, which is kept in good order.

Three cemeteries; one about three miles from the village and two about one mile.

Public health laws are observed.

Great care is taken in contagious diseases.

We have had a few cases of scarlet fever.

## GREENWICH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Wm. S. Bacon, Wm. P. Test, Enoch M. Mulford, Wm. H. French, Assessor.  
Post-office address of all, Greenwich.

## CUMBERLAND COUNTY—Continued.

## HOPEWELL TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

M. M. Johnson, Seeley; J. F. Glaspey, Bridgeton; John G. Dare, Seeley;  
Walter L. Minch, Assessor, Shiloh.

## LANDIS TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Orange H. Adams, M. D., President, Vineland; Wm. E. Bigelow, Vineland; Frank Bingham, Vineland; Richard Hewitt, Jr., South Vineland; Eben H. Foote, Secretary, South Vineland; Eben H. Foote, Health Inspector.

Know of nothing to report. Previous reports cover all points except two cases of typhoid and one of scarlet fever reported, and which were looked after. All recovered.

## BOROUGH OF VINELAND.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George A. Cheever, President; Walter Dawson, J. Lukens, Frank Lore, H. C. Harvey, E. R. White, Jno. S. Halsey, Secretary; H. E. W. Barton, Health Inspector. Post-office address of all, Vineland.

Population, last census taken in 1890, was 3,822. Climate mild.

Flat, sandy country.

Water-supply from driven wells which average 110 feet in depth. The town is well piped and water is pumped through them. Besides this there are a few dug wells which average 25 feet in depth.

We have no sewerage system. Drainage is surface. There are a few cesspools in the borough, but most of the waste-water is emptied on the surface of the earth.

Streets are wide and kept clean.

Houses are small as a rule and kept fairly clean and in a sanitary condition.

CUMBERLAND COUNTY—*Continued.*

We have many small markets and all handle a line of fresh truck and good meat.

Animals are healthy. No pigs allowed inside of borough limits.

Six public schools in borough, all well heated and well ventilated. Good sanitary conditions exist in all.

Have small but excellent fire department; voluntary. City water can reach roof of highest building in town.

Houses containing contagious diseases have large printed notices tacked in conspicuous places and all unnecessary communication is forbidden. Inspector oversees the disinfecting process after such diseases.

We have had nine cases of typhoid and three of scarlet fever, one diphtheria, many of measles and whooping cough and a few of chicken-pox.

We have put the town prison in a sanitary condition and taken means to keep the streets clean. Many people have been stopped from running sink and dish water into the gutters. Every house in the borough has been carefully inspected, and all stables put in a sanitary condition. New wagons for the carting of night soil have been built.

One suit has been brought for maintaining a nuisance on private premises in the shape of stagnant waste-water from a steam laundry. Suit is now pending.

New sanitary code has been adopted and copy left at each house. Proper traps have been placed in many houses where they previously had none.

## LAWRENCE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Jacob D. Mulford, H. O. Newcomb, C. G. Diament; C. C. Foster, Assessor; Henry S. Long, Township Clerk; Frank M. Bateman, M.D. Post-office address of all, Cedarville.

Our township the past year has been blessed with good health. Our citizens take great pride in their homes and all that pertains

CUMBERLAND COUNTY—*Continued.*

to them. All debris is destroyed. None of our ponds are polluted; neither have we any slaughter-houses to be dreaded.

The debris emanating from our canning factories is promptly removed to farm lands, where it acts as a fertilizer.

Our school-houses are large and commodious. The only sickness occasioning any lessening of attendance in the primary department of our schools has been a slight epidemic of "chicken-pox."

Not a complaint has been made this year to the Board of Health.

FRANK M. BATEMAN, M.D.

## MAURICE RIVER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR

J. W. B. Vanaman, Port Elizabeth; Thomas S. Shaw, Dorchester; Casper B. Thomson, Dorchester; S. M. Wilson, M.D., Leesburg; Henry Reeve, Jr., Leesburg.

## CITY OF MILVILLE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Edwin Conover, President; Silas C. Smith, Richard Radcliffe, J. W. Simmons, L. H. Hogate, Secretary; J. W. Wade, Physician; Frank Bullock, Inspector. Post-office address of all, Millville.

During the year just closed this Board has had but little to do, except to observe the ancient injunction of "eternal vigilance."

During April and May an acute ailment resembling cholera morbus was prevalent, and in some instances the symptoms became alarming.

We have had no epidemics, but more than usual of typhoid, intermittent and scarlet fevers.

All contagious diseases are fully and promptly reported to the Secretary.

CUMBERLAND COUNTY—*Continued.*

In all cases the attending physician, by rule of the Board, is expected to direct the preliminary quarantine and disinfection. Up to date only one of our physicians has been complained of for neglecting this very important duty, and this occurred in a recent fatal case of typhoid.

When cases are of sufficient importance special meetings are held, in order to investigate, and the Inspector is directed to act at once.

Whenever necessary the Inspector directs the disinfecting and fumigation, and uses the best obtainable materials.

Our water-supply remains about the same as last year. Many old wells are to be condemned and filled up, and the Board has directed that the future supply of well water shall be obtained from driven pumps.

Important changes have recently been made in the sanitary arrangements about the City Hall and lock-up, but in this, as in many other cases, a system of sewerage is badly needed. Many citizens, despairing of sewers, are having cesspools placed in their gardens with latest sanitary connections, with water-closets in bath-rooms.

The Board is making arrangements for a general vaccination.

One arrest was made for improper burial of a dead animal.

The deaths from contagious diseases number five. Scarletina, 1; typhoid fever, 3; diphtheria, 1.

Last meeting was October 1st, 1894.

J. W. WADE,  
Health Physician.

## STOW CREEK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

E. H. Sheppard, Roadstown; L. D. Horner, Roadstown; Dr. E. B. Sharp, Roadstown; James R. Rainear, Shiloh; Charles D. Fogg, Assessor, Shiloh.

## ESSEX COUNTY.

## BELLEVILLE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry W. Underwood, President; Percy Jackson, George W. Williamson, James T. Boylan, John Prout; William Connolly, Assessor; Daniel M. Skinner, Township Physician; J. J. Connell, Health Inspector. Post-office address of all, Belleville.

There is but little to add to former reports. The past year has been one of exceptional healthfulness and one remarkably free from epidemics. None of the usual contagious diseases, such as scarlatina, diphtheria, rubeola, &c., have existed at any time as an epidemic, but have occurred as occasional cases.

In reply to special inquiries for 1894, I will answer as follows:

Our Board requires notice of communicable disease. These reports are uniformly made. They are filed and copied into a book especially ruled for that purpose.

Apartments are cleaned by fumigating and disinfecting, cleansing and free exposure to fresh air.

Our last meeting was held the first Tuesday in September, 1894.

D. M. SKINNER,  
Health Officer.

## BLOOMFIELD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Ford Upson, President, Glen Ridge; Benj. Haskell, Bloomfield; Chas. W. Powers, Bloomfield; Seymour P. Gilbert, Bloomfield; Geo. Fisher, Bloomfield; Frank Foster, Bloomfield; John H. Lawrence, Bloomfield; John B. Corby, Health Inspector; Dr. Chas. H. Bailly, Health Physician; John G. Johnson, Secretary.

The population of the township of Bloomfield was, according to the last census, 9,000.

ESSEX COUNTY—*Continued.*

The surface is rolling, with an underlying stratum of gravel and sand. The surface drainage goes in three streams that traverse the township.

The town is supplied by the Orange Water Company, and the water furnished came from their wells in East Orange until last August. At this time, owing to the dry season, that supply was cut off, and connection made with the East Jersey water mains in Montclair. This supply being satisfactory, and the quality of the water good, it has been decided to retain this water for the future. The introduction of this water in private houses is not universal, but is constantly increasing. How many private wells are in use in the township is not known. Up to the present, the house drains have emptied in cesspools, but street sewers are now building, and soon in the thickly-settled portion of the township the cesspool will be abandoned.

The streets are cleaned, and all surplus dirt removed by the road inspector, and the public parks kept well cut and trimmed by persons employed for that purpose.

At least one-half of the houses in the township are occupied by their owners. We have not a dozen houses in the town large enough to accommodate four families. Most of the tenements have one family in first and second floor only, the third being an attic. No inspection of houses has been made unless requested, or in case of a contagious disease reported to the Board.

In the better class of houses gas is used, in the other coal oil. Garbage and cesspool matter are removed and buried at points indicated by the Board.

We have only private markets.

We have no slaughter houses or abattoirs.

We have school buildings of brick. The larger ones heated by steam, the others by furnace. The sanitary arrangements are in good condition.

The town almshouse is situated on the town farm, about one and a half miles from the thickly-settled portion of the township, and is in a salubrious neighborhood. We are interested jointly with Montclair and Verona in supporting the Mountain Side Hospital, which is situated on the line dividing the two townships, and has accommodations for thirty patients.

ESSEX COUNTY—*Continued.*

We have a police station with three cells and court-room for justice. The building contains a water-closet and urinal.

We have no building protected by fire-escapes.

We have two cemeteries about a mile apart.

The Board keep a sharp lookout for violation of its regulations. Reports of contagious diseases are demanded from physicians.

We have escaped all epidemics during the past year, save an outbreak of typhoid that broke out in March, coincident with that in Montclair, and due to the same infected milk. In all, no deaths. Since then we have had eight sporadic cases running along through the summer, with one death. No local cause has been found for these cases.

The Board has compelled the cleaning of out-houses and cesspools; seen that typhoid excreta has been properly disinfected; opened drains where necessary, and filled several low spots in the town, and, in short, done what it could to improve the sanitary condition of the township.

DR. CHAS. H. BAILEY,  
Health Physician.

WM. B. CORBY,  
Health Inspector.

## CALDWELL TOWNSHIP.

No report received.

## BOROUGH OF CALDWELL.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James Best, C. E. Hedden, James K. Corbine, I. Halsey Budd, Chas. F. Hopwood, Richard Speer, Edwin S. Leskom; Oliver B. Dawson, Health Inspector.  
Post-office address of all, Caldwell.

Located about 500 feet above tide-water. Climate, dry. Population about 700.

Natural drainage.

Water-supply from wells.



ESSEX COUNTY—*Continued.*

Plumbing as used in cities.

Eighteen streets.

Mode of lighting, mostly kerosene.

Markets, none.

Diseases of animals, none.

Slaughter-houses, none.

Manufactories, none.

One public school.

The present Board of Health was organized in September, 1893. During the present year, ending October 1, 1894, the following matters have occupied attention :

A sanitary code covering the general sanitary needs of the borough was arranged by a committee, and was adopted by the Board, and 1,000 copies were printed for general distribution. Proper badges for the Board and its officers have been secured, also a seal for the use of the Board. Early in the year the Board began a suit against the Freeholders of Essex county on the ground that the county authorities were permitting the sewage from the county penitentiary to empty into a brook which flows through the borough.

The Board of Health applied for an injunction restraining the Freeholders from a continuance of this method of disposal. The case has gone through the usual forms and is now on the calendar for a hearing before the Vice Chancellor.

A suitable form for complaint notices has been decided upon, and a number of first and second notices have been printed for use in case of any violation of the sanitary code.

A list of contagious diseases has been kept and reported.

The Board divided itself into two committees, each of which made a careful inspection of the premises adjoining each of the two streams which flow through the borough limits. Acting upon these reports complaint notices were sent to all property owners on such brooks who were found to be maintaining any nuisances.

Many nuisances have been abated and others have been prevented.

The committee appointed for that purpose has watched the work on the new Convent building now in process of erection in

ESSEX COUNTY—*Continued.*

Caldwell, and has secured the adoption of some changes in the plans and has attempted to insure a safe method of sewage disposal, etc.

Regular meetings of the Board are held on the first Monday evening of each month.

JOHN I. JACOBUS,  
Borough Clerk.

## CLINTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William R. Ward, Chairman, Lyons Farms; William C. Ward, Irvington Jacob Fisher, Waverly; Merton B. Owen, Irvington; Jacob Ehrhardt, Irvington; C. Blake, Assessor and Secretary of Board; Dr. James R. English, Irvington, Health Inspector.

Clinton township is located about eight miles west from New York, 160 feet above high water, having within its limits the village of Irvington, which leaves but little for the Township Board to do. We have had quite some scarlet fever, measles and whooping-cough. A case of smallpox occurred during the year, which was taken care of by Newark City Board. The house was disinfected and everything burned which came in contact with the case.

More trouble is given the Board from night soil being deposited on farm lands than anything else. Vaccination is enforced; also reports of all contagious diseases.

C. BLAKE,  
Assessor.

## IRVINGTON VILLAGE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William R. Adams, President; William Laird, Secretary; Ira Meeker, Treasurer; Dr. M. O. Christian and Mahlon Drake; Dr. Joseph L. Wade, Health Inspector. Post-office address of all, Irvington.

## ESSEX COUNTY—Continued.

The health of the village of Irvington, during the past year has been good.

No epidemic or infectious disease called for extra sanitary work or expense.

A number of cases of scarlet fever developed in December last. The disease caused no alarm and early disappeared.

Vaccination has been required of all children attending the public schools.

The village physicians have been prompt in all cases where infection might develop, advising cleanliness, fresh air and plenty of sunlight.

The scavenger performs his duty three times a week.

Privy vaults and cesspools have been looked after thoroughly during the past year.

The village is yet without sewerage.

Aqueduct water was introduced about the 1st of July, and being of so recent a date the Board of Health has not adopted a plumbing ordinance.

The residents are slow in using the water, as there is no provision made for the waste from bath-rooms and closets. The sewage question must be brought up early next year.

This sanitary necessity will be required, and the offensive and disease generator, the cesspool, eradicated from the village.

The village is healthy and clean.

JOSEPH L. WADE, M.D.,  
Health Inspector.

## EAST ORANGE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

W. C. Schmidt, President; E. E. Bruen, Francis Lang, W. T. Bowman, George Dover, E. P. Alling, F. Coyne, Jr., Town Physician; Wallace Ouchle-tree, J. W. Ellor, R. Berry, E. R. Crippen; T. R. Chambers, Secretary; Henry Blaurock, Health Inspector. Post-office address of all, East Orange.

Our water-supply ran low in August, but the quality remained at its usual high standard. Very few wells are now in use.

A Building and Plumbing Inspector has been appointed, who investigates and passes upon all new plants or repairing of old.

## ESSEX COUNTY—Continued.

Our sewer disposal works having prove impracticable, our township has made arrangements with the city of Newark by which we shall, within a few months, be able to send all our sewage into the Newark sewers and abandon the disposal works.

It has become necessary to erect another school building, which will be commenced within the coming year.

The summer having been very dry and healthy, and from other causes, the work of the Board has been confined in the line of the usual complaints of minor nuisances.

A great many privies throughout the town have been condemned and removed.

The question of garbage disposal is under consideration.

The Board has employed a bacteriologist, who examines the sputum from every suspected case of diphtheria.

There have been 84 cases of scarlet fever reported since January 1st, and houses where contagious diseases existed have been placarded.

Your attention is called to the compliance with the law which makes our Board consist of the ridiculously large and unwieldy number of seventeen. Better and more complete work could be done by a Board of three, composed, say, of the chairman of the Town Committee, the Town Physician and one selected by the Town Committee from their number, or, as suggested by the Improvement Society of this place, composed of "the Town Physician and two members elected by the town, said members not to be members of the Town Committee." One should be a member of the Town Committee.

T. R. CHAMBERS,  
Secretary.

## FRANKLIN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George B. Philhower, M.D., R. W. Booth, R. J. M. Chase, Joseph Searle Thomas Gyles, James H. Bailey; Henry B. Duncan, Health Inspector. Post-office address of all, Nutley.

ESSEX COUNTY—*Continued.*

Drainage, natural. Sand and gravel formation. Topography, rolling country.

Streets macadamized and telfordized. Public park not yet improved.

Houses mostly frame. Sanitary condition good. Tenements but few, which are well inspected.

Garbage collected and destroyed—carted away and buried.

Health Code adopted by Township Committee, published and enforced by Inspector.

Vaccination attended to. No case of contagious disease but one of scarlet fever. House fumigated and quarantined.

Work of the year—Town inspected, two swamps drained and enforcement of Health Code.

H. B. DUNCAN,  
Health Inspector.

## FRANKLIN TOWNSHIP INCLUDING NUTLEY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. G. B. Philhower, Nutley; R. W. Booth, Nutley; R. J. M. Chase, Nutley; Thomas Giles, Avondale; J. H. Bailey, Nutley; Joseph Searle, Nutley; Henry B. Duncan, Nutley; Henry B. Duncan, Health Inspector.

Situated in the northerly portion of Essex county, adjoining Passaic county. Population 3,000.

Rolling country; drainage natural.

Water is partly furnished by Nutley Water Company.

Streets macadam and telford.

Markets clean and in good condition.

One high school.

The town is provided with a fire engine.

Cemeteries are in good condition and kept in order.

Health code published.

One case of scarlet fever has occurred and the building was disinfected as required by health code.

Health Inspector's salary \$50 per annum; no other expenses during year.

ESSEX COUNTY—*Continued.*

Public buildings and schools are heated by furnaces and properly ventilated.

Work prosecuted during the year is as follows:

Drainage of Miller swamp, Passaic avenue; of Coryman property, Bloomfield avenue, and swamp on Hillside avenue; cleansing of gutters in township; drainage and filling in swamp on Franklin avenue; enforcement of code in relation to garbage and cesspools, and other matters as provided by code.

HENRY B. DUNCAN,  
Inspector.

## LIVINGSTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

B. W. Dickerson, Chatham; Peter S. Meeker, Roseland; William Deicks, Jr., Orange; Jonathan Force, Livingston; Joseph Bear, Hanover; George E. DeCamp, Assessor, Roseland; Dr. E. E. Peck, Caldwell.

There have been several meetings of the Board the past year, and a number of complaints in regard to the dumping of night soil, cesspool matter, garbage, etc., in the township; also in regard to nuisances caused by the remains of unburied horses, all of which were acted upon by the Board and the nuisances promptly abated.

There have been no prevalent diseases in the township the past year.

The Board reports the sanitary condition of the township good.

G. E. DECAMP,  
Secretary.

## MILBURN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

W. Fellows Morgan, Short Hills; M. T. Cox, Milburn; Geo. W. Reeve, Milburn; Wm. S. Wade, Milburn; Samuel Partington, Milburn; Dr. D. E. English, Milburn, Health Physician; John M. Drake, Milburn, Assessor; John D. Parkhurst, Health Inspector.

There have been no prevalent diseases the last year.

The general health has been good.

ESSEX COUNTY—*Continued.*

## TOWN OF MONTCLAIR.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

David D. Duncan, President; Moses A. Baker, Vice-President; Richard P. Francis, M.D., James S. Brown, M.D., Effingham R. North; Theodore Horton, Health Inspector. Post-office address of all, Montclair.

*Report of Health Inspector.*

Since the re-organization of the Board of Health and my appointment in June as Agent and Health Inspector, our principal endeavor has been to systematize the work of the Board and establish control over all the departments of sanitation in the town. To do this the Board first passed three ordinances: A general ordinance "For the Protection of Public Health in the Town of Montclair," and two special ordinances, one "To Provide for the Construction of Privy Vaults, Cesspools, Manure Pits, &c.," and the other "To Regulate the Storage, Removal and Disposal of Cesspool and Privy Vault Matter, Garbage, Ashes, &c." The work done since these ordinances went into effect is briefly as follows: From the 15th of June to the 1st of October over 200 premises have been visited, 175 nuisances have been abated, and 12 fumigations made.

In July a careful examination was made of the brooks which run through the town, with a view to removing all sources of contamination. The brook, with all sources of pollution, was plotted on maps which were prepared for the purpose and which were filed away for future reference, the Board deeming it advisable to await the opening of the sewer before taking action.

Most of the dairies which supply milk to Montclair were also inspected in July, and were found to be in very good condition—in fact, all but one of the fourteen dairies inspected were sterilizing milk-bottles and cans. Previous instructions were repeated and further precautions given as to food and water-supply for the cattle, cleanliness of stable and premises and care in handling the milk.

The appearance of a small epidemic of typhoid in August resulted in the fitting up of a sanitary laboratory for water analysis

ESSEX COUNTY—*Continued.*

and the beginning of a systematic analysis of the wells about town. Thus far fifteen wells have been analyzed, seven of which have been closed.

During September all scavengers and odorless excavating companies were licensed and a form for the disposal of garbage, cesspool matter and night-soil was completed and put in operation. The garbage is buried daily in shallow trenches, the night-soil in small pits, and the cesspool matter is treated in a precipitating tank and then disposed of by absorption in covered shallow ditches and by broad irrigation.

An ordinance to "Regulate Plumbing in the Town of Montclair" has just passed its third reading and will go into effect in November. This step is a much-needed one in Montclair and will probably lead to a house-to-house inspection later.

The general condition of the town since last spring seems much improved. The new sewer which has just been completed is being used as fast as house-connections can be made, thus improving the condition of both the ground water and the brooks, which, until now, have been very badly polluted. The public water-supply, which is a mixture derived from driven wells and the Pequannock aqueduct, in the proportion of one of the former to four of the latter, is analyzed frequently, the driven-well water being analyzed by the Board of Health monthly and the analysis of the Pequannock water obtained from Newark at intervals. According to the latest analysis the well water is in very good condition.

THEO. HORTON,  
Sanitary Engineer, Health Inspector.

*Report of the Secretary.*

Since the last annual report was made several important changes have taken place in the organization of the local Health Board. In the spring of this year by a popular vote the government of Montclair was changed from a township to a town under the so-called "Short Law." Under this form of government the Health Board, which had hitherto been practically the Township Committee, became a distinct body, with its own organization

ESSEX COUNTY—*Continued.*

and officers. The members of the new Board were appointed on the 24th of May last and at once met for organization. Since then regular meetings have been held, at first every week, and later, as the work became more systematized, every other week.

Realizing that in order to be efficient there must be ample funds to work with, the new Board asked and received from the Town Council an appropriation of \$2,000 for the ensuing fiscal year to defray the expenses of the Board and of a salary for the Health Inspector. The appointment of the Inspector soon followed, and the value of having a man devote his whole attention to this work and to nothing else was soon made evident in the increased ease with which the work has been accomplished.

*Contagious Diseases.*—Section 13 of Ordinance No. 1 requires that every physician shall report promptly to the Secretary of the Board of Health any case of diphtheria, scarlet fever, measles, smallpox, yellow fever, typhoid fever, typhus fever, or Asiatic cholera. All physicians are provided by the Secretary with blanks on which to make these reports. As soon as a report is received a record is made of "the date," "number of cases," "disease," "in family of," "residence," "reported by," "sickness began," and "probable source of contagion." Later record is made of the result and when and by whom the premises were disinfected. Notice is sent to the physician reporting that the report is received and that the premises will be disinfected when ready. As soon as possible the Inspector visits the premises and makes sure that the necessary precautions for isolation and disinfection are enforced and makes what further inquiries may be deemed advisable. Physicians have been prompt in reporting communicable diseases. Disinfection of apartments is generally done by the Inspector by making the place as air-tight as possible and burning sulphur in a moist atmosphere—three pounds to 1,000 cubic feet.

On August 18th a resolution was passed that gave directions regarding the delivery of milk to dwellings where communicable diseases might be. As soon as a report of a communicable disease is received a copy of this resolution is sent to the milkman supplying the dwelling.

ESSEX COUNTY—*Continued.*

*Prevalent Diseases of the Year.*—During the winter of '93 and '94, there was a large number of cases of measles in town. As far as known, none of the cases resulted fatally.

In the early spring, a number of cases of typhoid fever appeared in the town, that rapidly increased until the disease could be called epidemic. The origin of these cases was clearly traceable to an infected milk-supply, as was shown by the fact that when this supply was shut off, no cases developed after the time of incubation had passed, and, too, all of the patients excepting eight had at some time or other drunk of the infected milk. There is little doubt that the milk was infected by the bottles, which were washed in well-water, which in turn was infected by an adjacent privy, into which had been thrown typhoid stools from a member of the milkman's family. As soon as it was reported to the local Board, early in March, that there was typhoid in the milkman's family, an inspection of the premises was made and the State Dairy Commissioner notified. His representative, after inspection, reported that quarantine was not necessary. On March 29th, as some cases of typhoid had appeared in town, the sale of the suspected milk was stopped, and, as already stated, no cases of infection from any other source appeared later.

Cases appeared in Bloomfield and Glenridge traceable to the infected milk. In all there were 115 cases, but eight of these could not be traced to the common source. This leaves 107 cases, of which 13 per cent. died.

Immediately after the infected milk was quarantined, measures were taken by the Board to prevent any possible contamination of or from the milk of other dairies. All the dairies supplying Montclair, some twenty in number, were visited and full directions given for keeping the milk pure by boiling or steaming the bottles or cans, keeping the cows and stables clean, and avoiding any impure water. Since then, inspection of the dairies has shown a marked improvement in their condition.

R. P. FRANCIS, M. D.,  
Secretary of the Board.

## ESSEX COUNTY—Continued.

## CITY OF NEWARK.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. F. B. Mandeville, President; Moses Straus, Treasurer; John A. Furman, William B. Guild, Dr. H. C. H. Herald, Dr. Robert J. Marshall, John B. Stobæus, Robert B. Sutphen, Dr. D. L. Wallace, Dr. C. M. Zeb, Charles Lehlbach, M. D., Medical Officer of Health; H. B. Baldwin, Chemist; D. D. Chandler, Superintendent.

Considerable paving and sewerage was done during the year. The Board of Street and Water Commissioners has under their charge the sewerage of the city. They have been seriously hampered in doing efficient work on account of the antiquated sewer laws still in force in the city. Proposed legislation will remedy this evil, by giving the authorities full power to construct sewers wherever necessary. The excessive cost of advertising, commissioners' fees, etc., which increased the cost of the sewer to the tax-payer, sometimes 100 per cent. over the actual cost of laying it, will also be done away with. Such legislation will add many miles of sewer to those already constructed.

## INFECTIOUS DISEASES REPORTED.

	1894		1893	
	Reported.	Deaths.	Reported.	Deaths.
Scarlet fever.....	1,253	98	1,342	138
Diphtheria.....	292	99	486	140
Typhoid fever.....	93	29	162	68
Small-pox.....	97	17	7	1
Membranous croup.....	106	53	84	68
Totals.....	1,841	296	2,091	415

In general it may be said that while the facilities at the command of this Board for the eradication of infectious diseases have been the same during the year just passed as heretofore, still several important steps were taken which will, before the close of next year, give this Board proper hospital facilities and a disinfecting station.

Twenty-four and one quarter acres of good high land were purchased by the city for infectious disease purposes. Upon this land will be erected buildings for the care of scarlet fever, diph-

## ESSEX COUNTY—Continued.

theria and small-pox. With such facilities absolute isolation of any case of infectious disease occurring in the city will be insured, and in consequence a rapid diminution of the number of cases and a lessened death rate from them will result.

Contracts for the building of the disinfecting station have been awarded and work will commence as soon as the weather will permit.

The disinfecting station was designed by Franklin Phillips and Mr. Edward Dunn, of this city, and the writer. The building containing the plant is 58x46 feet. There is no communication between the receiving room for infected articles and the discharging room for disinfected articles, excepting through the sterilizer and through the bath-room and dressing-room for the men handling the infected articles. On the infected side is to be a crematory designed for the incineration of worthless infected articles or to be used in case of epidemic. All floors are of chest-stone and walls of hard plaster painted with a water-proof porcelain paint. The sterilizer to be used first is an oblong steam-jacketed retort, 4x4 feet wide and 8 feet long. It is arranged so that alternating currents of hot air and steam can be introduced, the latter under any desired pressure. Condensation in the sterilizer will be impossible and all disinfected articles will come out of the sterilizer perfectly dry. The plant is of sufficient capacity to supply the necessary steam, etc., for two additional sterilizers 6x6 feet wide by 12 feet long. When, after a case of infectious disease, the premises are ready for disinfection, the method pursued will be the following: A wagon used only for infected goods will be sent to the premises. All infected articles which cannot be disinfected by means of a solution of bichloride of mercury and of carbolic acid, will be put into large canvas sacks and taken to the station and sterilized. It is estimated that articles can be taken from any point of the city to the station, there disinfected and returned to the premises within six hours. While the articles are being disinfected at the station a corps of men will wash all surfaces in the infected apartments with the above-mentioned solution. There are many details of the disinfection of walls, etc., which cannot be detailed here, but the

## ESSEX COUNTY—Continued.

salient points in this method over the old fumigating system are that:

*The disinfection is thorough, and that the disinfection will take only one-half the time that it takes to fumigate with sulphur, which is of doubtful efficacy and impracticable on account of the irritating fumes created and time required.*

Small-pox, from which we enjoyed almost absolute immunity last year, having had only seven cases, all of which could be tracked to adjoining cities, again made its appearance during July, 1894. The first case which came to notice was an Italian child and the disease was well advanced (about the tenth day of the eruption). Many had been exposed to this source of infection. Subsequent cases could be traced to this first case. Removal of the patient to the isolation hospital, disinfection, re-vaccination and quarantine were practiced in all cases. In no case did the disease spread from cases under control of the Board. The spread was due to the *unrecognized* and *concealed* cases. Many of the latter were found and they were all cases in which no physician had been in attendance. If modern methods of fighting small-pox are carried out, there remains only one way in which the disease can spread, and that is through cases which are not brought to the attention of the authorities, and that factor in a city like Newark is an important one.

*Water Supply.*—The Pequannock supply remains good and no new sources of contamination have been found. Nothing, however, has been done to *abate the existing sources* and legislation giving some body, preferably the State Board of Health, power to prescribe rules and regulations for the construction of privies and cesspools and methods of drainage in the water sheds of the State, is necessary. Power should also be given to enforce these rules and regulations. This is, however, simply temporizing. *State ownership of such water-sheds is the only true solution of the problem.*

*Plumbing.*—This department is now perfected. All work is carefully inspected, and after January 1st, 1895, all specifications filed will be made out on blanks furnished by this Board. Skeleton plans will also be furnished to be used in new work, in old houses, or in repair work.

## ESSEX COUNTY—Continued.

(This blank form will be sent to any local Board of Health desiring a copy, on application.)

WELLS.		1894.	1893.
Total number inspected.....		118	165
Total number analyzed.....		108	137
RESULT OF ANALYSIS.			
Very badly contaminated.....		19	26
Badly contaminated.....		11	25
Contaminated.....		22	26
Total.....		52	57
Very suspicious.....		14	20
Suspicious.....		17	18
Total.....		31	38
Passable.....		20	21

All the wells which are found contaminated are ordered closed. The systematic analysis of wells which has now been carried on for a period of two years, clearly shows that the surface wells in this city are unfit for domestic use, and that the passage of an ordinance prohibiting their use would be indicated.

The following is a brief summary of the work done in the department during the year:

Original inspections, 11,534.

<i>Nuisances and Complaints.</i>		Previous Year.	
Citizens' complaints.....		1,692	1,682
“ “ verified.....		1,310	1,304
No cause.....		382	378
Total number of notices served for nuisances.....		4,361	3,752
“ “ defective drainage.....		1,708	1,628
<i>Abatements.</i>			
Total for nuisances.....		3,114	3,026
“ defective drainage.....		1,314	1,514
<i>Plumbing Department.</i>			
Number of permits to construct plumbing systems.....		915	974
Plans and specifications filed.....		933	942
“ “ “ rejected.....		21	113
Number of master plumbers registered.....		161	110

## ESSEX COUNTY—Continued.

## MEAT INSPECTION.

## Slaughter-Houses.

Cattle.....	11,244	9,895
Calves.....	14,932	12,239
Sheep.....	15,417	13,231
Swine.....	3,934	3,732
Total.....	45,527	39,097
Condemned cattle.....	18	14
“ calves.....	56	14
“ horses.....	9	8
“ mule.....	1	...
Total.....	84	36
Meat inspection (markets, butcher shops, etc.).....	12,238	12,356
Carcasses of beef.....	33,077	37,326
“ lamb and sheep.....	106,945	116,219
“ calves.....	21,266	24,521
“ swine.....	12,165	10,838
Total.....	185,791	201,310

## Condemned.

Bob-veal, carcasses.....	53	65
“ pounds.....	645	200
Poultry, pounds.....	2,209	1,076
Pork, barrels.....	2	2
Beef, pounds.....	760	947
Bob-veal, quarters.....	57	.....
Beef, loins.....	4	.....
Lamb, carcasses.....	8	.....
Calves.....	15	.....
Pork, pounds.....	150	.....
Chicken, boxes.....	2	.....
Geese, boxes.....	4	.....
Eggs, crates.....	4	.....
Beef, hind-quarters.....	5	6
Mutton, carcasses.....	3	16
“ quarters.....	.....	200
Fruit and vegetables, wagon-loads.....	4	3
Bologna, pounds.....	.....	100
Fish, pounds.....	1,160	250
“ barrels.....	.....	2
Corned beef, pounds.....	200	100
Veal, pounds.....	200	100
Hams.....	70	.....

CHARLES LEHLBACH,  
Medical Officer of Health,  
Newark, N. J.

## ESSEX COUNTY—Continued.

## ORANGE CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John T. Platt, President; Augustus Eichhorn, Louis Balbach, Stephen Collins, James H. Brown, John Burke, Michael Cody, Commissioners; F. I. E. Tetreault, M. D., Chief Health Inspector; William Schluer, Secretary and Assistant Health Inspector; Thomas Shannon, Deputy Health Inspector; Louis Balbach, Plumbing Inspector; J. W. Stickler, M. D., Pathologist; J. H. Dancer, Veterinary Surgeon. Post-office address of all, Orange.

Regarding our water-supply, we have the same public supply, which proves to be good and of adequate quantity. The use of it becomes more universal each year, and what few wells are still remaining within the city will soon be closed.

The greatest improvement has taken place in our drainage system. At last our long-delayed sewer is so far complete that two-thirds of the city can use it. The first connections were made in the early part of June last. Since then 585 permits for sewer connection have issued from this office, and therefore so many causes of nuisance are permanently abated. We will continue to cause sewer connection to be made as rapidly as circumstances will allow.

The plumbing department has been carefully supervised. Sixty permits for new work, and ninety-eight for alterations or extensions have been granted during the year, and all have been carefully inspected. During the last year the plumbing code has been altered and amended so that in addition to the registration of master plumbers each firm has to file a bond of \$500 for the faithful performance of their work, according to the provisions of the code, said bonds to be approved by this Board. A supplement regulating sewer connections was also passed. Forty-four master plumbers are registered and have bonds filed at this office.

The building of our sewer system necessitated the tearing up of our streets, and some are not back to their original condition, but this is attended to by the street department; otherwise they are in good sanitary condition.

An annual house-to-house inspection is made, and with very few exceptions our tenements are in good condition. Six hun-



ESSEX COUNTY—Continued.

dred and seventy-eight notices for the abatement of nuisances were sent, and all promptly complied with.

The collection of our garbage is under the control of the Common Council. A city scavenger is employed, who removes such garbage as is set out for him by the householders. This is disinfected and mixed with quick-lime, then dumped into trenches which are covered with earth. Care is taken to use remote parts of the city for this purpose.

We have been of late somewhat cramped for school-rooms, but a new public school is in course of construction in the fourth ward, in which special care is taken as to sanitary measures. In addition to this, the parish of St. John has about completed one of the finest school-houses within the State, at a cost of \$140,000. In this building, all that appertains to sanitation is of the most approved construction. We have five public school buildings, three parochial schools and four private schools. All these schools are notified at once of the existence of contagious diseases after the report has been received at this office.

The collection of vital statistics is in the hands of our city clerk.

All contagious and infectious diseases are quarantined and premises disinfected and fumigated after recovery or death. Chlorine gas is generally used as our mode of fumigation. We had during the year eighty-two cases of contagious diseases, as against 142 of the previous year. There were of scarlet fever forty-seven, of which one case proved fatal; diphtheria thirty-four, of which seven cases proved fatal, and one case of small-pox, which recovered.

Our Board requires that physicians promptly report all cases of contagious diseases, and we have cause to believe that such reports are promptly made.

Immediately after receiving such report, the premises are placarded and all schools notified, prohibiting the attendance at school of all children from infected premises until apartments are disinfected, fumigated and thoroughly cleansed. A school certificate is also necessary.

Our Board meets on the fourth Thursday in each month. The annual appropriation from Common Council this year is \$2,250.

W. SCHLUER,  
Secretary.

F. I. E. TETREULT, M. D.,  
Chief Health Inspector.

ESSEX COUNTY—Continued.

SOUTH ORANGE TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John J. Foyle, Chairman, South Orange; J. H. Osborn, Secretary, Hilton; W. N. Drake, South Orange; E. L. Crowell, South Orange; Louis Becker, Hilton; C. E. Brush, South Orange; T. C. Baker, Maplewood; W. W. Heberton, M. D., Health Inspector, South Orange.

The borough of Vailsburg has a separate Board of Health.

The water-supply of the township is generally by dug wells, and in many instances these are located dangerously near privy vaults. Thirty-three (33) houses are supplied by public water, which is in every respect good. Houses not supplied are not recorded.

No system of drainage in use. Cellars generally dry.

Houses generally have cellars. No yearly house inspection.

Cesspools uncemented, or open bottom; contents taken away by scavengers in tight barrels when necessary. Some cared for on farms.

No prevalent disease. No loss of animals by contagious disease reported.

Inspection has been made of the schools, and the houses and grounds found in good sanitary condition. The privy vaults, however, being in bad condition, were ordered cleaned and disinfected, and dry or barrel system recommended. Vaccination of children disregarded.

Better drainage has been supplied to the Poorhouse sink by new drain pipes. The Poor Farm has been much improved by new pig pens, a better plan for the disposal of manure at the barns, and the barrel system for the privies.

Cemeteries are well governed.

REPORT OF CONTAGIOUS DISEASES.

Scarlet fever, number of cases.....	4
Diphtheria, number of cases.....	1
Typhoid fever, number of cases.....	1

Contagious diseases are quarantined. Vaccination in families is looked after when necessary, in cases of small-pox or suspected exposure thereto.

ESSEX COUNTY—*Continued.*

The Board requires all cases of communicable diseases to be immediately reported.

Such reports are uniformly made.

The Health Inspector visits the case and requires all sanitary measures to prevent the spread of such disease.

The Board only cleanses such apartments as they believe would be otherwise neglected. This cleansing would be by thorough renovation, fumigation, and destruction of all articles necessary.

Last meeting was held September 6th, 1894.

The township health has been good. Every effort possible has been made by this Board to better the sanitary conditions. Nine cases of nuisance, found by complaint and inspection, have been promptly abated in each instance and precautions taken to prevent recurrence.

Families having sickness not in charge of physician have been reported by principal of the schools. The cases have been examined and quarantined if necessary.

This year the Board has adopted the system of posting cards on houses containing contagious diseases.

Jos. H. OSBORN,  
Secretary.

## VILLAGE OF SOUTH ORANGE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

E. V. Connett, President; A. C. Babson, Secretary; Mefford Runyon, H. A. Pulsford, Philip Campbell, Ira C. Kilburn, Mr. McCoy; Wm. J. Chandler, Health Inspector. Post-office address of all, South Orange.

New code passed this month.

Answers to special questions for 1894:

We require reports of communicable diseases.

They are well reported, though sometimes tardily.

These reports are filed on Inspector's book.

Our Board do not make a practice of cleansing apartments after contagious disease has occurred.

October 11th, 1894, was the date of our last meeting.

ESSEX COUNTY—*Continued.*

The great need of the village is an efficient system of sewerage and of underground drainage. With an abundant supply of pure water we have no suitable means for the disposal of the waste water and sewage. There is consequently great complaint arising from overflowing cesspools and the filtration or direct outpouring of sewage into streets and gutters in different parts of the village. I trust before another report is made we shall be able to institute some satisfactory scheme for sewerage.

WM. J. CHANDLER,  
Inspector.

## BOROUGH OF VAILSBURGH.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dan. Edwards, M.D., President; Alex. Maybaum, Henry Aschenbach, James Skelly; John V. Diefenthaler, Secretary. Post-office address of all, Vailsburgh.

The general health of this borough has been good. No contagious diseases.

JOHN V. DIEFENTHALER,  
Secretary.

## VERONA TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. E. Williams, Chairman, Verona; Fillmore Condit, Verona; Chas. Simonson, Secretary, Verona; Dr. H. B. Whitehorne, Health Inspector, Verona; C. W. Ougheltree, Assessor, Verona; Wm. Bowden, Cedar Grove; John Smith, Little Falls.

In my report to you I can only say that our Board have accurate organization, and meet at stated times; have a chairman and Secretary and keep a record of its proceedings. All that I can report is that the general health of our township for the past year has been very good. No contagious disease. Our township is a farming district. We have no sewer system. Our drainage is good. No swamps or low marshy lands to amount to anything. We are situated between the first and second moun-

ESSEX COUNTY—*Continued.*

tains, but are on high ground. We did have a complaint this last summer, with respect to the owner of Verona Lake; he drew the water off and left the bottom of the lake exposed. The Board immediately met and passed an ordinance, and notified the owner of the lake that he must not allow the water to remain off for a longer period than twenty-four hours, under a penalty of \$50 for each and every offense. He immediately complied with our demands. We allow no garbage to be dumped in our township from adjoining towns. We have had no contagious diseases among animals.

CHAS. W. OUGHELTREE,  
Assessor.

## WEST ORANGE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Carl Fentzlaff, President, Pleasantdale; Frederick Cummings, Treasurer, Orange Valley; Frank A. O'Connor, Secretary, West Orange; John Harrison, West Orange; William M. Brien, M. D., West Orange; Simeon H. Rollinson, West Orange; Christopher Musler, West Orange; William M. Brien, M. D., Health Inspector.

The township of West Orange is located in a central portion of Essex county, and has a population of about 5,000.

Numerous minerals abound in small quantities, but granite and sandstone quarries give employment to from fifty to one hundred men. The country is mountainous.

The township has a contract with the West Orange Water Company, who supply the inhabitants with water from the Pequannock region. Repeated chemical tests by the Health Inspector and one by the State Chemist have proven our water to be free from organic matter. At present about one hundred and fifty families use this water. As our township is composed of closely-built houses in one locality and farming lands in the other, city water is only supplied to the more thickly populated districts.

There is no sewerage system.

The streets and roads are mainly of macadam, and are in good repair.

ESSEX COUNTY—*Continued.*

The houses are well built and healthful, few of them containing more than two families. A yearly inspection is made by the Health Inspector, and oftener when necessary.

Electricity is exclusively used for lighting purposes.

Privy vaults and cesspools are emptied when necessary, and garbage is mostly burned by the occupants of the dwellings.

There is no market in the township.

There has been no epidemic disease among animals.

There is one sheep and pig slaughter-house, which is in good sanitary condition.

Hatting is the principal industry. The improved ventilation of factories and perfected processes making a lesser amount of mercury necessary. The factories discharge a large amount of sulphuric acid, sulphate of copper, sulphate of iron and other disinfectants into the brooks, which greatly improve the streams.

The schools are well ventilated and are in good condition.

There is no hospital in the township.

We have one police station.

Fire-escapes are on some of the larger buildings.

There are two cemeteries, properly conducted.

The ordinances recommended by the State Board of Health for townships were adopted September 20th, 1892.

Last May our Health Inspector, with a State Dairy Inspector, visited the dairies of the township. Samples of water were taken from the wells of the dairymen and sent to the State Chemist for analysis. The stables and food of the cows were closely looked after, the Dairy Inspector instructing the owners as to caring for the stock and handling the milk. The report of the State Chemist showed about ten per cent. of the wells to be contaminated by organic matter. Our Inspector promptly notified the parties to have them cleaned at once. This being done, secondary tests were made, when the water was found harmless.

During the year there have been of scarlet fever twenty-three cases, and no deaths; diphtheria, fourteen cases, and five deaths.

This unexceptional result, as regards scarlet fever, is to be attributed to the stringent measures of this Board in keeping watch of the schools and to the mild character of the disease.

FRANK A. O'CONNOR,  
Secretary.

## GLOUCESTER COUNTY.

## CLAYTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William A. Williamson, Francis M. Pierce, Samuel Newkirk; E. J. Costill, Assessor; H. G. Buckingham, Health Inspector. Post-office address of all, Clayton.

## BOROUGH OF CLAYTON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles H. Atkinson, President; A. G. Silver, D. W. Moore, Jr.; H. G. Buckingham, M.D., Secretary and Health Inspector. Post-office address of all, Clayton.

Clayton borough has a population of nearly 2,000. The health of the borough has continued good. No epidemics nor infectious diseases have prevailed. During May and June the rainfall was heavy and many cellars were flooded with water. The surface is level and has very little slope, and during a rainy season there are low places of standing water.

The water-supply is from wells, both dug and driven. The dug wells are about 16 feet in depth, and the water must be in time affected by surface drainage. The driven wells reach down to the depth of 75 to 120 feet. A water-supply conveyed in pipes for hydrants is being agitated.

Making glassware is the principal business. The factories and yards are kept in a good sanitary condition. The same is true of the school-houses and yards.

There are no slaughter-houses in the borough. The privies are cleaned in the spring and autumn, the contents being used by farmers for soil fertilizers.

The Board has been active and prompt in inspecting places where waste and garbage and oyster-shells, &c., were left, and having the same removed.

The drainage of many yards is into the streets, and during hot days foul odors arise from the gutters until a rainfall washes

## GLOUCESTER COUNTY—Continued.

away the unpleasantness. It is difficult to prevent this drainage at present, as so many lots slope toward the streets. The streets and sidewalks are now graded and graveled, and sanitary improvements are progressing from year to year.

H. G. BUCKINGHAM, M.D.,  
Secretary and Health Inspector.

## DEPTFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry M. Leap, President, Wenonah; William C. Cattell, Secretary, Wenonah; Harry A. Stout, M.D., Wenonah; Joseph Noblit, Wenonah; Joshua E. Cunard, Almonesson.

The Board of Health has had six meetings during the past year. They have passed two supplements to the health ordinances during the past year, one prohibiting cesspools opening on any street or highway, and one requiring physicians to report all cases of contagious disease.

There have been seven cases of diphtheria during the past year, from which resulted four deaths. These cases were confined to two families. The Board had the cases isolated, buried the bedding and fumigated the houses; no cases happening afterward from contagion.

The mode of fumigation was as follows:

Removing the paper from the walls and burning plenty of sulphur in the rooms, leaving the house tightly closed for twelve or fifteen hours, after which the floor and walls are thoroughly scrubbed with soap and water.

There have been three cases of typhoid fever during the year just passed, one death resulting therefrom.

The general health of the township at present is very good.

It was the unpleasant duty of the Board to have the fine imposed for violating a health ordinance on one who failed to abate a nuisance after a notice had been served.

WM. C. CATTELL,  
Secretary.

## STATE BOARD OF TAXATION.

## GLOUCESTER COUNTY—Continued.

## EAST GREENWICH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William Dawson, Mickleton; Edward Steward, Clarksboro; John Rambo, Paulsboro; Chalkley Haines, Mickleton.

## ELK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Peter Scott, Ferrell; Andrew Proud, Glassboro; Shepherd Murphy, Aura; Wm. H. Brown, Hardingville, Assessor.

## FRANKLIN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel Lowder, Newfield; Jacob K. Richman, Malaga; Chas. D. Smith, Franklinville; Dr. A. A. Smith, Malaga.

## GLASSBOROUGH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Thomas C. Allen, J. Z. Stanger, Ellison T. Leaf, M. J. Luffbary, M.D.; Edward Munyan, Health Inspector. Post-office address of all, Glassboro.

The health of Glassboro has been very good during the past year.

Water is obtained from wells. We are making arrangements to supply the town with water-works.

No sewerage; surface drainage.

Houses have cellars, and are used exclusively for the storage of vegetables, etc. Common out-door water-closets are used, and contents removed by farmers for fertilizing purposes.

No contagious disease of animals during past year.

## GLOUCESTER COUNTY—Continued.

No slaughter-houses within town limits.

No new manufactures or trades during past year.

We have just completed a new \$16,000 school-house of stone. It has good ventilation; heated by steam; water obtained from driven wells.

We have no almshouse, hospital, or other charitable institution in our town.

We have five burying-grounds. One new one comprises several acres about one mile out of town.

We have no public health laws, except code and regulations pertaining to our public school.

There have been no neglects in reports of vital statistics.

The diseases of the past year have been about as usual. No epidemic.

Our Board of Health have done more in the past year towards the preservation of health in our town than ever before, and we think have it in quite good sanitary condition.

M. J. LUFFBARY, M.D.,  
Secretary.

## GREENWICH TOWNSHIP.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles E. Paul, Francis Tracy, John Rambo, Jacob Ballenger; Dr. Geo. C. Laws, Inspector. Post-office address of all, Paulsboro.

Water-supply from wells; discolored after heavy rains in some parts.

Surface drainage.

Cellars not used largely.

No inspection.

There has been no money appropriated for the Board of Health the past year.

We have had no contagious diseases this year.

JACOB BALLENGER.

GLOUCESTER COUNTY—*Continued.*

## HARRISON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Jonathan G. Foster, Chairman, Jefferson; James White, Mullica Hill; W. N. Justice, Mullica Hill; Eli Heritage, Secretary, Richwood.

The Board was called out once during the year in the town of Mullica Hill to see after drainage, &c. The Board arranged the matter between parties concerned and the difficulty was amicably settled. General health during year good.

ELI HERITAGE,  
Secretary.

## LOGAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Hanc Helms, Repaupo; J. Clark Helms, Repaupo; Smith Shoemaker, Bridgeport; Hugh McGlinsey, Bridgeport.

There is nothing different to report from last year.

E. T. OLIPHANT, M.D.,  
Health Inspector.

## MANTUA TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph Lodge, Pitman Grove; George Morey, Barnsboro; E. A. Carson, Mantua; D. S. Pancoast, Pitman Grove; E. Z. Hillegas, Mantua, Health Inspector.

The township has been free of all communicable disease during the past year, and no complaints of nuisances of any kind have been made to the Board and, the Board having no personal knowledge of any, there has been no necessity for action.

Date of last meeting, October 8th, 1894.

D. S. PANCOAST,  
Secretary.

GLOUCESTER COUNTY—*Continued.*

## MONROE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Richard F. Tice, William F. Tweed, James M. Tweed, L. M. Halsey, M.D. Clayton B. Tice, Assessor. Post-office address of all, Williamstown.

Williamstown is situated in about the centre of Monroe township, and is the only town in the township, although there are three other post-offices. The soil is a gravelly loam; the drainage is good with a few exceptional places. The population is scattered, about 1,800 in the town and about 2,200 in the township.

The water-supply is from wells entirely, ranging in depth from 10 to 45 feet. Generally, the water is excellent. The character of the soil makes a good filter.

The houses, as a rule, are single, with some little ground attached, and the Board made a house-to-house inspection in the spring. Some of our people enter heartily into suggestions of the Board, but we find a number that if we suggest that a low place shall be filled up or better drainage from a cesspool (*i. e.* the waste water) be secured, they blame the Board and do all they can to oppose us. A few houses have gas, but the general way of lighting is by oil. The Board insist upon the people removing their own garbage, and we find it is attended to more faithfully now than in past years. A great many of the water-closets have tight boxes, and when filled are carted away and the contents mixed with coal ashes. There has been no particular disease of animals during the past year. All that die are immediately carted two miles from town, where they are turned into fertilizer. We have no slaughter-houses. The manufactories are glass works, of which there are two firms. Then we have three canning factories, the waste material from which is carted away and mixed with manure and ashes and spread on the land. Our school-houses are in good condition, but very much overcrowded. The primary school, with only a seating capacity of about 60, has about 90 children on the roll. They are obliged to have part of the children come in the morning and the balance in the afternoon. The Board has had a great deal of trouble

GLOUCESTER COUNTY—*Continued.*

with the hotel in this place, the landlord opposing us in any suggestions we make. There is a foul urinal within a few feet of the kitchen door, and the waste water from the house, bath-room and water-closet runs out on the ground less than 100 feet from the house, making a very bad smell, especially in warm weather. He has a pig-pen which has been kept in a very bad condition. Complaints have come to the Board from neighbors, but he has paid no attention to any suggestions.

Our cemeteries are badly located but are kept in fair condition. We have had very few cases of contagious diseases. A few mild cases of scarlet fever and diphtheria have occurred, which have always been isolated and due regard paid to thorough disinfection. The sanitary expenses will not be more than \$25. The heating of dwellings is generally by stoves, although a great many houses have heaters. There has been less sickness the past year than usual. We had the usual outbreak of influenza, followed by pneumonia, but of very much less severity.

The summer complaints of children have been less severe and less fatal, the cause for which we ascribe to people better understanding how to prepare food for babies, and the general adoption of sterilized foods. Some little typhoid fever has occurred, but scattered over the township and due entirely to local causes, but not in the nature of an epidemic. The Board have made a house-to-house inspection, corrected numerous complaints and in several needed places have made better drainage.

CLAYTON B. TICE,  
Secretary.

## SOUTH HARRISON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles Horner, Chairman; Alfred Lippincott, Joseph S. Cheesman, Amos T. Eastlack; Dr. Samuel F. Stanger, Secretary. Post-office address of all, Harrisonville.

Our water-supply is from wells and cisterns, but is not of the best. When water is low in wells it is somewhat offensive, and scarcely fit for drinking purposes.

GLOUCESTER COUNTY—*Continued.*

Our houses are in good sanitary condition.

The slaughter-house in Harrisonville is, during warm weather, sometimes quite offensive to those residing near by.

The cemetery is situated in the edge of our village on a hill-side, and is drained into the mill-pond, which is near by.

There have been no epidemics in this township this year.

The Board of Health is thoroughly organized and ready to act when required.

The sanitary condition of the township has been such during the year that there has been no cause for complaints, hence no especial action by the Board.

S. F. STANGER,  
Secretary.

## WASHINGTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Alfred R. Kandle, Hurffville; B. Frank Allen, Hurffville; Evan Davis, Hurffville; C. D. Nicholson, Assessor, Turnerville; C. B. Phillips, M.D., Health Inspector, Hurffville.

## WEST DEPTFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John C. Budd, Woodbury; J. M. Wilkins, Woodbury; Jos. Low, Woodbury; Dr. James M. Hunter, Westville; Mark Clement, Woodbury; Dr. Jas. Hunter, Health Inspector, Westville.

There is but little to report this year. Health and sanitary condition very good. No complaints during the year.

MARK CLEMENT,  
Secretary.

## CITY OF WOODBURY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Warner Underwood, President; William M. Carter, Secretary; T. E. Parker, M.D., Inspector; Arthur L. Terry, Treasurer; Charles Walton, William C. Williams, M.D. Post-office address of all, Woodbury.

GLOUCESTER COUNTY—*Continued.*

In early spring, by circulars placed in each house, the attention of the citizens was called to the necessity of a continued observation of the sanitary laws and regulations. This injunction was generally obeyed and but few complaints of neglect to comply with our rules have come to our notice. By quiet persuasion in this manner our citizens have begun to realize the importance of a Board of Health as a factor of good government and as a means of protection against disease, and are entering into hearty co-operation.

The appearance of this city has been greatly improved and the comfort and health of the citizens benefited. Water-closets, garbage and waste-water are still our greatest nuisances, on account of the absence of sewerage. The City Council have this matter under active consideration and plans are being devised for an early establishment of a well arranged system of sewerage.

The health of the city has been good. No epidemic or serious disease except a general outbreak of measles and two isolated cases of diptheria, the latter resulting fatally, due more to the lack of intelligent nursing than to the virulence of the disease. The cause was considered local and rigid means were taken to eradicate the disease by fumigation and a thorough cleansing of the premises, with no further trouble.

Physicians are required to report at once all communicable disease and the Board takes immediate action by notifying the Superintendent of Schools and require perfect isolation, and when death or recovery takes place, thorough fumigation is ordered and enforced.

T. E. PARKER, M.D.,  
Inspector.

## WOOLWICH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James Batten, President; James Horner, Alfred A. Bradshaw; Samuel Avis, Assessor; Benjamin F. Buzby, Secretary and Health Inspector. Post-office address of all, Swedesboro.

Water-supply obtained from wells throughout the entire township.

GLOUCESTER COUNTY—*Continued.*

No system of drainage used, nor any sewers. Cellars are dry in part of the town of Swedesboro always and throughout the township. Many cellars in the town have water in them during a very wet season or when much sudden rain falls. These cellars are not generally drained, but are being drained gradually as property changes hands for the general improvement of the town. The natural drainage of the entire township is excellent. Sandy soil and plenty of fall for everything to drain off.

Houses are not inspected yearly. No basements. Cellars under all houses and are kept free and clean. House cellars are sometimes used for the storage of fruits and vegetables, but nearly all have a cellar built purposely for such use.

Some cesspools are used. They have open bottoms and are cemented on sides. All are removed from wells a suitable distance, and no evil effects have ever come to my knowledge from them in any way. Contents are put on waste land, and nothing injurious has ever come from such disposal.

No diseases of animals. Slaughter-houses are inspected and give rise to no cause of complaint.

School-houses are in good condition at all times and properly heated and ventilated.

The law affecting disinterments is enforced.

This Board had a Health Code which was believed to have been enacted legally, but close inquiry, stimulated by four suits, revealed the fact that it wouldn't stand too close scrutinizing, so the Board was again organized; this time by advice of counsel, and another Code, more comprehensive and better adapted to present and future needs, was enacted legally, and I feel sure will be all sufficient if it is properly enforced.

Statistics are collected and report of contagious diseases required.

Quarantine enforced in contagious diseases, but vaccination not enforced.

Buildings heated by stoves, steam and dry heat. Ventilation receiving more attention every year, but I do not know a single house or building that is ventilated scientifically in the township. None of the new dwellings are so ventilated, and some time in the near future I hope to see this attended to well, for I am urg-



GLOUCESTER COUNTY—*Continued.*

ing every day its necessity and trying to educate my patrons to attend to it.

No epidemics of a severe type have visited this township. Epidemic influenza and measles we have had, with some whooping-cough. These were attended by nothing important, excepting a very enfeebled condition of the heart in influenza cases, more noticeable than in any of the previous epidemics of the same disease. Our township seldom has any severe epidemic, widespread and fatal. Natural drainage, sandy soil and good general sanitary conditions may explain this fact partly. Typhoid fever is very rare, indeed.

Our Board of Health has been busy all the year trying to abate a nuisance consisting of manure from Philadelphia being landed too near dwellings. We have worked under legal advice and conscientiously, but our labors have been attended by no visible result as yet, but we are now ready to attack the same thing more ably, since our Board has been organized legally and can be proven so by the minutes of the Health Board and township. We have enacted a new Code to fit our wants and intend testing our strength if such nuisance exists another year. That the nuisance spoken of is one in fact, we all know well, and the State Inspector knows well also, for he has viewed the whole ground and cause of complaint. The fight has caused much hard feeling and made many enemies, but that is not reason enough for desisting, and those who are living in the fumes and stench of everything filthy and odorous must be looked after. The past year's work has fitted us to abate it, I am confident.

BENJ. F. BUZBY, M.D.,  
Inspector.

## HUDSON COUNTY.

## BOARD OF HEALTH AND VITAL STATISTICS OF HUDSON COUNTY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Wm. W. Varick, M.D., President; Chas. B. Converse, M.D., County Physician; C. Holmes McNeil, M.D.; H. W. Winfield, Counsel; C. J. Rooney, Jr., Clerk. Post-office address of all, Jersey City.

HUDSON COUNTY—*Continued.*

There have been a large number of complaints received, calling for redress of various grades of nuisances, from defective privies and drains, to garbage-filling by railroads and others. In nearly all cases there has been an abatement of the nuisance and an amelioration of the conditions.

Small-pox has remained with us during the entire year, but at no time assumed a very formidable front in point of numbers.

There were thirty-eight cases received at the small-pox hospital at Snake Hill, under the medical charge of C. B. Converse, County Physician. Of these thirty-eight but two died, both infants, one seven months old and the other seven days old. A feeling of dread on the part of a certain body of our citizens, when it became necessary to remove their friends or relatives to the hospital, has given way to one of confidence and even gratitude for the care given and the success achieved.

The following list will exhibit the cases of certain contagious diseases reported during the year :

PLACES.	Diphtheria.	Scarlet Fever.	Membranous Croup.	Typhoid Fever.	Small Pox.	Totals.
Jersey City.....	497	300	54	112	33	996
Bayonne.....	10	30	5	4	1	50
Hoboken.....	2	3			4	9
West Hoboken Township.....	33	19	7	5		64
Weehawken Township.....	6	4				10
Town of Union.....	27	19	5		1	52
Union Township.....	3		5			8
North Bergen Township.....	7	6	5		3	21
Town of Guttenberg.....		4	1			5
Kearny Township.....	1	1	2	6	1	11
Harrison Town.....	5	7	4		1	17
Totals.....	591	393	88	127	44	1,243

C. J. ROONEY, JR.,  
Clerk.

NOTE.— Full statistical tables were attached to this report.—SECRETARY.

## HUDSON COUNTY—Continued.

## CITY OF BAYONNE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Hon. William C. Farr, Mayor, President; Charles M. Allen, President of the City Council; Samuel A. J. Neely, First Ward; Frederick F. Martinez, Jr., Second Ward; Stephen V. Morris, M. D., Third Ward; James Brady, Fourth Ward; George F. Schmidt, Fifth Ward; Stephen V. Morris, M. D., Health Inspector; Casper Schmidt, Deputy Inspector; Charles H. Hosford, Inspector of Plumbing; George F. Schmidt, Secretary. Post-office address of all, Bayonne.

During the past fiscal year the members of the Board of Health of the city of Bayonne have evinced commendable zeal in the discharge of duty, and take pardonable pride in results accomplished. Disposal of garbage within city limits continues to be a vexed question, being at present deposited under direction of the Health Inspector. Abundant financial provision is available to cope with epidemics and emergencies arising from that source.

Since the advent, in August, of our new Health Inspector for the brief unexpired term, and his subsequent election to the office for a full term, this department has been extricated, and is now effective. The Board has secured an energetic and vigorous physician for Health Inspector, who has many years' experience in work pertaining to the department. Recently the city had an outbreak of varioloid, numbering eighteen cases. The disease was confined by proper quarantine measures. General vaccination was a precautionary measure in the infected district; houses being thoroughly fumigated as cases were removed. To all appearances, the contagion is stamped out. Since July, thorough sanitary investigation has been prosecuted, and nuisances found were abated in large numbers.

Bayonne's Board of Health has firmly established a department for the inspection of plumbing and drainage construction, operating successfully some time. This also includes inspection of old plumbing systems complained about. Stringent ordinances and regulations are enforced, resulting in improved work executed and better material used, insuring ample safeguards in this highly important sanitation of various new buildings. The

## HUDSON COUNTY—Continued.

plumbing department is under control of an active and competent Inspector, who takes interest in the discharge of his duty and realizes its importance. In August a specification book, similar to Asbury Park's, was issued and is used exclusively, giving satisfaction. One of the most severe tests of plumbing is applied.

GEO. F. SCHMIDT,  
Secretary.

## TOWN OF HARRISON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

M. F. Squier, M.D., President; Henry Allers, M.D., M. O. F. Dolphin, M.D., C. T. Van Deyer, Peter J. Goodman, Secretary; John Callahan, Health Inspector. Post-office address of all, Harrison.

The newly-organized Board of Health of this town has had a particularly active and fruitful year. Meetings were held, at which a full Board was nearly always present every fortnight and business of serious import to the public health and welfare was assiduously transacted. Numerous complaints were received and attended to immediately, without red tape, at each session. The Board had a few obstinate cases to deal with, but in each instance it carried its point without recourse to legal proceedings. The active and zealous Inspector made a house-to-house examination, and all cesspools and privy-vaults were kept in a sanitary condition. No running water or horse-troughs were allowed, sewer connections being made compulsory. Manure-pits within ten feet of sidewalk were ordered closed, and no cesspools were allowed to be constructed where a sewer existed, and where no sewer existed, the owner was obliged to build his cesspool under the supervision of the Health Officer, and to sign an agreement to connect with the sewer within one month after its completion.

The unsightly, malaria-dealing marshes along the Pennsylvania and Delaware, Lackawanna and Western Railroads, on the outskirts of the town have been almost completely filled in with

## HUDSON COUNTY—Continued.

cinders, clay and approved rubbish, which has made a great improvement in the health and appearance of that district.

A magnificent public school, costing nearly \$30,000, has been opened in the centre of the populous portion of the town, and thereby the great overcrowding of the other schools has been relieved.

The Board points with pride to its good work in managing the threatened epidemic of small-pox which visited us. The first case occurred in a crowded Italian tenement (16 families) and the patient was immediately removed to the Pest House at Snake Hill. The second, and more serious outbreak, two months after, occurred in a family of twelve persons, the first of whom was taken to the Pest House and died. The rest of the family and all who visited there for several days before were vaccinated, but three more caught the disease. Those patients were isolated and a strict quarantine was enforced, two officers being constantly on duty before the house. Nearly all the clothing and furniture were destroyed by order of the Board, for which the Town Council reimbursed the owners.

A third outbreak appeared six weeks later, and the patient was taken to the Pest House at Snake Hill and the same precautions observed. Each of the above outbreaks could be readily traced to the neighboring city of Newark, where quite an epidemic then existed.

Over four hundred school children were vaccinated in the Public Schools by the medical members of the Board, besides what number the physicians vaccinated privately.

The Town Council generously appropriated \$1,000 for the expenses incurred in battling with the small-pox.

There have been few cases of diphtheria or scarlet fever during the year, and only a few typhoid fever cases in spite of the sewer-like stuff that came through our faucets during the summer. The water was in such a condition that its very filth saved the people. No one could wash in it much less drink it, and as a last resort the old driven wells which were closed years ago had to be opened up and used until the rains came in the fall and the city water lost its odor and appearance.

## HUDSON COUNTY—Continued.

The water-supply of this town is the same as Jersey City, and is taken from the Passaic River above Belleville. It is frightfully contaminated by the debris from factories along the river as well as the sewerage of Paterson, Passaic, Belleville, Woodside, Orange, Bloomfield and Newark. In the summer at low water the stench is intolerable, but in winter it is comparatively clear and odorless, though at no time of the year is it really fit for drinking purposes. There was some agitation last summer for a different supply, but it died away when the water improved and we may expect the same thing next year.

Signed,

M. O. F. DOLPHIN, M.D.,  
Acting Secretary.

## CITY OF HOBOKEN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Palmer Campbell, President; Wm. J. Arlitz, M. D., L. V. Hengsler, E. T. Steadman, M. D., John Tallon; G. M. Sinclair, Sanitary Inspector; D. B. Pindar, Health Warden; Antonio Granelli, Health Inspector. Post-office address of all, Hoboken.

Population estimated, 50,000.

Source of water-supply is the Hackensack river, at New Milford, introduced in 1882, supplied by private company. All houses take it. Taste is usually good, except in the spring and fall, when an unpleasant taste is developed. In general, fair throughout the year. Reservoirs are not cleaned, but pipes are steadily blown off. It is known that there is little or no pollution above the source of supply. The Board of Water Commissioners make a yearly visit of inspection to the neighborhood of the source of supply. Quantity almost always ample. No wells used as known, nor cisterns.

The land is low, so the cellars generally have water in them. There are swamps and frequent cases of malaria.

The old houses have basements, the new ones cellars. Basements are generally occupied. I do not know how many houses

HUDSON COUNTY—*Continued.*

of more than two families there are. There is not a yearly house-to-house inspection.

Sewers are used throughout the city, except a portion of the meadows. Cesspools are built with open bottoms. The contents are carted away on scows.

There are no slaughter-houses in the city.

I do not know of any new factories nor any nuisances.

Our schools and public buildings are in first-class condition.

Physicians report all cases of scarlet fever, diphtheria, membranous croup, typhoid fever, measles, etc., by postal; also send in postal when all cases have disappeared and premises may be safely fumigated.

Notices are sent out every morning to the schools and the public library of all contagious diseases.

The prevalent diseases of the year were scarlet fever, diphtheria and croup.

We have adopted a sanitary code, and compelled owners of lots full of stagnant water to fill them.

We employ two men to assist the Health Inspector to scrub all infected tenement houses with bi-chloride of mercury.

JAMES HARRON,  
Clerk.

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JERSEY CITY.

NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

H. H. Albernethy, President; P. W. M. West, John P. Feeney, Peter Hoffman, M.D., H. H. Brinkerhoff, Jr., M.D., Daniel W. Benjamin, Health Inspector. Post-office address of members, Police Headquarters, Jersey City.

The location of Jersey City is on the west bank of the Hudson river and north of New York bay and east of the Hackensack river. The population is one hundred and seventy-nine thousand nine hundred and thirty-nine. Population per acre not known. There are 9,677 square acres.

The water-supply of Jersey City is taken from the Passaic river, and it is a public supply and supplied by the city. All dwellings and factories in the city use it with the exception of a

HUDSON COUNTY—*Continued.*

few scattering ones who depend on wells. During the summer months of 1894 our water was discolored, had an offensive odor and bad taste. The water is soft. The reservoirs have been cleaned and fire hydrants are blown off every week during the summer. The river is polluted with sewerage and refuse from factories, all the way from the intake to the city of Passaic. There is an Inspector, whose duty it is to patrol the river daily and report his inspections to the Street and Water Commissioners, which Board has control of the Water Works of Jersey City. The number of dwellings and factories using Passaic water is twelve thousand one hundred and fifty, the number depending on wells is five hundred and twenty-six.

Our city is drained by sewers, and these empty into the Hudson river and New York bay and Hackensack river. They are ventilated and cleaned from manholes and are flushed twice in twenty-four hours by the salt tide-water. Our city is almost surrounded by salt meadows, but we have very little malaria. We have a very bad nuisance existing in our city—a stream known as Mill creek, which is nothing more than an open sewer. This Board succeeded in having a law passed in the last Legislature providing for a brick sewer to be laid in the bed of the creek, and as soon as the Mayor and Board of Finance and Street and Water Board can agree the work will commence and this nuisance of long standing will be abated.

Our streets are kept in good condition; the paved streets are cleaned once a week and the dirt streets are rounded up from the gutter each year, and our parks, which are three in number, are kept in good condition.

The houses in Jersey City are comprised of private and tenement. The tenement houses mostly all have cellars and the cellars are not occupied; in number of families to each house they run from twenty families to three. Number of tenement houses having more than two families is twenty-nine hundred and thirty-six. We have a house inspection each year.

Our streets are lighted by electricity, gas and oil lamps.

In the lower part of Jersey City the streets are all sewered and all dwellings and factories are connected with the same. But in the upper part of the city some of the streets are not sewered,

HUDSON COUNTY—*Continued.*

but we are progressing rapidly with our sewers and it will not be very long until all our streets are sewerred. We have no exact record of the number of houses that are connected with sewers, but under our ordinance we compel all houses to connect with sewer where there is a sewer in street. We compel all privy vaults and cesspools where there is a sewer in street to be built of brick sides and cement bottom and be connected with the sewer, and we have an ordinance regulating the building of the same where there is no sewer in street. The night soil is removed by scavengers, who dump it into scows provided by the city; the scows are towed away and taken to some place where there are farmers who desire it as fertilizer. It is unloaded from the scows into tight wagons and taken to the farms and mixed with sand before it is used. The ashes and garbage are collected by carts and used to fill up sunken meadow lots and the same is covered by two feet of soil.

Jersey City has no general market.

Jersey City has had no prevalent diseases among horses or cattle for the past year. We had three cases of glanders reported to us. The horses were killed and the stables fumigated. The source of the disease was New York in two cases and one case Union Hill, N. J. We have no record of the number of horses or cattle each person loses, but we keep a record of the total number of dead animals removed by the contractor. We have a record of every person keeping cows, hogs or chickens in Jersey City, and they pay a license for same.

There has recently located in this city a candle factory; it has been thoroughly inspected and no nuisance has been found from that or any other factory in Jersey City.

Jersey City has twenty-six public schools and ten parochial schools. They are frequently inspected and are kept in good sanitary condition. The City Hall and fire engine houses are also inspected and are kept in good condition. We also have some private schools and Children's Homes and Orphan Asylums which we inspect, and they also are kept in first-class sanitary condition.

Jersey City Hospital, supported by the city, and St. Francis Hospital and Christ Hospital, supported by private subscription,

HUDSON COUNTY—*Continued.*

and one Emergency Hospital, supported by this Board, for the reception of all contagious diseases, except small-pox. These places are frequently inspected.

The police force of Jersey City numbers two hundred and ninety-six men, who are under the control of the Board of Police Commissioners. Each officer is required by the rules of the Police Department to aid the Health Department in ferreting out and reporting to the Health Inspector all nuisances existing on his post, and also aid in their abatement.

Jersey City has no general ordinance in relation to fire-escapes. An ordinance has been introduced in the Board of Aldermen, but has not been passed, but we are in hopes of having one passed soon.

We have five cemeteries located in Jersey City. They are frequently inspected, and are kept in fairly good sanitary condition.

We have a code of rules and regulations in relation to the public health, passed by the Jersey City Board of Health January 31st, 1893, consisting of 157 sections, and embracing everything that is or may be a nuisance. Each section of the code has a fixed penalty for violation of the same.

This Board does not keep a record of vital statistics. We leave that entirely with the Hudson County Board of Health.

Our rules in regard to quarantine are as follows: When it becomes necessary to quarantine a house, if the force connected with my office is not sufficient, application is made to the Chief of Police, who details the necessary number of men from the regular force to thoroughly quarantine such place or house. When a case of small-pox is reported and there is more than one family in the house, we notify the County Physician, and the case is removed to the pest-house at Snake Hill, Hudson county, and the place is thoroughly fumigated and all persons in the house are vaccinated. But when only one family resides in the house and the patient does not wish to go to the hospital, we quarantine the house and vaccinate all parties who reside there or have any communication with the premises. In cases of typhoid fever, scarlet fever, diphtheria, membranous croup or measles, we visit the premises and see that the place is properly

## HUDSON COUNTY—Continued.

disinfected, and if the patient desires to go to the hospital we send them to our emergency hospital. We also take the names of school children residing in premises, and keep them from attending school until all danger from contagion is past, when they are granted a permit to return to school. All disinfections are compulsory. We have also quarantine regulations in regard to foreign vessels arriving in this port, which we consider the best. On the arrival at the dock of the vessel, the captain is required to immediately file his permit from the Health Officer of the Port of New York at this office, and an officer of this department is sent to inspect the ship. If found in good sanitary condition a permit to discharge is issued. When a vessel is found to have rags aboard, a special permit is required for each consignment, and the consignee must file a memorandum as to their destination. When these regulations are complied with a permit is granted for their discharge.

The total expenses for this Board for the year ending November 30th, 1894, were \$5,151.74.

We also have a section in our code in relation to the ventilation of dwellings, which we enforce by the house-to-house inspection.

The prevalent diseases for the year ending November 30th, 1894, in Jersey City, were typhoid fever, scarlet fever, diphtheria, membranous croup, measles and small-pox.

The following is a report of the business done by this Board for the year ending October 1st, 1894:

Number of contagious diseases reported—diphtheria, 267; scarlet fever, 195; typhoid fever, 158; measles, 390; small-pox, 27; membranous croup, 19; receipts, \$5,608.95; dead animals removed, 8,622; vessels arrived, 161; permits for children to return to school, 777; number of premises inspected, 4,862; number of premises disinfected, 320; total number of vaccinations, 767; number of notices sent to abate nuisances, 11,166; number of nuisances complained, 2,203; number of nuisances abated, 2,137.

On June 16th, 1894, a large fire occurred at the Jersey City Abattoir, foot of Sixth street. There were about 1,100 head of cattle and 3,000 head of sheep destroyed by the fire. Our Board

## HUDSON COUNTY—Continued.

immediately set a large force of men at work to remove the carcasses from the ruins, and succeeded in cleaning the place of all matter that was likely to cause a nuisance, and thoroughly disinfecting the entire ruins in ten days.

In regard to sanitary improvements would state that the general sanitary condition of the city is improving. More sewers have been cleaned in the city during the past year than ever before. All the receiving basins have been cleaned and disinfected and a better plumbing and ventilating system is being put in new dwellings and several miles of new sewerage is under way.

## KEARNY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

President, C. F. Englestadler, Devon street, Arlington; Dr. J. A. Exton, Health Office, 75 Beech street, Arlington; J. N. Mathews, Clerk, Midland avenue, Arlington; Hugh Wilkee, Health Inspector, Johnston avenue, Kearny; William Bardsley, Kearny avenue, Kearny; Samuel Worthington, John street, Kearny; Andrew Engle, Duke street, Kearny; James N. Loudon, Health Inspector, New Lawn avenue, Arlington.

In making out my report for this year I find it necessary to digress somewhat from the schedule of topics as enumerated on the blanks and speak of topics as they occur to my mind.

*Health.*—The health of this township during the past year has been exceptionally good. Whether this can be attributed to the vigilance of the Health Board or not is a matter for public discussion.

There has been no epidemic of any disease among our 12,000 inhabitants during the year, and this is quite remarkable when we consider that we derive our water-supply from the much-talked-of and much-polluted Passaic river, and that during the six (6) months just passed the water has been absolutely unfit to sprinkle lawns with or to flush the sewer basins. The advice of the Board to those who had it in and on their premises not to use it under any circumstances was heeded in time and the Board

HUDSON COUNTY—*Continued.*

placed pumps at the disposal of the people, which action gave very satisfactory results.

We are in hopes of securing a pure supply of water so soon as the legal intricacies between ourselves and our neighboring city can be adjusted.

*Improvements.*—The township now has the following improvements with reference to streets and sewerage:

Miles of streets.....	31.20
Miles of streets improved.....	11.
Miles of brick sewers.....	2.
Miles of pipe sewers.....	10.55
Miles of water pipes.....	18.20
Number of fire hydrants.....	193
Number of water meters.....	848

Every effort will be used during the coming year to secure a better water-supply, as we realize that this alone is to be the question which must decide the future of our town.

*Vaccination.*—Early in the spring our Board of Health provided the Health Officer with virus for free vaccination. Notice was given throughout the town to that effect and some one hundred children were vaccinated and certificates given them. Arrangements were also made with the Board of Education to provide the children with blanks for this purpose also, and the result was so satisfactory that the dreaded small-pox was kept from the town.

*School-houses.*—One new and commodious school-house has been erected during the year at a cost of \$20,000. It is supposed to be heated and ventilated in the best possible manner and to have all the modern conveniences necessary to such buildings. A new departure has been taken this year by the Board namely, to paint the floors of the houses, so that they can be properly cleaned with soap and water every two or three months during the school term; the idea works well and we hope to see the plan adopted in the school-houses throughout the State as a sanitary measure.

*Sanitary Inspection.*—Our Board passed a resolution that in the months of June and July of each year the Inspector should make a house-to-house inspection and keep a record of their condition

HUDSON COUNTY—*Continued.*

for his future guidance. This also proved an excellent arrangement and many nuisances were abated. But very little opposition has been found among our people in these matters of sanitation and they are gradually learning that a little care in this respect is a financial benefit.

*Meetings.*—The meetings of the Board are held on the first Wednesday evening of each and every month in the year. They are well attended and much thoughtful interest is displayed in all matters pertaining to sanitation.

J. A. EXTON, M.D.,  
Health Officer.

## TOWN OF UNION.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William E. Geatts, Chairman; John Merritt, Jacob E. Vix, James Higgins, William Armbruster, Richard Schleman; Louis Farman, Clerk. Post-office address of all, Weehawken.

## HUNTERDON COUNTY.

## ALEXANDRIA TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George W. Weller, President, Mt. Pleasant; John C. Davis, Assessor, Little York; Jerry Reed, Little York; John C. Cronce, Everittstown; M. D. Knight, M.D., Little York.

This Board of Health is well organized, and have attended to matters promptly. Two calls were attended to it at once, and satisfaction given.

The last meeting being held August 1st, 1894.

JOHN C. DAVIS,  
Secretary.

HUNTERDON COUNTY—*Continued.*

## BETHLEHEM TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. L. Shrope, Chairman, Junction; Stewart Rodenbaugh, Norton; Jacob V. Willever, Bloomsbury; Wm. W. Swayze, Secretary, Glen Gardner; E. L. Reigel, M.D., Bloomsbury.

There has been but one complaint to the Board this year, which was concerning a slaughter-house and hog-pen. Conditions in both cases were improved.

WM. W. SWAYZE,  
Secretary.

## CLINTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles Case, Hamden; George Cregar, Annandale; David Rinehart, Lebanon; Austin Cramer, Annandale; W. E. Berkaw, M.D., Annandale.

Owing to a very limited amount of sickness having prevailed throughout the township since the report mailed your Board on October 1st, 1893, our local Board have nothing to report to the State Board.

Our Board, through their physician, hold themselves ready to take prompt action when communicable diseases occur.

No epidemic of any serious communicable disease having occurred, there was no necessity of making reports.

When such a report should be made, our Board will immediately take prompt action to isolate the cases and family and quarantine them, together with closing the public schools if necessary.

Our Board has not had any necessity to cleanse apartments.

Our Board met on the third day of August, 1894, to inspect two wells in the village of Lebanon.

HUNTERDON COUNTY—*Continued.*

## TOWN OF CLINTON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William H. Johnson, President; Dr. William Knight, Medical Examiner; Joseph W. Berry, Health Inspector; Hon. William H. Baker; Charles L. Crampton, Secretary. Post-office address of all, Clinton.

The Board of Health has had a very prosperous year, the Inspector being called out only in one or two cases, which cases were the throwing of wash-water close to a well, which may have caused trouble in the future.

The water-supply is from wells and cisterns. All the stagnant water and refuse matter is carried away by the method in use generally in small towns.

All slaughter-houses are outside the town limits. The cemeteries are situated near the extreme end of the town, so that they do not give any trouble. All bodies are put under the surface five or six feet, according to law.

We have had no cases requiring quarantine restrictions during the year.

Our meetings are held regularly on the second Wednesday evening of each month. No new by-laws have been adopted during the year.

CHAS. L. CRAMPTON,  
Secretary.

## DELAWARE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph Servis, Sergeantsville; Reading Diltz, Stockton; Peter S. Hockenbury, Sergeantsville; Hiram D. Hoppock, Sergeantsville; Dr. Geo. N. Best, Health Inspector, Rosemont.

This Board has had two meetings during the past year. The few complaints made were promptly inquired into and the nuisances abated.

Stockton, a small village situated along the Delaware river, with a mixed population and a large water-shed above, without



HUNTERDON COUNTY—*Continued.*

any adequate sewer or garbage system, has given this Board in years past some trouble; but it is now safe to say that its sanitary condition is much improved. During the winter and spring there was an unusual amount of sickness, mainly due to the grippe and its sequelæ.

A few cases of scarlet fever and diphtheria were reported. No general epidemics.

HIRAM D. HOPPOCK,  
Secretary.

## EAST AMWELL TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Edward H. Larowe, Chairman, Ringoes; Levi Holcombe, Clerk, Ringoes; Andrew J. Blackwell, Ringoes; Ira Higgins, Wertsville; Peter C. Young, M.D., Health Inspector.

I have nothing special to present to your notice at this writing. The general health of the township for the past year has been exceptionally good. Nothing has been apparently epidemic, except the influenza, which presents itself every fall and winter.

P. C. YOUNG, M.D.,  
Health Inspector.

## FRANKLIN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

F. E. Snyder, M.D., Quakertown; W. L. Scott, Quakertown; Geo. W. Snyder, Quakertown; John Van Kirrey, Sidney; A. D. Ward, Croton.

There is nothing to report from this township. The Board has only met once, and that was last March, at the time the committee organized.

G. W. SNYDER,  
Assessor.

HUNTERDON COUNTY—*Continued.*

## BOROUGH OF FRENCHTOWN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. B. Nash, M.D., President; William P. Loper, Health Inspector; O. R. Kugler, Secretary; C. H. Fulmer, Robert McIntyre. Post-office address of all, Frenchtown.

Number of inhabitants, about 1,150.

Source of water-supply, wells and cisterns. The water in most of the wells is hard. There are few wells, however, and the main body of our people use cistern water.

We have only the natural way of draining used in country.

Houses usually have cellars and are used largely for storage of vegetables. Very few houses have more than one family. There is no house inspection.

We have no sewers. As to cesspools, a few have been built by our citizens; they have no bottom or cemented sides.

Slaughter-house inspected and in good condition.

We have passed no ordinances.

O. R. KUGLER,  
Secretary.

## HIGH BRIDGE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Jacob N. Miller, Califon; T. F. Budlong, High Bridge; Harry Latimer, High Bridge; William C. Alpaugh, M.D., High Bridge; Isaac H. Hummer, High Bridge; William C. Alpaugh, M.D., Health Inspector.

Water-supply from cisterns, wells and springs. No public water-supply.

Good natural drainage. No sewerage system. Cellars are mostly dry, except during very rainy seasons, when surface water temporarily gets in some of them.

No house-to-house inspection.

We have very few cemented cesspools and a few merely holes in the ground. The contents when removed are spread over soil.

HUNTERDON COUNTY—*Continued.*

No disease of animals known or reported during the past year.

What slaughter-houses we have are kept in good sanitary condition.

Our Board has passed ordinances and has published and circulated them.

There has been no epidemic in this township so far during this year.

The Board was called to meet May 3d, to investigate into a possible case of small-pox. A lady came here from Jersey City, from a house where small-pox existed. She was quarantined fourteen days but did not develop the disease.

The Board has met a few times to abate ordinary nuisances.

I. H. HUMMER,  
Secretary.

## HOLLAND TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Theodore Winters, Warre Paper Mills; Mahlon Angel, Holland; David Stern, Milford; C. R. Darnell, M.D., Milford; H. M. Craighead, Assessor.

Extreme northeastern corner of Hunterdon county.

Population about 3,000.

Climate equable.

Water-supply derived from cisterns and wells.

Drainage and sewerage, such as is provided by nature. No system.

Schools are well kept and attended. Open nine months in the year. School buildings in good condition. No other public buildings.

## KINGWOOD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. B. Chamberlain, President, Baptistown; E. D. Leidy, M.D., Health Inspector, Baptistown; Samuel J. Grey, Secretary, Locktown; John N. Smith, Locktown; Wesley Johnson, Ravenrock; E. D. Leidy, Health Inspector.

HUNTERDON COUNTY—*Continued.*

No epidemic of disease the past year. Some malaria and influenza. At present there are a few cases of scarlet fever in a mild form.

G. J. SNYDER,  
Secretary.

## CITY OF LAMBERTVILLE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Gervas Ely, President; William A. Cole, Gershom L. Swallow, Thomas O'Rourke; Dr. Peter McGill, Medical Examiner; W. Wayne Robinson, Clerk; John L. Coryell, Health Inspector. Post-office address of all, Lambertville.

Our Board has done good work during the present year, through our Health Inspector, in the way of paying particular attention to the condition of privies and cesspools, house drains, slaughter-houses, &c. All complaints that have been brought to the attention of the Board have had the proper investigation and inspection, and if found to be detrimental to health, we have caused notices to be served to abate the nuisance within a specified time, and if not attended to within the limit of the notice, the Board takes immediate action and has the premises cleansed, charging the expenses of so doing to the owner or owners of the property, and collecting the same.

Reports of communicable disease are required by ordinance. When received, the Health Inspector posts a notice on the building—a large card, giving the name of the disease in large type. Card is colored red.

Disinfection is used when needed.

December 6th, 1894, was the date of our last meeting.

## LEBANON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Andrew C. Cregar, Califon; Calvin Castner, Changewater; Isaac J. Eyears, President, Glen Gardner; Dr. Theodore B. Fulper, Inspector, Glen Gardner; A. S. Banghart, Secretary, Glen Gardner; Dr. T. B. Fulper, M.D., Health Inspector.

HUNTERDON COUNTY—*Continued.*

Our water-supply is principally wells, and few cisterns. We have a public supply from a spring which is excellent, operated by a private company. It was introduced about one year ago. About 25 houses take it. It is never discolored. The water pipes are cleaned occasionally. The Board has a list of houses that do not use the public supply.

We have no system of drainage. No swamps and no malaria. We have no sewers.

The houses generally have basements and cellars, and are largely used for storage of vegetables. No tenement houses of more than two families, but a good many with two families. There is no yearly house-to-house inspection.

The cesspools are boarded on sides and have open bottoms. Contents are used for fertilizer after mixing with ashes or lime.

We have had no prevalent diseases this year. The assessor does not inquire as to losses of animals or contagious diseases.

Slaughter-houses are inspected and are kept in good sanitary condition.

We have no manufactories.

Our Board passed ordinances over a year ago.

Our schools are in good sanitary condition.

We have a township poor-house. There are at present seven inmates. It is kept in excellent sanitary condition.

Cemeteries are in good condition, and burials are performed according to law.

Vaccination has been extensively performed the last year, owing to several scares in surrounding towns.

We have had a few cases of diphtheria and scarlet fever; no typhoid.

During the past year our Board has not done much. The most of our work was cleaning up pig-pens and vaults. We have had some trouble with stagnant water before residences, but on notifying the proper parties the nuisances were remedied.

Our Board requires that notice shall be given when communicable diseases occur within our district.

We held our last meeting August 15th, 1894.

HUNTERDON COUNTY—*Continued.*

## RARITAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John H. Ewing, M.D., Inspector; Charles Alpaugh, Secretary; Wilson B. Moore, William L. Thatcher; Elisha S. Wyckoff, President. Post-office address of all, Flemington.

The schedule of subjects has been answered in former reports. There has been no epidemic during the past year, and rather less sickness than usual.

The Board caused to be closed a ditch, draining about ten houses on premises of C. R. R. of N. J.

A house in which there had been five deaths from diphtheria within two years was purchased by the Board, condemned and burned.

## READINGTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Geo. Stillwell, White House Station; Wm. M. Dalley, Pleasant Run; Jno. V. F. Schomp, Pleasant Run; Wm. D. Eversole, Town Clerk, White House Station; W. W. Pursell, M.D., Health Inspector, White House Station; Elijah Lowe, Assessor, Barley Sheaf.

Our township has been very healthy this year. Nothing new to report.

## TEWKSBURY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Benjamin Backer, Califon; Henry Craig, New Germantown; Abraham L. Alpaugh, Cokesbury; David K. Apgar, Secretary; Dr. F. A. Apgar, New Germantown; Dr. Theodore Miller, Health Inspector, Califon.

Located in the northern part of Hunterdon county. Population, 2,040.

The underlying strata in the northern part is rock and red shale, in the southern hilly and rolling; drained by the north

HUNTERDON COUNTY—*Continued.*

and south branches of the Raritan and by the Rockaway creek and its tributaries. The surface is dry. There is no marshy land within the township.

The water-supply comes mostly from wells and springs. Califon has a public water-supply brought from mountain springs through iron pipes.

No houses have been inspected by Board.

No diseases among animals have come to my knowledge.

There are only two slaughter-houses and they remote from dwelling-houses and are very small.

There are six school-houses in the township, all of which have suitable out-houses and are kept in a healthy condition.

There are four small cemeteries and all away from any wells, springs or water supply.

There have been no contagious diseases within this township this year. Health has been excellent.

Our Board has had no special calls during the year.

Met sometime in May and organized; have had no special meeting since and no sanitary improvement has been made.

D. K. APGAR,  
Assessor.

## UNION TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Geo. Frace, Norton; Jonas Tharp, Pattenburg; Jos. H. Exton, Chairman, High Bridge; N. B. Boileau, M.D., Health Inspector, Jutland; Morris Stockton, Clerk, Pattenburg.

The Medical Member of the Board states that the health of the township is at present good. No contagious disease. No complaints before the Board during the last year. The Board is well organized.

MORRIS STOCKTON,  
Clerk.

HUNTERDON COUNTY—*Continued.*

## WEST AMWELL TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Jos. K. Leigh, President, Lambertville; R. H. Fisher, Lambertville; Geo. E. Van Buskirk, Lambertville; Geo. H. Carr, Secretary and Health Inspector, Lambertville; Dr. J. B. Silvaria, Medical Member, Ringoes.

The Board of Health met in June to hear complaints. No complaints were made. General health of the township has been good, no contagious disease being reported.

## MERCER COUNTY.

## BOROUGH OF HIGHTSTOWN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

President, W. I. Norton; Medical Director, William L. Wilbur M.D.; David Cole, J. G. Scheible, E. J. Rogers, Charles E. Stults; Fred B. Applegat, Health Inspector. Post-office address of all, Hightstown.

No diseases of animals reported.

One slaughter-house in excellent condition.

No complaints as to factories.

We have adopted a good code.

Physicians are prompt with their reports.

Board quarantines contagious diseases as far as possible.

Our Board has met regularly every week during the summer months to listen to complaints and discuss local health matters. Most of the work of the Board has been in abating small nuisances, filling up or cleaning out bad wells and drains, and endeavoring to provide the best ways for disposing of household waste. A few months ago the Board, in a resolution, urged the Common Council to provide a sewerage system for the town, with the result that the Council has taken energetic steps towards

MERCER COUNTY—*Continued.*

placing sewers and water-works in the town and with a pleasing prospect of success. Remembering our epidemic of 1893 the Board is particularly gratified to be able to report that there has not been a serious case of diphtheria in Hightstown for the past year.

FRED B. APPEGET,  
Inspector.

## EWING TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR

Samuel T. Atchley, Chairman, Ewingville; James F. Herbert, Trenton Junction; Horace G. Hough, Box 356, Trenton; Dr. J. Stockton Hough, Medical Member, Trenton; James M. Mathews, Clerk, Trenton Junction.

By resolutions, the Board will hold regular meetings on the first Saturdays in January, April, July and October.

By resolutions, all physicians practicing medicine in the township were notified by printed circulars to notify the Board of any contagious disease that came under their care, under penalty of \$50 for failure thereof.

Statistics of births, marriages and deaths are seldom reported to the Assessor.

There was one case of small-pox, which was quarantined five weeks.

About twenty-five persons were vaccinated, by order of the Board.

Three cases of typhoid fever have occurred. The origin was traced to house-drainage into the well of drinking water in two cases.

The member to whom the report is made notifies the Medical Member of the Board, and they together visit the premises and determine what course to pursue. Quarantine, if it is deemed necessary, and fumigation are used to prevent spread of communicable diseases.

JAMES M. MATHEWS,  
Assessor.

MERCER COUNTY—*Continued.*

## HAMILTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel M. Robbins, Hamilton Square; George R. Robbins, M.D., Hamilton Square; B. C. Kuser, Trenton; James La Baw, Hamilton Square; Thomas F. Applegate, Allentown; Azariah Cubberley, Clerk, Hamilton Square.

## BOROUGH OF HOPEWELL.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

W. W. Drake, I. M. Phillips, S. V. Vanzandt, Dr. E. P. Hawke, L. P. Hurley, V. S.; James H. Hill, Health Inspector. Post-office address of all, Hopewell.

Location of town, on the northeast side of the township. Climate is mild.

The soil is generally red shale, verging to blue shale and mountain grit.

There are wells at nearly all the houses, and those not having wells have large cisterns, and many have both.

There is a public water-supply, from which about thirty to forty families are supplied at present. This plant has been in operation three years. Water is supplied from springs in the mountain on south side of town; is very soft; in dry periods supply is pumped from spring of soft water, northwest of town. The water in town, south of the railroad, is very hard, while that north is very soft.

Drainage is natural and very good.

Streets are fair. No public grounds.

Houses have been generally inspected and found to be in very good condition.

All light is from kerosene.

Garbage is not considered, as all have been found competent and willing and able to care of the same themselves.

Markets are very small and well cared for. Very few in the town.

We have had a few cases of scarlatina.

MERCER COUNTY—*Continued.*

The Board have not found any citizens that did not desire to co-operate with them, and every suggestion received was acted upon at once, and no minute made of the cases, as there were none of any importance during the year.

L. P. HURLEY,  
Secretary.

## HOPEWELL TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

T. Romeyn Voorhees, President, Harbourton; J. Phillip Hart, Pennington; N. Stout Voorhees, Woodville; Dr. Wm. Radcliffe, Health Inspector, Woodville; W. D. Hunt, Secretary, Harbourton.

Hopewell township is situated in the northwestern part of Mercer county; land rolling and some parts quite mountainous, affording a number of very good springs. Drainage is very good. The health in this township has been very good the last year. The Board have had but little to do this year. One case of an infectious disease was reported last March, and all precautions were taken to prevent spreading of disease; also one case of diphtheria was reported a short time ago, but it did not prove fatal. The schools in the township are in a good sanitary condition. The almshouse has just had extensive improvements made in its sanitary arrangements. The President, Inspector and Secretary visited the county farm October 18th, 1894, and found the sanitary arrangements to be in a splendid condition. Cleanliness prevailed throughout the building. The township Board of Health re-organized last May. No contagious diseases reported among animals.

W. D. HUNT,  
Secretary.

## LAWRENCE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William C. Brearley, Chairman, Trenton; Clark Flock, Lawrence station; Samuel H. Vancleve, Lawrenceville; Isaac B. Baker, Secretary, Lawrence station; Dr. Edmond DeWitt, Lawrenceville.

MERCER COUNTY—*Continued.*

The township Board of Health has met the last Saturday of every month, but have received no complaint whatever of any nuisance during the year.

ISAAC B. BAKER,  
Assessor.

## PRINCETON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

H. B. Bayles, B. F. Gulick, H. L. Robinson, William L. Briner; Dr. E. H. Bergen, Health Inspector. Post-office address of all, Princeton.

The greater part of work in this township is done by the Board of Health of the borough of Princeton, which includes the much greater part of the population of township.

The township Board holds meetings monthly during the summer months, and subject to call of Inspector during the winter months.

During the past year there has been very little for the Board to do, there being an entire freedom from contagious diseases, and the few trivial complaints received have been promptly attended to and remedied.

WILLIAM L. BRINER,  
Clerk.

## BOROUGH OF PRINCETON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. L. Rowland, H. B. Cornwall, W. B. Harris, T. R. Hartpence, Jared D. Wolfe, Howard E. Wright, M.D., H. H. Farr, Secretary; Jared D. Wolfe, Health Inspector.

Located three miles from main line of Pennsylvania Railroad, between New York and Philadelphia. Population about 4,000.

Water from artesian wells and ordinary wells.

Town chiefly made up of institutions of learning.

Almshouse just outside of borough. College Infirmary in connection with the college.

The three cemeteries are in good order and well kept.

MERCER COUNTY—Continued.

No epidemics during the year.

Meetings held regularly once each month. All complaints made to the Board promptly and carefully attended to.

CITY OF TRENTON.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

G. D. W. Vroom, Wm. Cloke, S. Walker, Jr., Geo. W. McGuire, Dr. Cornelius Shepherd, Thos. Chambers, Wm. McD. Struble, Chas. P. Britton; Wm. H. Mickel, Inspector; Daniel J. Friel, Assistant Inspector. Post-office address of all, Trenton.

The Board has held stated meetings and numerous special meetings during the year. The work of administering the Health Code has been efficiently performed by the Inspector and his assistants. A house-to-house inspection has been completed in three wards of the city, while there have been frequent general inspections of public buildings, markets, etc. During the year 218 sewer notices have been served, and 308 sewer connections have been made. The Inspectors have closed up numerous drains emptying into and polluting Petty's run, the water-power and the Assanpink creek. The Board and its officers have been instrumental in having several new lateral drains laid in different parts of the city. The most serious problem the Board has been called upon to confront is an epidemic of diphtheria. Great efforts have been made to subdue the outbreak, and there are reasons for believing that the worst is now over, and that the spread of the disease has been arrested. The following gives the number of contagious diseases for the different months and the number of the cases of diphtheria :

January, total.....	19	Diphtheria.....	5
February, ".....	35	".....	19
March, ".....	28	".....	10
April, ".....	24	".....	10
May, ".....	36	".....	8
June, ".....	41	".....	11
July, ".....	39	".....	25
August, ".....	26	".....	19
September, ".....	57	".....	46
October, ".....	107	".....	99
November, ".....	142	".....	153

MERCER COUNTY—Continued.

During the month of November two of the public schools were closed, on account of the prevalence of diphtheria among their pupils. The Board also ordered that all houses in which cases of the disease existed be placarded and the patients quarantined. These orders have been carried into effect by the Inspector. A large quantity of disinfectants has also been used, and the fumigation and disinfection of premises insisted upon. As a result of these energetic measures, the epidemic seems to have been arrested.

The Inspector of Plumbing has performed a great deal of very useful work during the year, under the comprehensive new code adopted by the Board, regulating the drainage and plumbing of buildings. The following statistics will indicate the character and extent of the work he has performed; they are taken from his annual report to the Board on September 4th: Number of permits issued, 681; amount in fees collected, \$1,271.53; new constructions, 176; reconstructions, 463; additions to plumbing system, 42; plans approved, 681; plans rejected, 122; violations of ordinance, 181; number of inspections made, 2,048; number of tests made, 492; number of feet of cast-iron, wrought-iron, lead, soil, waste and vent-pipes used, 34,222; number of feet of terra cotta pipe used, 6,000; number of premises connected to sewer, 420; number of premises connected to cesspools, 98. The report of the Inspector of Plumbing gives a very encouraging account of the operation of the new ordinance. At first there was some opposition, but this is rapidly disappearing, and the desire to have good, sound plumbing in buildings, as required by the ordinance, is almost universal.

WILLIAM CLOKE,  
Secretary.

WASHINGTON TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Chairman, Forman Hutchinson, Windsor; George Ford, Allentown; William Coleman, Windsor; Health Inspector, George A. Silver, M.D., Windsor; Secretary, J. P. Hutchinson, Windsor.

MERCER COUNTY—*Continued.*

Water-supply, wells entirely.

Drainage, natural.

Houses have cellars.

No prevalent diseases.

Slaughter-houses are inspected.

Board has not passed any ordinances.

Six public schools.

One almshouse.

Public health very good past year.

Vital statistics promptly collected.

No sanitary expenses.

Board has done nothing during the year.

J. P. HUTCHINSON,  
Secretary.

## MIDDLESEX COUNTY.

## CRANBURY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John M. Chamberlin, Chairman; Frank A. Brown, Secretary; Dr. Henry C. Symmes, Abram Voorhees, W. I. Stults. Post-office address of all, Cranbury.

Our location is very healthy, the soil being of a loamy nature. Our drainage is good. No prevalent diseases among animals. Our school-houses have been improved and are in a healthy condition. There are no nuisances. A few complaints have been made to the Board of a minor nature, all of which were promptly attended to. The Board has adopted a code of ordinances which have been printed on heavy board and hung up all through the township, and which have been very helpful in keeping properties clean and healthful.

FRANK A. BROWN,  
Secretary.

MIDDLESEX COUNTY—*Continued.*

## MADISON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James Fountain, President, Browntown; John C. Dill, Old Bridge; William H. Lamberson, Cheesequakes; S. M. Disbrow, Physician, Old Bridge; D. H. Brown, Inspector, Browntown.

The local Board of Health have experienced no trouble during the past year worthy of reporting.

The township to-day is in a good healthy condition.

D. H. BROWN,  
Secretary.

## CITY OF NEW BRUNSWICK.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry R. Baldwin, F. B. Kilmer, Edward Tindell, A. M. Baldwin, Inspector; City Clerk Litterst, and City Physician, P. A. Shannon. Post-office address of all, New Brunswick.

The Board of Health of the city of New Brunswick, in making their annual report, record a remarkable immunity from the so-called infectious and epidemic diseases. There has been reported to this Board, of diphtheria, thirteen cases; scarlet fever, six cases; measles, ten cases; typhoid fever, three cases, and whooping cough, sixteen cases, during the year.

This record would indicate a most unusual absence of the diseases of childhood especially.

An analysis of the death record, however, shows that there is a lamentable failure on the part of some of the physicians to conform to the law regulating reports of communicable diseases.

This Board has called the attention of the physicians again and again to the necessity of making reports promptly, but the warnings have been disregarded. Yet, with all this irregularity there are some items requiring notice, particularly the small number of deaths from cholera infantum, scarlet fever, diphtheria, dysentary and typhoid, in a population of twenty thousand inhabitants.



## MIDDLESEX COUNTY—Continued.

The Board flatters itself that the irrigation of our sewer basins and gutters with a solution of bromine—1 lb to 100 gallons of water has been most efficient as a germicide, as it is instantly destructive to organic growths and they would commend its use in all cases where such action is desirable.

The returns of births and deaths have been more satisfactory than heretofore.

HENRY R. BALDWIN,  
President.

NOTE—A full table of causes of death in the city for the past year was attached to the above report. M.

## NORTH BRUNSWICK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

H. E. B. Dennison, New Brunswick; N. S. Williamson, New Brunswick; C. Hoddopp, Milltown; J. A. Wines, Milltown; F. E. Riva, M.D., Health Inspector, Milltown.

Injunction was served on S. Lederer & Son, manufacturers of tallow and tannery, as causing a nuisance.

No sanitary improvements in any part of the township have been made.

## CITY OF PERTH AMBOY.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

P. Convery, President; Louis Fade, Dr. W. E. Ramsey, J. V. Langan, William Pfeiffer, John Toft, E. R. V. Sofield; Secretary, Dr. F. W. Kitchel; Dr. G. W. Tyrrell, Health Inspector. Post-office address of all, Perth Amboy, N. J.

The city of Perth Amboy derives its water-supply from Tennent's brook, in Madison township. This brook receives no sewage, and the water is always, except after a heavy shower or storm, perfectly clear and tasteless; after a hard storm, however,

## MIDDLESEX COUNTY—Continued.

it is oftentimes turbid and has a slightly peaty taste. The present plant is owned by the city, was completed in June, 1893, and has a capacity of 2,000,000 gallons in 24 hours. The water is brought to the city through an 18-inch pipe laid under the Raritan river, and is used in over one-half the houses in town, at a consumption of about 900,000 gallons daily.

Pipes are regularly cleaned by blowing off water at hydrants. During last August there was a separation of pipes under the river, which occasioned much annoyance and expense, but which was quickly and satisfactorily repaired under the direction of our able Superintendent of Water-Supply.

Those of our citizens who do not use city water depend to a great extent on cistern water and to a slight extent on well water. During the past year a number of these wells and cisterns have been inspected, and when suspected the water thereof has been carefully examined. This has resulted in the closing up of one well and the ordering of several cisterns thoroughly cleaned. Having the good fortune to have as a member of this Board an expert chemist, we are enabled at any and all times to make such chemical examinations as would otherwise be impossible. Though this Board has no list of those not using the city water, it can readily be obtained at any time by excluding all those using the water, as recorded on the books of the Superintendent of Water-Supply.

At the present time we have in our city about 18,000 feet of sewers, made of brick, and about 20,000 made of tile; the size and grade vary considerably, the general lay of the ground preventing a fall of any moment. Some of the sewers at times seem inadequate to carry off all the surface water, with a consequent backing up into many cellars. The sewers are all regularly and thoroughly flushed and empty mainly in Arthur Kull, and to a slight extent in Raritan river. Our sewers are intended not only to carry off all sewage, but also all surface water. In many sections of the city the people are complaining bitterly of the lack of a sewer, and it is to be hoped the Board of Aldermen during the coming year will see their way clear to construct suitable and adequate sewers through those sections in which they are badly needed.

MIDDLESEX COUNTY—*Continued.*

Streets and Public Grounds: Many desirable improvements have been made in this department during the past year. State street is being macadamized from Market street to the L. V. R. R. at a cost of about \$22,000. This improvement was very much needed and its completion will mark the most important work done by this department for years. Our garbage is collected by the Street Commissioner under the direction of the Street Committee; wagons being owned by the city and garbage and ashes not being separated. Anything from a band-box to a hogshead is used as a receptacle for garbage, and as very few of these are covered every shower adds much unnecessary labor and expense to this department. Few householders ever clean or disinfect a garbage barrel and the stench arising from the large *closed* boxes occasionally seen in front of tenement-houses is often unendurable. Under the direction of an able Street Commissioner our streets are regularly cleaned and kept in a good sanitary condition.

Though two-thirds of the houses in this city are occupied by two families or more, tenement-houses are few and are widely scattered. These tenements are occupied by the foreign element and the sections in which they are situated is a constant source of annoyance to the Inspector, as nuisances abated in these sections one day are, unless carefully watched, in a few days as much of a nuisance as ever. Though we seldom find over three complete families in one tenement we often find at least twenty families represented, as almost every Polish or Hungarian family keep boarders in unlimited numbers and consequently overcrowding *has* been very prevalent, but the "hard times," which have otherwise proved so unfortunate, has been of some benefit to the sanitary condition of these houses by decreasing the number of boarders and thereby furnishing more individual air space.

House-to-house inspection is now being made and cellars and basements are nearly always found to be dry. Basements are generally used as kitchens and dining-rooms and cellars for the storing of coal and vegetables. Defective plumbing in old buildings has been repeatedly found, and in a few cases the whole plumbing system has been condemned. The plumbing of many of our houses seems to have been constructed irrespective of any

MIDDLESEX COUNTY—*Continued.*

sanitary plan, and the changes recommended by this Board entail such an expense that our property-owners, for the most part, decidedly object to having such changes made.

Like most cities, we have to contend with privies and cesspools, and a great part of our Summer's work consists in keeping these receptacles from becoming a nuisance to the community, which we do by deodorizing, disinfecting and cleaning.

Scavengers regularly equipped and armed with a permit issued by this Board remove all night soil and cesspool matter. The material removed from privies and cesspools is taken in suitable vehicles beyond town limits then mixed with stable manure and soil and used as a compost for the land. As the Board has no record of connections with sewers it cannot be said with any degree of precision to what extent sewers are used. Cesspools in this city are but few and are constructed with cemented sides and open or soil bottoms. They are cleaned the same as privies.

Diseases of Animals: There is no record kept of the diseases or the death of dumb animals. None even are registered, excepting dogs, and of the exceedingly large number of these running the streets only 71 are registered.

All slaughter-houses are carefully inspected at irregular intervals and are generally kept in a good sanitary condition. During the past year, however, we had one occasion to call the attention of the owner to the foul condition of his slaughter-house, and the nuisance which then existed was very speedily and satisfactorily abated.

Our city at the present time is not only blessed by having within its borders many manufactories, but is doubly blest in that none of them are conducted in such a manner as to be in any way detrimental to health or a nuisance in the community. Early the Summer months, however, a manufactory for the trying out of fats became a most decided nuisance, and action was immediately taken by this Board with the result of the speedy abatement of the nuisance and the removal of the manufactory beyond city limits.

In consideration of the increased number of school children in the city it was deemed necessary during the past year to build an addition to school. This was accordingly done at a cost of

MIDDLESEX COUNTY—*Continued.*

about \$4,000, thus giving us school-room and to spare. Our schools are under the immediate and careful supervision of experienced superintendents, who, together with the City Superintendent, use every means at their command to keep the schools in a perfect sanitary condition.

Some time ago about \$700 was judiciously expended in the erection of an emergency hospital, and at the present time an almshouse costing between six and seven thousand dollars is in process of construction, both these buildings are situated in Hatch's Lane, on the outskirts of the city, and are a valuable addition to our city buildings.

Recent inspection of our city jail resulted in the condemning of the entire plumbing system. The city Board of Aldermen were promptly notified, and the early improvement in its sanitary condition is earnestly hoped for. Parasites, that render life almost unendurable to the unfortunates who are confined there, are numerous, and though recommendations have been made with a view of effectually destroying these pests, nothing as yet seems to have been accomplished.

A drain from the city stable to the gutter being complained of this summer, the chairman of the Committee on Public Grounds and Buildings was communicated with and requested to see that the nuisance was permanently abated by properly connecting the stable with the sewer.

Three cemeteries are to be found in Perth Amboy; the largest of which is Alpine, with its thirty acres, the next in size the Episcopal, and the smallest the Roman Catholic, the two latter being quite small. Alpine and the Catholic are situated near the city limits and the Episcopal in the heart of the city. Interments in the Episcopal cemetery, however, are few and far between. All the cemeteries are kept in good condition and are carefully superintended.

The Board, during the last year, added a supplement to its code. This supplement is intended to regulate the plumbing done hereafter in this place. The Board, in fact, have framed many ordinances and endeavor to enforce them, and we do not think we have fallen into the common habit of promulgating too many ordinances and enforcing too few.

MIDDLESEX COUNTY—*Continued.*

Vital Statistics: Two hundred and twenty-seven deaths occurred in this city from October 1st, 1893, to October 1st, 1894. Fourteen (14) of these were accidental, and of the remainder 73 died of enteric, 39 of lung, 32 of nervous, 20 of diphtheria, 14 of heart, and 5 of kidney diseases, the remaining 30 having died of various other disorders. During this same time 271 births and 111 marriages were also recorded.

During last April a case of small-pox broke out in this city, but as it was immediately recognized by one of our physicians, and the patient put under a strict quarantine in her own home, the disease did not spread. A history of direct infection was readily obtained, the patient having been in contact with the disease in a child from a trans-atlantic steamer. The people who were necessarily in attendance upon her were vaccinated and an officer was placed on guard over the building. After recovery, the premises and all pertaining thereto were properly fumigated and disinfected. Though the maintenance of a watch over the case entailed a great expense on the Board, all members felt amply repaid, as the disease was thereby completely and effectually stamped out.

Sanitary Expenses: The Board receives an appropriation of \$800 a year, \$600 of which is paid to the Inspector, \$50 for counsel, \$50 to the Secretary, and the remainder as occasion demands.

By far the greater part of our houses are heated by the use of ordinary stoves, and ventilated only by windows. Some, however, have all the modern appliances and conveniences, and are in all respects model dwellings.

Diphtheria and scarlatina were the only diseases that can be said to have been prevalent during the past year. Diphtheria was reported in 46 cases, scarlatina in 25, measles in 3, chicken-pox in 1, and typhoid fever in 1, making in all 76 cases. At the present time, however, our city is comparatively free from all preventable causes of disease.

This Board holds a meeting twice a month during the summer months, and once a month during winter, fall and spring months, and, from their constant attention to the business before them, much good has been accomplished during the past year. Not

MIDDLESEX COUNTY—Continued.

only has a fat trying-out manufactory been removed; a large stagnant pool of water, known as "Woodbridge Pond," been drained and filled and action taken to drain a similar one, but we have taken measures to permanently abate many other nuisances.

The attention of the Board of Aldermen has been called to the unsanitary condition at the outlet of the Washington street sewer, and the faulty position and condition of pipe and outlet of the Buckingham avenue sewer, and it is to be hoped that such measures will be taken by them as will cause an immediate removal of this source of complaint. A supplement to regulate plumbing has been added to our sanitary code, and its conditions are being strictly enforced. Chemical examination of wells and cistern water has been repeatedly made, low lots have been filled, and more stronger measures have been taken to enforce our sanitary laws. Nuisances on properties of non-residents have not been few, and much vexation of spirit has been added to our difficulty of procedure.

Previous to June 1st, 1894, no definite record was kept of nuisances abated.

	Nuisances inspected and reported.	Permits to abate nuisances.	Number of nuisances abated.	Number of complaints received.
June 1st to June 11th, 1894, . . . . .	53	14	28	10
June 11th to July 9th, 1894, . . . . .	121	42	114	23
July 9th to August 13th, 1894, . . . . .	90	25	91	36
August 13th to September 10th, 1894, . . . . .	74	30	42	17
September 10th to October 8th, 1894, . . . . .	60	32	109	11

Nuisances reported, but not verified, 17; orders for prosecution, 6; number of plumbers registered, 3.

This Board requires reports when communicable diseases occur within its district. Such reports are uniformly made, and when received the report is entered into a book and measures taken to assist the attending physician in finding the cause thereof. Causes when found are removed as speedily as possible. Though the Board or its agents do not cleanse apartments after communicable disease, they take all possible means to see that proper cleansing, disinfection and fumigation are performed by the tenants or owner of apartments thus infected. The last meeting of our Board was held October 8th, 1894.

GEO. W. TYRRELL, M.D.,  
Health Inspector.

MIDDLESEX COUNTY—Continued.

PISCATAWAY TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

M. J. Whitford, M.D., New Market; Alvah Gray, Dunellen; S. R. Dayton, New Market; Warren L. Smalley, New Brunswick; Charles E. Kelly, New Market.

Wells and springs supply water.

No public grounds.

Alms-house in good condition.

I don't think our Board has done anything to improve the sanitary condition, except to bury a few dead animals.

Answers to special questions:

Are there careful arrangements to prevent nuisances as well as for their abatement? No.

Are contagious diseases reported? No.

Have you plans for dealing with contagious diseases? No.

Is there sanitary inspection of school-houses and other public buildings? No.

What trade and occupations are injuring health? None.

Is there a record kept of death and causes? Yes.

Do you aid the Assessor in securing the returns of marriages, births and deaths? No.

Is vaccination systematically secured? No.

The Assessor reports all cases coming to his knowledge hazardous to health, or has them abated.

Does the Board of Health know the sanitary condition of each house in those matters which most concern the health of the community? I think not, by any means.

Answers to special inquiries of 1894, all negative.

CHARLES E. KELLY,  
Assessor and Secretary.

MIDDLESEX COUNTY—*Continued.*

## BOROUGH OF DUNELLEN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. D. Boice, President; G. E. Lowrie, Secretary; P. W. Brakeley, M.D., Geo. W. Churchill; J. Peters, Health Inspector. Post-office address of all, Dunellen.

The borough of Dunellen contains 1,100 acres. Population, 1,100.

All depend on driven wells for water; have no other supply.

Have no sewerage system; no swamps. Malaria not frequent.

Houses generally have cellars, some being wet; no drainage system.

No yearly house-to-house inspection.

No sewer. Cesspools are generally used, and built with open bottom or sides. Some are pumped out and contents carted away in closed wagons.

Have no slaughter-houses.

Our Board has passed ordinances.

All we have to say is that once in a while a complaint is made about cesspools and water-closets, and we have it attended to at once.

J. PETERS,  
Inspector.

## RARITAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Anthony J. Gebhardt, Chairman, New Brunswick; B. M. Kelly, Secretary, Metuchen; William T. McAdams, Metuchen; Luther H. Tappen, Metuchen; Dr. A. C. Hunt, Medical Member, Metuchen.

After organizing and electing the officers there was not one of them who had any cases to report concerning the health of the locality in which they lived. I have inquired of some of the doctors concerning the health of that part of the township in which they practice, and there has not been a complaint made to myself or any member of the Board as I have heard. Perhaps

MIDDLESEX COUNTY—*Continued.*

if the Board had been organized when it should have been we would have had more time to investigate the matter.

B. M. KELLY,  
Assessor.

## BOROUGH OF SOUTH AMBOY.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. H. Greene, President; D. C. Chase, Michael Welsh, John Scully, John Dykes, James H. Gordon, C. McGonigle; Garrett Malloy, Health Inspector. Post-office address of all, South Amboy.

Population is a little less than 5,000.

We have a contract for five (5) years with the city of Perth Amboy, to furnish this borough with a sufficient supply of water at the rate of seven (7) cents per thousand gallons. The source of the water-supply is Jennets brook, Madison township. It has been analyzed and found to be perfectly clear, healthy, soft water, and is being generally used by the inhabitants. The brook receives no sewerage. Nearly two hundred families are now using this water. We have about eighty hydrants (or fire plugs) to be used for fire purposes or flushing the gutters, sewers, etc.

We have made some improvements in the way of filling up swamps, cleaning out alleys, etc.

We have two (2) slaughter-houses, which are kept in very good condition and are inspected frequently.

The collection of garbage is let out by contract to the lowest bidder, who collects it three (3) times a week and carts it outside the borough limits, where he buries it.

There has been no epidemic of any contagious disease, and generally speaking the town is very healthy.

We have now a gas plant which supplies the borough with gas.

Our borough has what you may call a natural drainage. We have only one large brick sewer about six hundred feet long and five feet in diameter, into which the surface and other water runs, and is then carried into the Raritan bay.

## MIDDLESEX COUNTY—Continued.

Our sewers are flushed three (3) times a week during the summer.

There has been very little sickness during the year and the general health of the people has been excellent.

J. H. GREENE,  
President.

## SOUTH BRUNSWICK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. F. Stout, Chairman, Monmouth Junction; John G. Wilson, Deans; D. G. Rowland, Dayton; G. D. VanDerveer, Dayton; Edgar Carroll, M.D., Dayton; H. E. Hathaway, Secretary, Monmouth Junction.

The Board of Health met and organized on the usual day. During the last year our Board was called out but once. The general health of the township has been good.

H. E. HATHAWAY,  
Assessor.

## WOODBIDGE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. P. Christie, Sewaren; A. D. Brown, Woodbridge; E. A. Ames, Woodbridge; James V. Freeman, Woodbridge; S. E. Freeman, M.D., Health Inspector, Woodbridge.

The supply of water is mostly obtained from wells; in Sewaren they have water-works.

The town depends mostly on surface drainage. In Sewaren they have a system of sewerage, and during the last year we have laid a sewer in one of our principal streets.

In the towns the houses are largely owned by those that inhabit them. The tenant houses are in fair condition.

The refuse and excreta are collected in cesspools and carted on farm lands.

## MIDDLESEX COUNTY—Continued.

There has been no epidemic disease among animals.

There is no slaughter-house in the township, the meat-supply coming from the West. There are in the township five fire-brick factories, one iron foundry, two fertilizer factories and the Canda Car Works.

The school-houses are all in good order.

We have one almshouse; no hospital; no prison.

No regular police is maintained.

There are three cemeteries in the township.

The health protection is under the direction of this Board of Health, acting under the State law.

There has been no epidemic of contagious disease during the past year.

The dwellings are mostly heated by stoves and hot-air furnaces; a few by steam and hot water.

The only especial improvement during the year has been the laying of sewers in three of the streets. The Board has caused the drains to be kept clear and the privies and cesspools to be emptied and cleansed.

## MONMOUTH COUNTY.

## ATLANTIC TOWNSHIP.

The Town Committee of Atlantic township have not organized as a Health Board. The township has been generally healthy; no contagious diseases.

LEVI SCOBEY,  
Health Inspector.

## EATONTOWN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Elwood Snyder, Eatontown; Bloomfield Cook, Eatontown; Chas. McFadden, Oceanport; Geo. L. Gibbs, West Long Branch; William A. Cook, Eatontown; Dr. F. W. Crater, Health Inspector.

MONMOUTH COUNTY—*Continued.*

Situated in the eastern part of Monmouth county.

The drainage is very good.

The garbage is taken way out in the swamps and dumped.

There are no slaughter-houses in the township.

As we have only had a few deaths in the township this year everything seems to be in good order.

There hasn't been a meeting of the Board of Health in the township this year, as there was no necessary call for us to meet.

ELWOOD SNYDER,  
Assessor.

## FREEHOLD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Andrew J. Buck, President; Chas. D. B. Forman, Millard F. Conover, Joseph Errickson, Assessor; Rulif V. Lawrence, Town Clerk, Secretary and Treasurer; O. R. Freeman, M. D., Health Inspector. Post-office address of all, Freehold.

We have but a brief report to make for the year just ending. The general health of the township has been exceptionally good. There were no epidemic diseases at all during the year.

A complaint was made relative to a large quantity of pea vines left exposed to the hot rays of the sun in an open field near a canning factory in the township, but by the prompt use of disinfectants the nuisance was abated.

The attention of the Board was also called to the keeping of swine in an improper manner by persons living near the limits of the town of Freehold. Measures were immediately taken by the Inspector to remedy the same with effective results.

The school buildings throughout the township are in good condition.

O. R. FREEMAN,  
Inspector.

MONMOUTH COUNTY—*Continued.*

## TOWN OF FREEHOLD.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Bowden, President; Theodore Fields, Charles D. Shepherd, W. S. Combs, O. R. Freeman, Henry C. Thorn, J. O. Burt; J. O. Burt, Health Inspector. Post-office address of all, Freehold.

The population is between four and five thousand. Climate varied.

Soil mostly red clay. The farming districts are of the best in the State. The country is rolling and the center of the town is the highest point, which gives it a natural watershed.

The water-supply is from artesian wells. There have been 245 permits granted, the balance take water from wells.

The drainage is through a system of sewers owned by the town. All work is inspected. 120 permits granted since the system was founded.

The streets are well kept.

Houses are mostly owned by their occupants.

Garbage is collected by parties who take it for its use. Cess-pools are emptied by odorless excavators and at stated times only.

No special diseases of animals.

No almshouses. The poor are boarded at the farmers. No hospitals or charities.

We have had no contagious diseases.

The Inspector has inspected each connection made to the sewer and attended to all complaints at once. About sixty connections were made to the sewer this year.

J. O. BURTT,  
Secretary.

## HOLMDEL TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John J. Beers, Wesley Mason, Theodore R. Thorne, Aaron Longstreet, Secretary; Dr. H. G. Cook, Inspector. Post-office address of all, Keyport.

MONMOUTH COUNTY—*Continued.*

Holmdel township is located in a rich and healthy agricultural district in the northerly part of Monmouth county and has had no occasion to call on its Board of Health for any purpose, as no complaints or nuisances have ever come to its attention.

AARON LONGSTREET,  
Secretary.

HOWELL TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Benjamin M. Cooper, Southard; Charles Donahay, Turkey; Robert H. Morris, Turkey; William R. Kinmouth, M.D., Health Inspector, Farmingdale; James H. Butcher, Ardena.

The Board of Health of our township met and organized on the first of April, and elected William R. Kinmouth as Township Physician and Health Inspector. We have met several times during the summer and matters pertaining to health have been looked after. Some complaints have been brought to our notice and have been adjusted without any great difficulty. Township generally has been healthy, no epidemic having occurred.

JAMES H. BUTCHER,  
Secretary.

MANALAPAN TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Wm. H. Reid, Tennant; David S. Aumack, Englishtown; Edward Hendrickson, Englishtown; S. C. Bown, Assessor, Englishtown; A. T. Applegate, Physician, Englishtown.

Little change from report of former years.

*Answers to Special Inquiries for 1894.*

1. Does your Board require by ordinance, rule or regulation that notice shall be given when communicable disease occurs within your health district? Yes.

MONMOUTH COUNTY—*Continued.*

2. Are such reports of the existence of communicable disease uniformly made? Yes.

3. Whatever action the case demands is taken.

Date of last meeting, April 15th, 1894.

WM. H. REID,  
Chairman.

MARLBORO TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Alfred Hardy, President, Morganville; William Carson, Secretary, Holmdel; P. C. Vanderveer, Wickatunk; J. D. Ely, M.D., Marlboro; D. H. Band, Marlboro; J. D. Ely, Health Inspector.

We have nothing to report for the township of Marlboro, Monmouth county. We have held regular meetings and found nothing for the Board to do. The township is in a very healthy condition. We have had no epidemics.

WM. CARSON,  
Secretary.

MATAWAN TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John E. Kuhns, Jr., President; David G. Ryer, Isaac T. Rue; Chas. A. Geran, Assessor; Wm. A. Rodgers, Secretary; Dr. C. Knecht, Health Inspector. Post-office address of all, Matawan.

The Board of Health of this township has done all in its power to preserve the healthy condition, and it has succeeded, as there has been very little sickness and no contagious disease in this locality the past year. The Board meets when it is thought advisable by the Health Inspector or President. The Board has had some trouble with parties carting, in scows from the cities, offensive fertilizers and depositing the same on the meadows along our creek and letting it lie there and decompose. A great portion of it, after it has decomposed, is reloaded and carted on



MONMOUTH COUNTY—*Continued.*

boats to other sections to be disposed of. Our people have to stand the odors from it while decaying, which is a public nuisance. The Board has adopted an ordinance controlling the business. We hope there will be no future cause for reporting a case of this kind. If every inhabitant of each township will do his duty as a citizen and keep everything clean and in a healthy condition about their respective places, all will be benefited by it.

WM. RODGERS,  
Secretary.

## MIDDLETOWN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry A. Hendrickson, M.D., President; George Brannin, Assessor, Secretary; Jacob Swan, John J. Leonard. Post-office address of all, Atlantic Highlands. James Bray, Jr., Lincroft; Henry A. Hendrickson, M.D., Medical Member and Health Inspector; Jacob Swan, Assistant Health Inspector.

Middletown township is located in the eastern part of Monmouth county, and is bounded on the north by Sandy Hook bay, on the east and south by the Navesink river and Atlantic township, and on the west by the townships of Holmdel and Raritan. The population, exclusive of the borough of Atlantic Highlands, is about eight thousand. It has a temperate climate.

Character of the soil, many gravel hillocks, considered the healthiest of all sites for the construction of habitations. The water, which flows out in springs near the bases, is very pure.

The ground is rolling throughout the whole township.

Water-supply is from individual wells. Localities in which nuisances are likely to be found are visited at short intervals by members of the Board of Health. For lighting buildings kerosene is used almost entirely.

No slaughter-houses.

Our schools are kept in excellent sanitary condition.

Two cemeteries—Fair View near Red Bank, Bay View near Atlantic Highlands. Measles and whooping cough have both

MONMOUTH COUNTY—*Continued.*

been epidemic during the past year. The sanitation of the township receives constant consideration.

All complaints are promptly investigated and the nuisances abated.

HENRY A. HENDRICKSON, M.D.,  
President.

GEO. BRANNIN,  
Secretary.

## TOWN OF ATLANTIC HIGHLANDS.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William M. Foster, George D. Fay, M.D., William T. Franklin, William H. Posten, Jr., M. Edward Curtis, James H. Leonard, Frederic Roberts; Frederic Roberts, Health Inspector. Post-office address of all, Atlantic Highlands.

My last report contains statements as to the location, climate, topography, &c., of this town.

The water-supply is taken from driven wells. Additional wells will be added at an early day.

Sewers were laid one year ago. Connections have been already made with dwellings by a majority of the citizens.

There are no public grounds.

The streets have been greatly improved during the year, many sidewalks laid and the work is constantly being carried on.

All houses built for rental have been occupied during the year.

Gasoline and kerosene are being used for lighting, but it is thought that electric lights will be introduced at an early day.

There is no public market.

No communicable diseases among horses, cattle or swine.

We have no manufactories.

The vital statistics are reported to either the township assessor or to the secretary of the Board of Health.

In case of contagious diseases the physician reports the same to the Board of Health. No cases have originated during the year in the town.

All sanitary expenses are paid by the borough.

MONMOUTH COUNTY—*Continued.*

During the year a change has been made in the State school laws. Atlantic Highlands has taken advantage of the opportunity and has organized itself into a separate district. About 200 scholars are accommodated in the public school building and a primary school with over fifty scholars has been organized in the east part of the town.

No almshouses, but the needy are well cared for by the several churches and other benevolent societies.

The jail is quite a primitive affair, but our wants in that direction are few.

A large cemetery just outside the borough meets all demands in that direction.

We have adopted laws and regulations as regards public health, etc.

There has been but little sickness during the year.

The Board has a very efficient Inspector, who devotes the most of his time to the duties of the office.

I can report that the sanitary condition of the town is good. Cesspools and closets have already, to a large extent, been discarded and filled with earth.

All complaints made to the Board have received prompt attention and nuisances removed, so that our town has been kept in a cleanly and healthy condition.

JAMES H. LEONARD,  
Secretary.

## MILLSTONE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Albert Thompson, Chairman, Clarksburg; Curtis B. Forman, Smithburg; William Parker, Smithburg; Hon. George J. Ely, Secretary, Perrineville; Dr. W. T. MacMillan, Health Inspector, Perrineville.

No swamps and no malaria.

Houses constructed with cellars, but without basements.

No yearly inspection from house to house.

No sewers in township.

MONMOUTH COUNTY—*Continued.*

No prevailing diseases among animals.

Slaughter-houses in good condition.

Number of dead animals buried, six.

The water-supply of the township is by wells, and is of the best quality.

The lay of the land is such as to give good drainage.

We have no prevailing diseases.

Our Medical Inspector reported that during June and July an epidemic of dysentery prevailed in the northern part of the township, and during August and September an epidemic of typhoid fever prevailed in the southern part.

GEO. J. ELY,  
Secretary.

ALBERT THOMPSON,  
Chairman.

## BOROUGH OF ASBURY PARK.

## MEMBERS.

Walter W. Davis, Hon. James A. Bradley, time expires May 15th, 1895; N. E. Buchanan, T. H. Beringer, M. L. Bamman, time expires May 15th, 1896; D. W. Sexton, Parker N. Black, C. E., time expires May 13th, 1898; N. E. Buchanan, President; Randolph Ross, Treasurer; D. C. Bowen, Clerk.

The conditions affecting health which are found by inspection to exist on each of the premises in the borough of Asbury Park, and which are recorded on blanks, which are from time to time corrected, are growing more valuable each succeeding year. This system of charging up the defects and crediting the meritorious qualities of each dwelling, aside from serving as a guide for the Board of Health in attacking conditions that are dangerous to the public health simultaneously and in groups, is consulted by would-be tenants and purchasers, and by persons who are selecting a stopping-place for the summer.

The increasing number of persons who have consulted these records during the past summer, to learn how some particular cottage, hotel or boarding-house is rated concerning its healthfulness, gives proof of the appreciation of the public. Transient residents are thus enabled to learn the facts affecting health

MONMOUTH COUNTY—*Continued.*

which exist on premises which they propose to make their summer homes, and the value of this branch of our work is rapidly growing in favor with this class of our population.

*Garbage.*—Garbage is removed from the borough by contract, and during the past year the supervision of the collection of garbage was assigned by the Mayor and Council to the Police Department.

The general use of tightly covered metallic receptacles for receiving and holding garbage on premises, which is now required in Asbury Park, has been the means of correcting a class of nuisances which heretofore have caused many complaints, and the spilling of the garbage upon the ground by the garbage collectors while transferring it from such receptacles into pails, thereby liberating odors to the annoyance of occupants of dwellings, has been entirely avoided by requiring that each receptacle in which garbage is stored shall be dumped directly into the garbage wagon. The final disposition of garbage during the past summer has been objectionable. In addition to feeding it to swine it was at one time deposited in large quantities in a trench on a farm located about two miles from this borough, where it formed a dangerous and festering mass.

The wagons now in use for the collection of garbage are too large and they are not properly covered. If they were constructed of iron, or some unabsorbent material, and were smaller in size, to admit of quicker loading, the nuisance which is now created by the escape of offensive odors from them, while being loaded or while in transit through the streets, would be almost entirely overcome.

The time has come when garbage should be disposed of by burning in suitable furnaces erected at some easily accessible point, thereby reducing the cost of collection and preventing the nuisance caused by the methods pursued during the past season in disposing of this refuse.

*Rubbish.*—Rubbish is kept separate from garbage and ashes. It is collected by contract, carted two miles away and burned in open fires. The burning of rubbish during the past summer caused complaints to be made to this Board. Rubbish contains much objectionable matter, and the residue which was left after

MONMOUTH COUNTY—*Continued.*

burning formed a large and unsightly mass. Rubbish, like garbage, should be disposed of by incineration in a suitable furnace.

Ashes are collected at public expense, and are used for road-making.

*Scavenging.*—The accumulations in privy vaults and catch-basins are removed by scavengers, who work under permits issued for each job, and the night soil is removed to the back country and converted into fertilizers.

*Stables.*—The effort which was commenced several years ago to prevent ground-pollution from stables has been continued, and all new stable buildings which are now erected in this borough are required to be provided with a water-tight floor, so that all excrement and refuse liquids are conveyed to the sewer. Stable manure is required to be stored upon a water-tight floor, and to be protected by a roof from sun and rain.

*Plumbing.*—Six hundred and eleven plans and descriptions for the plumbing and drainage of buildings have been filed in the office of the Board of Health, and each job of plumbing is tested for leakage by air pressure and required to stand a pressure of five pounds per square inch before the work is approved. All drain-pipe is carefully inspected before covering. The plumbing and drainage work which is being done in Asbury Park becomes better and better with each succeeding year.

Imperfect and leaky joints which are often left in house drainage by careless or indifferent plumbers, when making alterations and repairs, are now guarded against by requiring a permit from the Health Board before the repairs are performed, thereby giving opportunity for inspection in each case, in the same manner heretofore required in new work.

*Sewers.*—The number of sewer connections made during the past year is seventeen. Total number to date, nine hundred and seventy-five. The sewers have continued to work satisfactorily without interruption.

*Water.*—Analyses of suspected well-waters have been continued. Surface wells are still retained and used to some extent by householders, notwithstanding that the analyses show a pollution in not less than twenty-five per cent. of all such wells which are examined.

## MONMOUTH COUNTY—Continued.

The public water-supply has been increased by the sinking of one additional artesian well, over eleven hundred feet in depth. The Water Commissioners have recently introduced a filtering plant to rid the water of iron salts. The quality of the water for drinking purposes is in every way satisfactory.

*Ground-Water Level.*—Thirteen stations for the observation of the level of the ground-water have been established, and regular observations have been taken of the rise and fall of the water in the soil underlying the site of this borough. Results of these observations are shown on diagrams which are prepared annually.

*Meteorology.*—The Board of Health began systematic meteorological observations and records in January, 1889, and has uninterruptedly continued this service to the present time. Reports are made monthly and are printed in the New Jersey Weather Service Bulletin.

*Tenement Houses.*—The sudden increase of population in summer causes the few houses in which more than two families reside to have every unused room rented to some occupant, and as such premises are rarely equipped with ample facilities for the disposal of refuse waste material, it requires extra vigilance on the part of the Inspectors to keep back yards free from accumulations of unhealthful matter and to prevent the casting of waste fluids upon the ground.

*Communicable Diseases.*—It is required by ordinance that all cases of communicable diseases, including tuberculosis, shall be reported by the attending physician. Compliance with this ordinance is uniformly secured.

The usual precautions are taken to prevent the spread of communicable diseases, and the ordinances are rigidly enforced.

At a recent meeting of the Mayor and Council the Board of Health was requested to procure the necessary facts and report to Council advising the most suitable garbage destroyer, and also the most suitable disinfecting chamber to be found in the market.

*Small pox.*—The first outbreak of small-pox which has occurred in Asbury Park during the past ten years, appeared in May and June, 1894.

## MONMOUTH COUNTY—Continued.

Unfortunately, the true character of the first case, which occurred in the Smith family, was not recognized, and before this Board was made aware of its existence in the borough the disease had spread through the family of nine persons. This family resided in one of a row of tenement-houses on Main street.

Mr. Smith, the father, sickened on May 13th, and after an illness which caused him to keep his bed for three days, he was again about the house. On May 29th Mrs. Smith and the baby sickened, followed on May 30th by two others of the family, and on June 1st and 6th two more were taken sick.

The cases occurred as follows:

MEMBER OF FAMILY.	Age.	Date of Attack.	Died.	When Vaccinated.	Re-Vaccinated.
Mr. Smith.....	about 50.	May 13.	.....	Childhood.	.....
Mrs. Smith.....	about 48	May 29.	.....	Childhood.	.....
Baby Smith.....	6 months.	May 29.	.....	Not Vaccinated.	.....
Author Smith.....	4 years.	May 30.	June 4.	Not Vaccinated.	.....
Emma Smith.....	6 years.	May 30.	.....	Not Vaccinated.	.....
Charley Smith.....	11 years.	June 1.	.....	Not Vaccinated.	.....
Johney Smith.....	22?	June 6.	.....	Childhood.	.....
Cora Smith.....	17?	.....	.....	Childhood.	June 1.
Annie Smith.....	25?	.....	.....	Childhood.	June 1.

Inquiry made into these cases on May 31st, by the Board of Health, aroused suspicion that the cases were small-pox, and the family were isolated and kept in their own dwelling until June 9th, when they were removed to the new hospital which had been hastily constructed, and the dwelling which they had occupied, together with its contents, were subsequently disinfected.

There was no clue by which the origin of this outbreak could be traced. Mr. Smith, who is a painter by trade, had been vaccinated when an infant and again when serving in the army, and he was on this latter occasion an inmate of a hospital in which small-pox was prevalent, but he was apparently immune.

MONMOUTH COUNTY—Continued.

The disease did not spread to any person outside of the Smith family.

In cleansing the infected premises, and in disinfecting its contents, the need of a steam chamber was sorely felt.

This dwelling was filled from cellar to garret with hundreds of dollars' worth of bedding, furniture and clothing, which were contaminated and which it was impossible to render safe without the proper apparatus to do the work with. Almost all of the goods which it was necessary to destroy in disinfecting could have been saved had this Board been equipped with a suitable disinfecting plant, thus saving to the borough over five hundred dollars in this outbreak alone; a sum nearly, if not quite, sufficient to erect a suitable plant.

The cost of this outbreak of small-pox to the borough was as follows:

Cost of two hospital buildings.....	\$343 96
Furniture for same.....	121 71
Medical attendance.....	53 25
Medicines and Vaccine.....	18 31
Hospital attendant and labor.....	81 49
Provisions and supplies for hospital.....	68 68
Horse hire.....	50 50
To reimburse Smith family for personal property destroyed in disinfecting.....	505 39
Disinfecting and renovating Smith residence.....	107 41
Miscellaneous.....	12 23
	\$1,362 93

The hospital was opened June 9th, and closed July 14th, 1894. The number of persons held by the quarantine restrictions and the length of time each was detained is shown in the following table:

No. of Persons.....	9	No. of Days Detained.....	17
No. of Persons.....	7	No. of Days Detained.....	23
No. of Persons.....	6	No. of Days Detained.....	28
No. of Persons.....	2	No. of Days Detained.....	35

The wife of Major W. W. Morris came to the Lyndhurst Hotel, Asbury Park, August 6th, 1894, from Newark, N. J. On August 11th she became sick, and was attended by a physician

MONMOUTH COUNTY—Continued.

who was a guest in the house. A diagnosis of the case made August 13th, by Drs. Good, Wallace and Sherman, all of New York and guests of the house, showed that the case was variola. No local physician saw the case at any time while the patient was in Asbury Park, and the Health Department was not notified. The patient was taken by train to Newark, where a physician was called, who pronounced the case variola and immediately notified the Newark Health Department and the patient was removed to the hospital.

Thursday evening, August 17th, the news came to Asbury Park from Newark, and immediate investigation showed that the room in the Lyndhurst, which had been occupied by the Morris family, had not been opened since their departure. The room and its contents was taken charge of by this Board and a careful inquiry was instituted to learn who had been exposed to contagion, and all such persons were vaccinated.

No other case resulted from this appearance of the disease.

The following table shows the number of cases of communicable diseases reported from January 1st, 1893, to January 1st, 1894:

	Reported.	Deaths.
Scarlet fever.....	7	...
Diphtheria.....	6	1
Tuberculosis.....	...	3
Totals.....	13	4

## MONMOUTH COUNTY—Continued.

## DEATHS FROM ALL CAUSES.

CAUSES OF DEATHS.	Among Resident Population.	Among Transient Population.	Total.
Tuberculosis.....	1	2	3
Diphtheria.....	1	...	1
Tumor.....	1	...	1
Cholera Infantum.....	2	1	3
Diarrhoea.....	1	3	4
Catarrh of Stomach.....	1	...	1
Acute Hepatitis.....	1	...	1
Pneumonia.....	2	1	3
Meningitis.....	2	...	2
Convulsions.....	2	2	4
Hydrophobia.....	1	...	1
Heart Disease.....	2	3	5
Endocarditis.....	1	1	2
Gunshot.....	...	1	1
Drowned.....	...	1	1
General Debility (result of neuralgia).....	1	...	1
Cerebral Hemorrhage.....	1	...	1
Premature Birth.....	2	...	2
Uremia.....	1	...	1
Edema Glottidis.....	1	...	1
Purpura Hemorrhagica.....	...	1	1
Apoplexy.....	2	3	5
Malnutrition.....	1	...	1
Bright's Disease.....	2	...	2
Tabes Mesenterica.....	1	...	1
Total.....	30	19	49

## MONMOUTH COUNTY—Continued.

## PLACES OF BURIAL OF NON-RESIDENT DECEDENTS.

	Male.	Female.	White.	Colored.	Total.
Bath-on-Hudson, N. Y.....	1	...	1	...	1
Trenton, N. J.....	...	1	1	...	1
Brooklyn, N. Y.....	...	1	1	...	1
Hoboken, N. J.....	1	...	1	...	1
Philadelphia, Pa.....	3	...	3	...	3
Mt. Prospect Cemetery.....	4	1	4	1	5
Calvary Cemetery, N. J.....	...	1	1	...	1
Middletown, N. J.....	1	...	1	...	1
Orange, N. J.....	1	...	1	...	1
New York City, N. Y.....	2	...	2	...	2
Jersey City, N. J.....	1	...	1	...	1
Baltimore, Md.....	1	...	1	...	1
Total.....	15	4	18	1	19

## BIRTHS REPORTED DURING THE YEAR.

Total births.....	55
White.....	54
Colored.....	1
Male.....	29
Female.....	25
Sex not stated.....	1
Names of child stated.....	20
“ “ not stated.....	35

The returns of births are incomplete.

*Vaccination.*—Owing to the large number of persons who received free vaccination at the hands of this Board during the year of 1893, there were but few applicants during the past year, although all who applied were vaccinated without charge.

*Office Work.*—Aside from the matters already referred to, the following table gives an indication of some of the work which was done by this Board during the past year :

Number of meetings held.....	30
“ notices requiring improvements in stable premises.....	59
“ “ to abate nuisances (other than specified).....	199
“ “ for the excavation of vaults.....	157
“ “ for violation of plumbing and drainage ordinance.....	21
“ “ to abate defective drainage constructions.....	37
“ additional communications.....	737
Total number of communications.....	1,210

MONMOUTH COUNTY—Continued.

NUMBER OF WRITTEN PERMITS DURING YEAR.

	Construction of Catchbasins.	To Lay Sub-surface Drains.	Certificates of Approval of Plumbing Plans.	Burial Permits.	Transit Permits.	Scavengers' Permits.	Minor Alterations and Repairs in House Drainage.	Total.
November.....	8	8	10	Jan. 1, '94.	Jan. 1, '94.	12		38
December.....	3	2	5			3		15
January.....	7	4	10			2		23
February.....	4	3	8			9		24
March.....	6	6	12			16		40
April.....	15	13	16			28		72
May.....	10	11	23			26		70
June.....	16	9	20			43		93
July.....	4	2	6			47		59
August.....	2		2			46		50
September.....	8	3	10	Jan. 1, '93, to Jan. 1, '94.	Jan. 1, '93, to Jan. 1, '94.	22		43
Totals for months.....	83	61	122			261		527
Totals for year.....				22	27		70	119
Total.....								646

MEATS CONDEMNED AND DESTROYED.

Pounds..... 400

NUMBER OF SUITS ORDERED BY THE BOARD.

Number of suits instituted.....	28
“ “ won.....	15
“ “ lost.....	3
“ “ pending.....	11
“ “ withdrawn.....	11
Total.....	40

FINANCIAL STATEMENT.

Remainder on hand from 1893.....	\$0 92
Applied from permit fund.....	704 70
Special appropriation.....	1,000 00
Amount of annual appropriation.....	1,500 00
Received from fines.....	52 42
Collected for cleaning premises.....	22 25
	<u>\$3,280 29</u>

MONMOUTH COUNTY—Continued.

Total expenditures.....	\$3,188 56
Remainder.....	91 73
	<u>\$3,280 29</u>

Expenditures.

Test wells for ground water.....	\$38 63
Quarantine expenses.....	29 97
Attorneys' and court charges.....	149 80
Analysis of well water.....	10 95
Cash and clothing paid Smith family.....	516 10
Hospital buildings and furnishings.....	454 35
Supplies and maintenance of hospital.....	325 63
Drugs.....	13 43
Paid to employes.....	1,287 19
Disinfectants and apparatus.....	17 44
Printing.....	189 93
Cleaning premises.....	68 65
Postage and office sundries.....	86 49
Total.....	<u>\$3,183 56</u>

Death Rate.—The system pursued in making the record of deaths of persons dying in Asbury Park includes a statement as to whether the deceased is a resident or non-resident of the borough, and the death rate for each year is stated in a manner which shows the total number of deaths charged to the present population, and also the proportion of deaths among permanent residents and among transient visitors.

The following table shows the death rate in Asbury Park for the past twelve years:

	1882.	1883.	1884.	1885.	1886.	1887.
Deaths among resident population...	30	18	24	20	21	20
Deaths among non-resident population.....	18	12	15	14	23	29
Total number of deaths.....	48	30	39	34	44	49
Resident population (estimated, except for years 1885 and 1890).....	2,000	2,000	2,000	2,200	3,000	3,000
Non-resident population (estimated)	12,000	12,000	12,000	20,000	20,000	25,000
Rate among resident population.....	15.00	9.00	12.00	9.09	7.00	6.66
Rate among non-resident population	1.50	1.00	0.75	0.70	1.32	1.32
Rate if whole number of deaths is charged to resident population.....	24.00	15.00	19.50	15.45	14.66	16.33

MONMOUTH COUNTY—*Continued.*

	1888.	1889.	1890.	1891.	1892.	1893.
Deaths among resident population...	16	28	32	34	35	30
Deaths among non-resident population.....	18	28	39	28	24	19
Total number of deaths.....	34	56	71	62	59	49
Resident population (estimated, except for years 1885 and 1890).....	3,000	3,500	3,800	3,800	3,800	4,200
Non-resident population (estimated)	25 000	30,000	30,000	30,000	30,000	30,000
Rate among resident population.....	5.33	8.00	8.48	8.94	9.21	7.14
Rate among non-resident population	0.72	0.93	1.30	0.93	0.80	0.63
Rate if whole number of deaths is charged to resident population.....	11.33	16.00	18.00	16.00	15.52	11.00

*Card Index.*—The card index method is now in use by this Board for keeping a record of current cases pending action by the Board. As each case is reported at the office by the Inspectors, a card, stating the facts, is placed under its proper index letter in the box, thus enabling the executive officer or any member of the Health Board to readily learn what cases are before the Board for their consideration. During meetings of the Board this index is placed before the presiding officer and each case is taken up and acted upon, and a memorandum made on the card, and the card replaced under its proper letter, there to remain as a memorandum until the case is finally disposed of, when the card is removed from the box and placed on file.

We would respectfully recommend to the Mayor and Council:

1. That steps be taken looking towards the erection of a garbage crematory.

2. The establishing of a suitable disinfecting plant.

The benefits of such a plant may be urgently needed at any time, as was shown by last summer's experience. With such a plant at our service it is believed that by its use much good could be accomplished in the future in preventing the spread of dangerous communicable diseases, thereby saving many lives.

3. *Detention Hospital.*—This borough is in need of a suitable building, so situated as to be separated by a safe distance from other dwellings, to which persons who are suffering from, or who have been exposed to, the contagion of communicable diseases can be taken and detained until the period of danger has passed.

The need of such a place of detention is apparent when we consider the crowded condition of our hotels and boarding-houses

MONMOUTH COUNTY—*Continued.*

in summer, making it impracticable to thoroughly and safely isolate cases of this nature without entailing a heavy loss to the landlord and to the public.

D. C. BOWEN,  
Clerk.

## BOROUGH OF BRADLEY BEACH.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Frank Herbert, H. D. Green; W. K. Bradner, President; Thomas Barkalow, Wm. Larrabee. Post-office address of all, Bradley Beach.

We have adopted a sanitary code, which is enforced. The Board is now enforcing the ordinance that requires all privies to have tight vaults. The majority of the property owners have complied with the notice sent to them. During the year we have sent fifty notices, directing attention to violation of the sanitary code. The Board requires the reporting of all contagious diseases, and the quarantine of the same.

The Board requested the Council to have the garbage removed daily during the summer, and twice a week during the winter. The Council at once appropriated the money for that purpose. The garbage is now removed as ordered.

Our water is derived from driven wells. The water in general is of a very good quality. The Board maintains a vigilant oversight, and promptly abates all nuisances that endanger the public health.

We have had no deaths from contagious disease. The general health has been very good, and we will try and keep it so.

H. D. GREEN,  
Clerk.

## OCEAN GROVE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Rev. E. H. Stokes, D.D., President, Ocean Grove; Rev. E. A. Ballard, Pitman Grove; Hon. James L. Hayes, Newark; Hon. Holmes W. Murphy, Freehold; David H. Brown, Brooklyn; Rev. J. R. Daniels, Ocean Grove; J. H. Alday, M.D., Ocean Grove; J. H. Alday, M.D., Health Inspector.



MONMOUTH COUNTY—*Continued.*

Ocean Grove, Monmouth county, Neptune township. Population in winter, 1,835; in summer, 20,000 and upwards.

Complete system of sewerage.

Water-supply from artesian wells, from 400 to 650 feet deep. At present boring a deep well, down 1,125 feet, with very fair prospect of very large yield of water.

Total number of water connections 1,126. No bad taste in the water, always excellent in quality.

Water pipes are cleaned by flushing. Our wells yield 1,000,000 gallons per day.

No drainage as distinct from sewerage.

The water level is such as to secure dry cellars. No swamps or malaria.

Sewer pipes 8, 10 and 12 inches in diameter. The grade is from 3 to 10 inches per 100 feet. Sewerage introduced about fourteen years ago.

Premises in Ocean Grove inspected every spring, and whenever necessity demands.

Town lighted by electricity.

Garbage removed out of the town by contract. Sewer connections, 1,071.

No market-places in the town.

No diseases among animals.

During the summer we had three cases of measles and three cases of scarlet fever.

No slaughter-houses or abattoir.

No manufactories.

One public school-house. One large brick building for the purposes of the Association.

Complete fire steam apparatus, also chemical engine and all necessary appliances. Several hotels have fire escapes.

Board of Health makes all necessary regulations for proper sanitation, and passes and publishes ordinances covering the same.

Vital statistics collected and furnished to the Association.

Quarantine of contagious and infectious diseases carefully and rigidly enforced.

The Board of Health has thoroughly made all sanitary investigations that were necessary, and provided for all needed requirements.

MONMOUTH COUNTY—*Continued.*

## OCEAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

H. B. Sherman, President, Long Branch City; Joseph H. Dangler; Levi G. Irving, Sea Bright; Howard A. Brindley, Secretary, Long Branch; W. E. Newing, M.D., Health Inspector, Long Branch City.

Drainage all to be desired without a complete sewer system.

No cause of complaint, and inspections made revealed nothing.

Meat, fruit and vegetable refuse collected each morning and made into fertilizers in an adjoining township.

Almshouse is located on a farm and in excellent condition in every respect.

Hospital (Monmouth Memorial) in perfect condition.

Quarantine not necessary. Vaccination whenever case of small-pox appears. Last case occurred in May, 1893.

Nothing has been necessary except the abolition of pig-pens, for in other respects we are in as good condition as a country township could be.

## RARITAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

W. W. Ramsey, John T. Hendrickson, Garret Jones, D. E. Roberts, M.D.; A. F. Bedle, Assessor. Post-office address of all, Keyport.

## KEYPORT.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John S. Hendrickson, Chairman; Abraham Huylar, Secretary; James M. Walling, Inspector; Dr. E. B. Reed, Timothy Mount, Daniel Jewett, William Con Smith. Post-office address of all, Keyport.

During the year 1894 and up to date, we have been free from any contagious diseases, except in two cases of diphtheria. They both died. A speedy and careful cleansing of the premises prevented any further spread of the plague.

MONMOUTH COUNTY—*Continued.*

## SHREWSBURY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Walter S. Whitmore, M.D., President; Hon. William Tabor Parker, Charles B. Parsons, Borden Hance, Thomas P. Brown; William Henry Smith, Health Inspector. Post-office address of all, Red Bank.

Situated on Shrewsbury river.

Population about 7,000.

Water-supply from artesian well, and wells throughout township.

No sewerage or drainage, except from houses on banks of the river. Streets well laid out.

No public ground. No public market.

No diseased animals. No slaughter-houses.

Seven schools. One cemetery and four burying-grounds.

Two complaints were received relative to carting garbage, all of which have been adjusted without recourse to law. Complaint from many residents at Little Silver Creek was received, about tide-water backing up on a tributary of the South Shrewsbury, known as Little Silver creek, causing decay of vegetable matter and affecting the health of the community surrounding it. This Board is of the opinion that the State Board of Health should take some action to give these people relief, as they claim it is the property of the State, and redress should come from that source.

A. C. HARRISON,  
Secretary.

## TOWN OF RED BANK.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. W. B. Warner, President; Dr. Edwin Field, James Walsh, John Sheehan, James Cooper, Jr., Secretary; Frank P. Striker, Health Inspector. Post-office address of all, Red Bank.

We have a public water-supply. About one-half the population use wells.

The soil is soft and porous and admits of free drainage. The Board have not adopted any plumbing regulations.

MONMOUTH COUNTY—*Continued.*

All houses have basements or cellars; some are occupied. We inspect yearly from house-to-house.

About one-third of the houses have cesspools. All cesspools and privy vaults, under our code, must be cemented both sides and bottom. Cesspools are emptied by scavengers. The Board allows only those licensed by it to act, and requires each to get a permit for each cesspool or vault emptied. The contents of all vaults and cesspools are dumped about three (3) miles from town on farms.

No hogs are allowed to be kept in the city limits. No register is kept of horses or cows.

The hospital is in good condition.

The health of the town is first-class, the Board enforcing its code in every respect.

The Secretary of the Board attends to the collection of vital statistics, and requires the same to be returned to him in thirty days.

The Board have quarantined four families in the past year, the disease being scarlatina. The Board recommended the vaccination of all school-children not vaccinated last year.

Our expenses are about four hundred dollars (\$400) per year. The Board will ask for \$1,250 for the coming year, \$1,000 of the same to be used in removing garbage.

The only disease of the year was measles, which was epidemic in the early spring.

The Board of Health of Red Bank have had a very quiet year, the town being in as good a sanitary condition as possible where there are no sewers. This we hope to have at an early season. The Board is working in full harmony and hope the coming year to make many improvements in sanitary matters.

JAMES COOPER, JR.,  
Secretary.

## UPPER FREEHOLD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. C. Wyckoff, Allentown; E. A. Hyers, Red Valley; William Kirby, Cream Ridge; William Quicksell (Assessor), Hornerstown; F. C. Price, M.D., Imlaystown.

MONMOUTH COUNTY—*Continued.*

No regular inspection; tenancy by one family in small houses, and in most of large houses.

No epidemic among animals.

A church has just been completed in Hornerstown, and a hall made from a chapel in same place. No changes have been made in the school-houses or other public buildings elsewhere in the township.

The poor are boarded by the week in certain boarding-houses.

There are seven cemeteries in the township, all being fairly well kept, and no complaints.

At our last Board of Health meeting 1,000 copies of a revised code, with recent State laws, including the last dog law, were ordered printed, and arrangements for distribution of same into each family were made.

Vaccination has been looked after by school boards and heads of families, so that most children over two years old are vaccinated.

Prevalent diseases have been measles, whooping-cough, influenza, rheumatism, summer gastro-intestinal disorders, and of late about one dozen cases of typhoid fever. One death from the last-named disease, with peritonitis as a sequelæ.

All dogs known to have been bitten or suspected in said place have been killed but two, and these were duly confined.

F. C. PRICE, M.D.,  
Secretary.

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WALL TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George E. Rogers, New Bedford; Benjamin E. Allgor, New Bedford; George P. Wooley, New Bedford; Fred. B. Craig, Como; Dr. W. W. Trout, Health Inspector.

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BOROUGH OF SPRING LAKE.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

E. L. Hall, William G. Schanck, A. J. Sherman, J. Stults, Secretary; Andrew F. Rogers, Health Inspector. Post-office address of all, Spring Lake.

MONMOUTH COUNTY—*Continued.*

I have the pleasure to report that the sanitary condition of Spring Lake is good, and that at no time during the past year has it been visited by epidemics of any kind whatever.

During the summer months complaints were made to the Board of Health of Spring Lake concerning the Pennsylvania avenue sewer outlet. The defective condition of this outlet was remedied at once; and though complaints reached the Board afterward, it was found that the alleged grievances were not of serious nature. I am authorized to say that the sewer company proposes to change this outlet to a point several hundred yards further south before the opening of another season.

The water-supply of Spring Lake is obtained chiefly from artesian wells, very few depending upon the ordinary driven well.

Our streets are well made and kept in most excellent condition, and they are well lighted by electric lights. Garbage is removed as frequently as deemed necessary, and is carted to points several miles west of our borough limits.

No special demands have been made upon this Board during the past year. The members have been vigilant in the discharge of duty, and will continue to guard carefully the health of the people over whom they have jurisdiction.

J. STULTS,  
Secretary Board of Health, Spring Lake.

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BOROUGH OF NORTH SPRING LAKE.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Middleton, Spring Lake Beach; James E. Reed, Spring Lake Beach; George Height, Spring Lake Beach; Chas. R. Brahn, Lake Como.

We have nothing new to mention for the past year, except that we have organized a water company for a public supply; company has put down a well 675 feet deep, and have a good supply of fine clear water. Its chemical properties I have not yet learned. Samples were taken for analysis last fall.

There are a number of pipe-wells still in use. No complaints of the water, so far as my observation has gone. I notice the

MONMOUTH COUNTY—*Continued.*

well-water has an action on galvanized iron, and even tinned copper. In my bath-room I have a wash-out closet with small cistern overhead, lined with tinned copper. Nothing but cold water goes in it, and it leaves a green streak down back of the porcelain bowl, plainly showing the action of the water on the copper, and the tin is no protection.

Our sewer is working finely; it empties in the ocean 600 feet out. Have not heard the first complaint of any sewage being seen. Nearly all the cottages are connected with it by 6-inch pipes.

Streets have been watered during summer and kept clean.

Houses mostly occupied by owners; a few rent.

Streets lighted by electricity, and some cottages and stores. Oil lamps are used in most cottages; some have gas.

Garbage is removed regularly during summer. Where cess-pools and out-houses are not connected with sewer, the matter is carted away and dumped into the ocean at low water.

Markets are kept clean.

Very few diseases of animals.

No slaughter-houses.

One public school. No complaints.

One hotel; has fire escape on two sides.

We have adopted a sanitary code.

Vital statistics are collected.

JOHN MIDDLETON,  
President.

## BELMAR.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. C. H. Thompson, President; N. H. Miller, Clerk; F. P. Philbrick, Recorder; S. L. Gillen, Joab Titus, G. Williams, F. V. Thompson. Post-office address of all, Belmar.

This Board has recently re-organized and is taking measures to adopt ordinances and in every way secure effective sanitary administration.

## MORRIS COUNTY.

## BOONTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Horace Ford, Thomas Byard, E. N. Stickle, G. D. Crane, Joseph Steventon, Inspector; Dr. Cuthbert Wigg, Medical Member. Post-office address of all, Boonton.

The water-supply is from wells, springs and streams, all pure. Drainage is natural and good. Cellars dry. But little swampy ground. No malaria.

Cesspools are used, and contents used on land.

No slaughter-houses.

As four-fifths of the township is under the Board of Health of the town of Boonton, there is but little left for us to do, and as the township is on high ground, with good natural drainage, we are never subject to malaria or contagious diseases.

JOSEPH STEVENTON,  
Assessor.

## BOONTON CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Ellis G. Myers, President; Geo. H. Fitzpatrick, Secretary; William Grubb, Inspector; A. E. Carpenter, M.D., Harry L. Culvart, George Harris, W. J. Reynar. Post-office address of all, Boonton.

## CHATHAM TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dayton Baldwin, President, New Providence; G. M. Swaim, Health Physician, Chatham; Charles E. Genung, Chatham; George W. Genung, Health Inspector, Afton.

MORRIS COUNTY—*Continued.*

Population, nearly 3,000. No public water-supply.

At the beginning of the year some two or three cases of diphtheria were quarantined.

There has been nothing done within the last six months, except what I have mentioned, until within a week. There is now a suspected case of small-pox, which the Health Physician proposes to quarantine. The Health Inspector was notified to attend to it.

## BOROUGH OF MADISON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. Anderson, President; C. E. Cook, Secretary; Dr. I. N. Van DeWater, Treasurer; John McTernan, Samuel Brant, E. P. Felch, Health Inspector.

Population, 2,800.

Topography, Hilly. Drainage, good.

Water-supply, sunken well, and borough supplied with 20 miles of pipes from stand pipe; introduced in 1889; owned by borough.

Three hundred houses are supplied. Water clear, hard and always good. Reservoir and pipes have not been cleaned since in use. Twenty-five houses depend on wells; fifty on cisterns.

No system of drainage used. Cellars generally dry. No swamps or malaria. No sewers.

Most houses have cellars, and used for storage of vegetables. There is a yearly house inspection.

Cesspools, built generally with open bottom and sides and emptied with tight wagons.

No prevalent diseases this year.

No slaughter-houses in Madison.

Our Board has passed ordinances.

Cemeteries are all kept in good condition. Burials made under the regulation of the Health Board.

EDMUND K. BROWN,  
Borough Clerk.

MORRIS COUNTY—*Continued.*

## CHESTER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

S. F. Leek, Chairman, Chester; Dr. A. W. Green, Chester; William Tiger, Ironia; H. P. Drake, Secretary, Chester.

There have been no complaints to the Board during the past year.

No contagious disease has existed.

Answers to all other questions have been given in former reports.

H. P. DRAKE,  
Secretary.

## HANOVER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Walter H. Mitchell, Whippany; George Cook, Hanover; Dr. E. P. Cooper, Troy Hills; Harrison Quinby, Parsippany; Jos. H. Bastedo, Assessor, Boonton.

Hanover township has never organized a Board of Health. I suppose it has never seemed necessary. There is once in a while a complaint made of some nuisance, which is always attended to.

JOS. H. BASTEDO,  
Assessor.

## JEFFERSON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Newton Weaver, Chairman; Horace Pulis, Chas. Jennings; Dr. H. W. Kice, Inspector; Chas. Chamberlain, Secretary. Post-office address of all, Milton.

Our Board has held the regular meetings.

CHAS. CHAMBERLAIN,  
Secretary.

MORRIS COUNTY—*Continued.*

## MENDHAM TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

M. Robinson, Mendham; Peter F. Hill, Mendham; Harry Baldwin, Brookside; John S. Stiger, Health Inspector.

We are again able to report the usual good health of this township. Its location and other conditions are the same, of course, as reported in former years.

We have had no epidemics and but few deaths, mostly old people, during the past year. Quite a goodly number suffering from lung trouble have come here during the past year, for the benefit to be derived from the healthful climate and pure air of Mendham.

The natural drainage, which forms an almost perfect system; the water-supply from mountain springs and artesian wells, are special features of this locality.

M. ROBINSON,  
Chairman.

## MORRIS TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Edgar F. Randolph, George C. Smith, Charles R. Whitehed, Collins Weir, Clerk. Post-office address of all, Morristown.

Our township outside of city limits is small; only a few farms and a few private dwellings.

The report from City Health Board will cover all of the above schedule of subjects. We have four small school-houses; they are kept in the usual condition of all such houses.

We have no ordinances.

COLLINS WEIR,  
Assessor.

MORRIS COUNTY—*Continued.*

## MT. OLIVE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

T. J. Clift, Chairman, Netcong; S. A. McPeak, Draketown; Samuel Bartley, Treasurer, Bartley; C. N. Miller, M.D., Flanders; A. H. Bartley, Secretary and Assessor, Bartley; C. N. Miller, M.D., Health Inspector, Flanders.

No contagious diseases except two cases of small-pox.

Four families were quarantined for 14 days and the children of Netcong school district vaccinated at public expense.

On March 22d, a special meeting of the Board was called and the Inspector, Dr. Miller, reported that he was informed by messenger that two cases of small-pox had developed in our township. The report, upon investigation, was found to be true. The trustees of adjoining schools were notified not to let any unvaccinated children attend school, or to require a certificate of vaccination from some reputable physician. The Boards of Health of adjoining townships were informed that small-pox was on their borders. Quarantine was also declared upon adjoining families for the space of 14 days. The Physician of Board was authorized to take such action as was necessary to prevent the spread of the disease. At a meeting held May 19th, the Physician reported that the two cases of small-pox were convalescent; the quarantine had been raised; house thoroughly fumigated and disinfected, and further said that "We can safely report the township as being free from small-pox." All expenses were borne by the township. The Board also made the following recommendation to the Township Committee:

*Resolved*, That this Board of Health recommend that the township of Mt. Olive, through the Township Committee, acquire, if possible, a plot of land that can be under the supervision of the Board of Health of aforesaid township for the purposes of isolation and quarantine of any contagious or infectious diseases, as may be required.

*Resolved*, That this resolution be laid before the Township Committee of Mt. Olive township, Morris county, for their action.

This recommendation as yet has not been acted upon.

A. H. BARTLEY,  
Secretary.

## MORRIS COUNTY—Continued.

## MONTVILLE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF TOWNSHIP COMMITTEE.

John Capstick, Montville; Walter A. Young, Boonton; Fred Van Duyn, Glen View.

The health of the township has been good for the past year. There has been no contagious diseases, and the health of the people has been particularly good.

The Health Board has not been organized, as it was considered unnecessary.

J. W. VAN DUYN,  
Assessor.

## PASSAIC TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Veader, Green Village; Jacob T. Ogden, New Vernon; Samuel Ortman, Stirling; F. L. Hendrickson, Assessor, Madison.

This township is in a very healthy condition. There has been no contagious disease and very few deaths within the past year, and most of them from old age. The Board of Health is in good working order. There has been but one complaint, and we investigated that.

F. L. HENDRICKSON,  
Secretary.

## PEQUANNOCK TOWNSHIP.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph R. Miller, Butler; John Cullen, Butler; Harvey Hosier, Mountain View; Artimus Zelif, Lincoln Park; Dr. George Coates, Butler; Robert C Getty, Assessor, Butler.

## MORRIS COUNTY—Continued.

The health of this township has been exceedingly good for the past year.

There have been no contagious diseases and the people are particularly healthy, and we have not had occasion to organize.

ROBERT C. GETTY,  
Assessor.

## TOWN OF DOVER.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. Samuel B. Johnston, President; Joseph V. Baker, Secretary-Treasurer; James Hagad, Health Inspector; A. J. Titman, Wm. H. Byram. Post-office address of all, Dover.

The town is drained by numerous drains, coming from all directions and from all places until they reach the Rockaway river. The banks of the river through the town are beautified by a large number of out-buildings and privies. Plumbing does not receive any special or great attention, although it is carefully done throughout the city.

The garbage is collected weekly and used for filling new streets, *i. e.*, those just open through swamps, etc. Out-house cleaning is watched by our Inspector.

We have no slaughter-houses or abattoirs within the city limits.

Quarantine and Care of Contagious Diseases: This receives our immediate and close attention, and when deaths occur the funerals are under the charge of the Board and are held privately.

Prevalent disease of the year, diphtheria.

The Board of Health of the town of Dover has been very active the past year; has held a goodly number of meetings and abated a large number of nuisances, and done what good it could as far as the means provided by the city authorities allowed—\$250.

We have now in charge three cases of diphtheria, but they are in different localities and are improving. All other cases have fully recovered, except a few cases which have died.

JOS. V. BAKER,  
Secretary.

## MORRIS COUNTY—Continued.

## RANDOLPH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Downing, Port Oram; P. J. H. Bassett, Dover; Frank O. Hedden, Dover.

F. H. TIPPETT,  
Assessor.

## ROCKAWAY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph Brooks, President, Rockaway; James B. Tonking, Mount Hope; Augustus Munson, Hibernian; F. W. Flagge, M.D., Rockaway; William May, Assessor, Rockaway; William Tippet, Rockaway.

The population has decreased, owing to the stoppage of the mines, which was formerly an extensive industry in the township. The population is now estimated to be about 5,600.

Water-supply same as before, by wells, &c. There is no public supply.

Since population has decreased no change in plumbing nor no system of drainage has been instituted, but several ponds has been formed and dams raised to already existing ponds.

Malaria has been unusually prevalent this year and we desire to know what power the Board has in restricting the forming of the ponds.

The matter is now under consideration of appointing an Inspector.

We have had no epidemic.

Schools are not inspected regularly by this Board.

We send with this report printed copy of ordinances. (Copy received.—M.)

The Physician was authorized by the Board to vaccinate all children of the public schools whose parents or guardians so desired, free of charge. Compulsory vaccination is not enforced.

## MORRIS COUNTY—Continued.

Malarial diseases unusually prevalent this year throughout the township. Scarlet fever, originating in Denville or probably contracted through boatmen on Morris canal, prevailed, which, however, did not result in any known fatal cases.

General attention is given to all complaints made to the Board. Fumigation is practiced in case of contagious disease, as diphtheria, &c., under supervision of physician. The Board passed a vote limiting people from draining ponds, the which has been disregarded. Meetings of the Board are quarterly.

An ordinance was passed by the Board as follows:

It is hereby ordained that it shall be a misdemeanor for any physician neglecting to report any case of contagious disease to the Board of Health of Rockaway township, occurring in his practice, within twelve hours after it becomes known to him. The penalty for failure to comply with the foregoing ordinance is placed at twenty-five dollars for each offense.

These reports are not uniformly made.

All cases of contagious disease reported have been given immediate attention by the Physician of the Board.

Fumigation is used in cases of diphtheria.

October 20th, 1894, a special meeting of this Board was held for the purpose of making out this report.

WILLIAM MAY,  
Secretary.

## BOROUGH OF ROCKAWAY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Norris, President; William May, Secretary; Geo. S. Dearborn, M.D., Mahlon Hoagland, Jr., Samuel A. Crook. Post-office address of all, Rockaway.

Our Board has just organized.

WILLIAM MAY,  
Secretary.



## MORRIS COUNTY—Continued.

## BOROUGH OF MOUNT TABOR.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry L. Coit, M.D., President; Charles E. Fisher, Secretary; Charles L. Pitts, A. A. Campbell, J. W. Stickle, S. M. Long, James H. Cox, Inspectors.

This Local Board of Health is constituted by an election from among the residents by the governing body of the place, and consists of seven members, three members to serve three years, two members to serve two years, with the chairman of the Committee on Public Works and the chairman of the Police Committee as *ex-officio* members, to serve one year. All members are required to be residents of the State and property holders of Mount Tabor.

During the past summer the Board of Health have held bi-monthly meetings, and have made systematic inspections into the sanitary condition of the dwellings and other buildings. In last year's report full reference was made to the location, population and climate of this summer resort. The steady growth of Mount Tabor is evidenced by an increase in the population during the past season. The ordinances with regard to nuisances, water, ice, food, milk, refuse, contagion and construction have been fully enforced.

No contagious disease has made its appearance during the summer, and only one case of continued fever (non-contagious) has been found in a population of one thousand during a season of four months. One death only has occurred in this period, and that due to advanced age.

In all new constructions modern plumbing has been required. The cesspool is still in use here, and is the best means of disposing of liquid refuse that can be obtained at present. The proper construction, cleansing and disinfection of these vaults have been regularly carried out. Circulars on the proper disposal of house-waste have been printed and circulated during the summer.

The dry season has made a severe test of the sources of water. The several deep springs, which have hitherto been unfailing, this year ran low. To supply the need for water a well was dug,

## MORRIS COUNTY—Continued.

and a rich vein of pure water was found 19 feet below the surface, which puts the question of ample supply beyond doubt.

During the summer a pamphlet on "House-cleaning, in Some of its Sanitary Relations," was published and distributed gratuitously to every cottage. The householders generally are interested in keeping their dwellings clean and their surroundings free from the causes of disease.

HENRY L. COIT,  
President.

## ROXBURY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Theo. F. King, Sedgewood; Wm. H. Green, Succasunna; Thos. J. Allen, Netecong; F. M. Floman, Landing.

## BOROUGH OF MOUNT ARLINGTON.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John L. Taylor, M.D., Chairman; J. B. Von Tustenworther, F. W. Zuck, Richard Chaplin, John H. Lowe. Post-office address of all, Mount Arlington.

Mount Arlington borough is situated in the hills of Morris county, on the shore of Lake Hopatcong, 44 miles from New York, on the D., L. & W. R. R., and is about 1,100 feet above the sea level. It has a summer population of about 1,500 people, including the summer cottagers and hotels. The climate is dry, and always 10° to 20° cooler than New York.

Mount Arlington lies upon high, rolling land, and the drainage is perfect; no low lands or stagnant water at any time.

The water-supply is from springs and wells, and the water is pure, as the springs are protected from surface drainage.

Plumbing is of the best sanitary methods.

The borough has no system of sewerage, but the houses, being far apart, the cesspool answers every purpose. These are cleaned frequently and inspected regularly by the Health Board.

MORRIS COUNTY—*Continued.*

The streets are always in first-class condition; the main thoroughfares are macadamized. Men are employed to keep them clean, and no litter is allowed to accumulate. We have no public parks.

There is no house inspection, excepting as the Board think it is required.

The borough is lighted by electricity, gas and kerosene.

The garbage is collected daily during the warm weather, and taken out of the borough limits.

We have a printed code to conform with the State law, and have them posted in all public places, and have one copy delivered at each building in the borough.

Under the rules, contagious diseases must be reported to the Board when they require it, but at no time has it been necessary.

The buildings are heated with steam, hot air or ordinary stoves; ventilation good.

No particular diseases during the year; not a single contagious disease.

The Board meets the third Friday night in the month, whenever there is anything for them to attend to.

*Special Inquiries for 1894.*

1. Does your Board require by ordinance, rule or regulation that notice shall be given when communicable disease occurs within your health district?

Only when we think it necessary.

2. Are such reports of the existence of communicable disease uniformly made?

Only when required by the Board.

3. What action does your Board take when such a report is received?

Never have received any.

4. Does your Board cleanse apartments which have been contaminated by communicable disease? If so, how?

We would, if required, by following the directions of the New York City Board of Health.

We have not used any money as yet, because we have not needed it, but can have all that is required at any time.

MORRIS COUNTY—*Continued.*

Our ordinances are printed on large cardboards, and along with the borough laws in book form. They are made to conform with the State laws, as laid down by your Board.

JOHN L. TAYLOR,  
Chairman.

## WASHINGTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Stewart Neighbor, German Valley; Henry Wiley, Drakestown; Fred A. Appgar, Parker; J. W. Welsh, German Valley; J. H. Hann, Stephensburg; Edw. Sutton, M.D., Health Inspector.

The sanitary condition of the township is as good as can be expected. All rules and regulations for the benefit of the people and their health, have been attended to by this Board, and it affords us great pleasure to make this report. Also, further state, that we have not had any epidemics during the past year, except la grippe, last winter.

## OCEAN COUNTY.

## BOROUGH OF BAY HEAD.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

B. F. Hawley, M.D., Julius Foster, W. M. Applegate, C. R. Preese, B. F. Hance. Post-office address of all, Bay Head.

Located at the head of Barnegat bay. Permanent population (winter), about 150; summer population, 1,200.

Sandy land. Higher on the ocean than at the rear. House drainage into cesspools, which are emptied in winter. Surface drainage into Barnegat Bay through a tributary.

Water-supply from Artesian wells (2), one 710 feet deep, the other 840.

OCEAN COUNTY—*Continued.*

Plumbing is carefully done.

Drainage into cesspools.

Streets are tolerably well kept. No garbage allowed to accumulate.

No tenement houses.

Garbage is taken away daily by a man whose business it is to attend to it. Cesspools cleaned and contents taken away every fall and oftener when needed.

Our local Board was established this year and has hardly gotten into operation yet.

The typhoid fever cases were quickly traced to their source and no cases proved fatal.

We trust the Legislature will provide for a more thorough inspection of the milk-supply of the State. A very small supply of the impure article caused us much trouble the past season.

B. F. HAWLEY, M.D.

## BRICK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. L. Dorsett, C. C. Pearce, J. W. J. Osborn; A. W. Downer, Assessor. Post-office address of all, Burrsville.

## BERKELEY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Cornelius Lawrence, T. J. Harvey, Clark Jeffrey; Henry Williams, Assessor. Post-office address of all, Bayville.

The population of our township is small. Its location is on Barnegat bay. Water as pure as can be. Most of the male population make their living on the water.

HENRY WILLIAMS,  
Assessor.

OCEAN COUNTY—*Continued.*

## DOVER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Adolph Ernst, John Tilton, James I. McKelvey, Thomas B. Irons. Post-office address of all, Toms River.

The following is a statement for the annual report of the Local Board of Health of Dover township, in order of the given schedule.

Drainage and general surface in good condition.

All water-supply is from private wells.

Streets in good condition.

Mode of lighting is by kerosene.

All cesspools and out-houses have been inspected by the Board of Health, and are in good condition.

Markets, three, and in good condition.

Jail in good condition.

Cemeteries, two.

Ordinances passed and published.

We have held regularly a meeting on the first Saturday of each of the following-named months, June, July, August and September.

Have inspected all out-houses, cesspools, public buildings and slaughter-houses, and have had Health Ordinances published in the county papers.

THOMAS B. IRONS,  
Secretary.

## EAGLESWOOD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. A. Seaman, West Creek; J. W. Salmond, West Creek; M. M. Willits, West Creek; S. P. Cranmer, West Creek; W. M. Reeves, M.D., Tuckerton.

The sanitary condition of this township is good. No prevalent diseases. Drainage, natural. The Board has abated one nuisance,

## OCEAN COUNTY—Continued.

*i. e.*, the dumping of garbage near the village. This is an improvement over last year's report.

S. P. CRANMER,  
Assessor.

## BOROUGH OF BEACH HAVEN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel Ashurst, M.D., Philadelphia; Robert Engle, Mt. Holly; F. Hardt, Philadelphia; Richard McAmev, Beach Haven; G. S. Butler, Assessor, Beach Haven.

The Board meets, when necessary, in the summer.

## LACEY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Thos. C. Van Arsdale, Lanoka; A. G. Wilbert, Forked River; B. F. Mathews, Forked River; B. F. Holmes, Forked River.

The Board of Health of this township is thoroughly organized and holds regular meetings when required.

The Board has suffered a serious loss in the removal of Dr. O. A. Wood from Forked River to Magnolia, N. J.

Another physician will be secured for the Board as soon as practicable.

The general health of the township during the past year has been excellent.

The people take more interest each year in all matters pertaining to the general health.

Much more care is exercised than formerly in the disposal of dead animals and refuse.

The fact that the Board is always ready, has a tendency to abate nuisances without the necessity of taking action.

B. F. MATHEWS.

## OCEAN COUNTY—Continued.

## LAKEWOOD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

H. M. Cate, M.D., Physician; John Shearman, Sanitary Inspector; Walter S. Shinn, Luke Johnson, Local Inspectors. Post-office address of all, Lakewood.

We have quarantined twelve cases of contagious disease since March 15th, 1894. The diseases were scarlet fever, diphtheria and typhoid fever. The result has been but one death, and that occurred at the hospital of the Lakewood Hotel. There has been no contagious disease reported in the last six weeks.

Town principally supplied by public water.

Drainage, fair.

Garbage carted away by the farmers.

There are three public schools in the township.

There are three cemeteries in the township.

JOHN SHEARMAN,  
Sanitary Inspector.

## LITTLE EGG HARBOR TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph I. Smith, President; C. W. Palmer, James Rose, Alexander Cowperthwaite, Assessor; Theo. T. Price, M.D., Clerk of Board. Post-office address of all, Tuckerton.

The health of the township has been exceptionally good during the year. No cases have arisen requiring the Board of Health to act.

THEO. T. PRICE,  
Clerk.

## MANCHESTER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William Montgomery, C. A. Wilbur, David Webb, O. C. Johnson, Frank Brower, M.D., Health Inspector. Post-office address of all, Manchester.

OCEAN COUNTY—*Continued.*

Increased attention is given each year to sanitary matters.

Dr. Brower met with the Board early in the spring to give advice in regard to a place likely to need drainage, and other matters pertaining to the general health of the village.

Fifteen cases of diphtheria occurred last spring; complaint was made to the Board and measures were taken to prevent the spread of the disease, which proved successful.

O. C. JOHNSON,  
Secretary.

## OCEAN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William B. Wilkins, Charles F. Jones, John M. Couch; Z. H. Wilkins, Secretary. Post-office address of all, Watertown.

The general health of Ocean township is good. There have not been any contagious diseases this year, and very little sickness of any kind. Water-supply is from driven wells mostly. Drainage, good. Location, along Barnegat bay.

Z. H. WILKINS,  
Secretary.

## PLUMSTEAD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

G. W. Ivins, Jr., T. Hartshorn, Wm. A. Parker, Howard Allen, M.D.; D. W. Bussoni, Clerk. Post-office address of all, New Egypt.

No prevalent diseases. Health of people good. Two complaints received and ordered abated.

D. W. BUSSONI,  
Clerk.

OCEAN COUNTY—*Continued.*

## STAFFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

S. B. Irwin, M.D., Manahawkin; Chas. H. Cranmer, Manahawkin; Thos. H. Letts, Manahawkin; Lewis A. Cranmer, Mayeta; John B. Courtney, Secretary, Manahawkin.

Population, 1,100.

Light sandy soil; surface drainage.

Water-supply from wells.

Garbage composted and used as manure in fertilizing.

No diseased animals.

No special diseases; remarkably healthy.

## UNION TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. Edmund Bennett, Emmer R. Wills, Joseph A. Pharo, George H. Vannott, Andrew F. Kilpatrick. Post-office address of all, Barnegat.

## BOROUGH OF LAVALLETTE.

We have no organized Board.

There seems to be nothing to report regarding Lavallette. It is but a small summer resort of about 30 buildings. But few persons reside there during the year. We are careful regarding cesspools, requiring them to be built of brick and cemented. There is no drainage.

The place is so small that no precautions regarding health are required other than those concerning cesspools.

CHAS. C. EARECKSON,  
Mayor.

## PASSAIC COUNTY.

## ACQUACKANOCK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. H. Merselus, Clifton; D. H. Schoonmaker, Richfield; Nicholas Fredericks, Lyndhurst; C. F. Hemmenway, Health Inspector.

Population, about 1,500.

Drainage, natural, and with ditches.

Water-supply, wells and cisterns.

Drainage into cesspools, or by natural ways.

No public grounds.

Frame houses, in most cases occupied by owner.

Oil used entirely.

Garbage is taken care of by each individual, and is generally placed on manure pile, or burned in stove.

Diseases of animals, none.

Six public schools; four churches.

Have made no sanitary improvements. Attended to all calls, and the health of township is good.

C. F. HEMMENWAY,  
Assessor.

## LITTLE FALLS TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Richard Casson, Charles H. Booth, Richard Jacobus; R. W. Finbech, Assessor; E. A. Keeler, M.D., Health Inspector. Post-office address of all, Little Falls.

No public water-supply.

No sewers. Cesspools open bottom and sides; emptied by buckets and spread on farm land.

No markets.

No epidemics.

## PASSAIC COUNTY—Continued.

No new manufactories. A nuisance from a fat-rendering establishment was abated, by order of the Court.

No ordinances since last report.

No sanitary improvements, except abatement of fat-rendering establishment.

We have no reports of contagious diseases.

October 2d, 1894, date of last meeting.

E. A. KEELER, M.D.,  
Health Inspector.

## MANCHESTER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Lotz, Chairman, Haledon; Adam Vreeland, Treasurer, North Paterson; William D. Wilson, Little Falls; Sylvester Utter, M.D., North Paterson; William D. Berdan, Secretary, Paterson; Dr. Sylvester Utter, Health Inspector.

Water-supply is from wells, springs, cisterns and brooks. A large majority of the inhabitants get their water-supply from wells.

No system of drainage other than natural surface drainage. Cellars are dry, as a rule. The water level is such as to secure dry cellars. No swamps to any extent in the township. No malaria the past year.

Houses generally have cellars. A very few have basements occupied. Cellars are used for storage of vegetables. There are some six or eight houses with more than two families. There is a yearly house-to-house inspection in some parts of the township.

There are no sewers in Manchester township. Cesspools are in every imaginable form; are cleaned often and kept as clean as possible.

There have been no prevalent diseases among animals the past year. The Assessor inquires each year as to losses of animals and as to contagious diseases.

Slaughter-houses are inspected and are found in good order.

Our Board has passed ordinances.

No alms-houses. No hospitals in township. The Roman Catholic Society have an Orphan Asylum for girls in township.

## PASSAIC COUNTY—Continued.

There are three cemeteries in Manchester.

We have cards printed and send a supply to each physician in Paterson and vicinity, and when they are called upon to attend a case of contagious disease, they are requested to notify the medical member of the Board within twenty-four hours, and then he, the doctor of the Board, investigates immediately and orders the house placarded, and when the patient gets well or dies the house is fumigated and cleansed and all precaution taken to stamp out the disease. Vaccination is attended to as the law requires.

Dwelling-houses are heated with stoves, heaters, and some are heated with open fire grates.

November, 1893, there were 21 cases of diphtheria reported and three cases of scarlet fever. Since that time there have been four cases of diphtheria and three cases of scarlet fever reported.

We have granted two permits to slaughter cattle, sheep and swine. We have ordered nuisances abated and seen that the order was obeyed. We have investigated complaints when made, and if we found cause for complaint, we have given advice and instruction in several cases and found that the people have profited thereby.

The last meeting of the Board for the year ending October 1st, 1894, was held September 4th, 1894.

*Special Inquiries for 1894.*

1. The Board requires that such notice of contagious diseases shall be given.
2. Such reports are uniformly made, we believe.
3. When such report is received, the house where the disease is located is immediately quarantined and when the patient recovers or dies the house is fumigated.
4. Does your Board cleanse apartments? We have had one such case at Haledon. We investigated the house after the funeral and found some of the rooms in a filthy state. Filthy rags and dirt had accumulated. Rags were hidden in corners and recesses, so we had the rags and filth removed and buried and the house cleaned and fumigated.

## PASSAIC COUNTY—Continued.

## CITY OF PASSAIC.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Percy H. Terhune, M.D., President; C. A. Crane, Secretary; G. Delaney, Rev. R. M. Offord; B. G. Volger, Treasurer; Chas. Denholm; G. J. Van Schott, M.D., Health Inspector. Post-office address of all, Passaic.

Population, about 20,000.

Water-supply is by gravity through pipes from upper Passaic river (above the falls). Exact number of wells not known, but they are gradually filled in, while no new ones are dug. All tenement houses have a supply of city water.

The drainage is for the largest part natural toward the Passaic river. The Dundee section, being the most flat, has an entire sand foundation. The Waring system of sewers gives perfect satisfaction, but does not carry the rain-water, which is disposed of by the gutters and in some places by rain-water sewers. During the year two unsightly and ill-smelling drains, which were nearly converted into open sewers, have been condemned by the Board, and deflected into the regular sewer system.

The plumbing in the city is under strict supervision of the Plumbing Inspector, who devotes his entire time to that work. The highest class of work only is approved of, and the code strictly followed. Even in cases where a temporary cesspool is needed on account of there being no sewer in the street, the plumbing is required to be so constructed that no alterations are needed when connected with sewer.

The garbage question is not solved satisfactorily. The present contractor disposes of it on two public dumping grounds, and collects it in the old way. The Board of Health has agitated the matter, and an ordinance has been passed providing for separation of ashes and garbage, new iron-covered carts, etc., while there is a prospect of getting an apparatus to burn the garbage. The Board hopes to be able to report more substantially next year.

There are no slaughter-houses or abattoirs in the city limits, and all stables and butcher shops are under strict supervision of the Veterinary Inspector, who is also a salaried officer of the

PASSAIC COUNTY—*Continued.*

Board. In several instances he has detected tainted meat and brought the venders to trial.

A fine new school building has been built, instead of School No. 4, which is now converted into a school for manual training. The new school building is of brick, ventilated and heated by the improved Smead-Wills system. The High School building had the old system, which later will be condemned by the Board of Health as not satisfactory. Schools Nos. 2, 3 and 5 are not connected with the sewer, while No. 1 has a vault with Royal Flush apparatus. It is contemplated to have all schools properly provided and connected, but the increase in population is such that the Board of Education has not been able to provide properly in that direction, as there are now three stores used for school-rooms to accommodate the overflow from the six schools and large parochial school. A new sixteen-room school building is in contemplation.

The almshouse and farm I described before. Very little use is made of it. The Emergency Hospital and dispensary, the Orphans' Home and the Day Nursery are all doing well, while the directors of the main hospital (to be) have 21 city lots, the plans and specifications, and \$5,000 cash towards the building.

There is one cemetery within the city limits, and three located in Bergen county, one-half mile from the city. Burials are conducted by nine undertakers, only by permits from the Registrar of Vital Statistics.

The Health Code, which has very often been practically tested in our courts, was found to be legally defective in several points, hence a good many changes and additions have been made. A committee of the Board now has charge of a total revision of the code. All health ordinances are strictly enforced and about \$100 in fines collected. All deaths, births and marriages are regularly reported. In case of contagious diseases, the house is quarantined by placard, which has proven satisfactory. The Health Inspector, however, has the power to employ guards, if necessary. Vaccination in the schools is compulsory, and attended to by the Board of Education.

The sanitary expenses were estimated last year at \$2,500, and the appropriation made accordingly. The fines and fees over

PASSAIC COUNTY—*Continued.*

this swelled the amount to \$3,000, of which the Board had a surplus of \$500 at the end of the fiscal year, leaving the actual expenses \$2,500.

There have been no prevalent diseases during the past year, the total being forty-two, of which sixteen were diphtheria and twenty-six scarlet fever. Twenty-seven recovered, thirteen died and the others not reported.

The aim of the Board during the past year, as before, has been to solve the garbage problem; to separate the source of drinking water and the place of deposit of fecal matter as far as possible, and to enforce the Health Code to the letter, if necessary, in order to insure the cleanliness of the city and the health of its inhabitants.

W. J. VAN SCHOTT, M.D.,  
Health Officer.

## CITY OF PATERSON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James Mills, Esq, President; Frank E. Agnew, M.D, John T. Pollitt, Esq., Theo. Y. Kinne, M.D., James P. McNair, Esq., Philander A. Harris, M.D., J. L. Leal, M.D, Board of Health.

Our sanitary history during the past year has been an uneventful one. No epidemic has visited us and our efforts have been mainly expended carrying on the routine work of the Board.

*Contagious and Infectious Disease.*

We have had about the usual number of cases of scarlet fever, with, as has been usual of late years, a low death rate. Diphtheria has been the most prevalent disease of this class and has had a high death rate. For some years now a malignant type of this disease has prevailed among us, and as yet a promise of decreasing virulence does not appear. About fifty per cent. of the cases occurred within three months in the so-called "New Holland" district and constituted a local epidemic of some severity.



PASSAIC COUNTY—*Continued.*

The closing of schools and a general cleaning up were the means the most effective in suppressing it. The drainage of the section being had, an effort was made by this Board (as had been repeatedly made before,) to secure the building of sewers. This effort failed through the opposition of the property owners of the district and the unwillingness of the Board of Public Works to put them in against their wishes. It is to be hoped, however, that this spirit of opposition to sanitary improvements may not leave that section in its present condition much longer.

Of typhoid fever we have had about the usual number of cases, some forty cases of which were traced directly to the water of a badly polluted "artesian" well opposite 87 Jersey street. The death rate has been somewhat higher than has been usual with us in this disease.

Four cases of smallpox were introduced into the city from various sources during the year. By prompt removal and isolation of patients, quarantine of premises and persons infected, and observation of persons who might have been exposed, the disease was suppressed in all the cases with no secondary development.

*Sewage System.*

Notwithstanding the financial stringency which interfered materially with the work, there were yet some six miles of sewers built last year. Most important were the finishing of the "East-side" main sewer, and the beginning of a large trunk sewer which will drain the southern section of the city, an improvement long urged by this Board. Notwithstanding the good work accomplished, we regret to say that the most important from a sanitary point of view, viz: the condition of the river which receives the contents of all these sewers, has not been taken up.

*Collection and Disposal of Garbage.*

Our greatest gain in a sanitary way during the past year has been the improvement in the collection of garbage. The Paterson Sanitary Company has at last undertaken the collection

PASSAIC COUNTY—*Continued.*

themselves, as advocated in our last report, and the result has answered all our expectations. The work is now well and thoroughly done, and judging from the fact that a complaint is now a rarity, to the satisfaction of the citizens. The disposal works have also been run in a satisfactory manner, destroying 3,289 tons of garbage during the year.

*Contagious Diseases.*

In conclusion we wish to impress the necessity of a hospital for the care of cases of contagious disease.

The day of the old-fashioned "Pest House" has passed by, fortunately for humanity, and in this age of the world, for a city of the size and importance of Paterson, not to be properly provided in this respect, is certainly no credit to us. Our present institution, intended only for smallpox, is utterly unfit for the purpose as regards buildings, water-supply, heating and equipment.

It is our earnest desire that some means to supply this necessity may be found during the coming year.

JOHN L. LEAL, A.M., M.D.,  
Health Officer.

JOSEPH B. MILLS,  
Secretary.

## POMPTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. C. Morgan, M.D., Pompton Lakes; H. J. Smith, Pompton Lakes; D. A. Wheeler, Erskine; John F. Sisco, Butler; Lemuel Van Ness, Assessor, Pompton; J. C. Morgan, Health Inspector.

The water-supply for Pompton township is from wells and springs.

The contents of cesspools and out-houses is mixed with earth and ashes and used for fertilizer.

There are seven public schools in the township.

We have four public burial grounds.

PASSAIC COUNTY—*Continued.*

The public health is good.

Stoves, hot air and steam.

We have had five or six cases of scarlet fever.

JOHN F. SISCO.

## WAYNE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Garret Berdan, Jr., Chairman, Mountain View; G. V. Zelif, Secretary, Paterson; George W. Van Ness, Mountain View; William Birchenough, Paterson.

Water-supply from wells and springs.

No system of drainage other than natural surface drainage. Cellars are dry in general. No malaria to any extent the past year.

Houses have cellars, generally used for storing vegetables.

No yearly house-to-house inspection.

No sewers in Wayne township. Privy vaults are generally cleaned each year and contents used as fertilizer.

No prevalent disease among animals this year. Assessor makes inquiry each year as to loss and contagious disease among animals.

No slaughter-houses in township.

Our Board requires, by rule, that notice shall be given when communicable disease occurs within our health district.

I think returns are made regularly, and no complaints to make.

Our Board met in April, organized, and having no business to transact, adjourned.

Met again in November on complaint of a fat-rendering establishment as a nuisance and owner agreed to remove it and we awaited the result and have heard no more from it.

G. V. ZELIFF,  
Secretary.

PASSAIC COUNTY—*Continued.*

## WEST MILFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William W. Eckhart, President; Celestine Tintle, Secretary; Dr. R. G. Mains, Medical Member; Joseph Henion, Joseph H. Schulster, and O. F. Smith, Inspector.

Located in the northern part of New Jersey. Surface generally mountainous.

Water-supply from springs and wells.

Drainage natural and good. No tenement houses. Cellars dry, but principally used for storage of vegetables.

No prevalent disease of cattle reported.

No contagious disease has existed since the organization of this Board.

We have published a code of ordinances in two weekly papers circulated in township; also posted printed slips of ordinances throughout the township.

Our township contains twelve schools, all in good sanitary condition.

Cemeteries are carefully attended to.

From general observation we find the township in a very healthy condition.

We have received but one complaint and that of a water-closet. Notified the owner and it was attended to immediately.

CELESTINE TINTLE,  
Secretary.

## SALEM COUNTY.

## ALLOWAY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Jos. G. Kerlin, Alloway; John Drummond, Alloway; Jos. Garton, Cohansey; J. F. Ayres, Assessor, Alloway; W. L. Ewen, M.D., Alloway.

SALEM COUNTY—*Continued.*

Health Board has not been organized. Whooping cough prevailed to some extent in the early part of the season. Health generally good throughout the township.

J. F. AYRES,  
Assessor.

## LOWER PENNS NECK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Charles Lindzey, Salem; Richard D. Batten, Pennsville; Francis Straughn, Pennsville; William H. James, M.D., Pennsville; Ephraim Fowler, Assessor, Pennsville.

We have had no sickness in our township, except scarlatina in a mild form, during the past year, and the Board of Health has not had any work to do. I might state the la-grippe visited our township, but no serious results followed. Our township (lying along the Delaware river) has been a resort for the excursionist of Philadelphia, especially Pennsville, but no contagious disease has been brought to us. We have a very good water-supply from wells at every house, and if kept properly in order no sickness need arise from them.

We have three cemeteries belonging to church property, and we can say that they are well kept.

There is no disease among farm animals except hog cholera in a few cases, and when it does occur it seems to baffle all remedies.

EPHRAIM FOWLER,  
Assessor.

## LOWER ALLOWAYS CREEK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Anderson, Harmersville; J. Kaesby Smith, Hancocks Bridge; Winfield S. Carll, Canton; Edward S. Brown, Assessor, Canton; Francis B. Harris, M.D., Canton.

SALEM COUNTY—*Continued.*

We have no prevalent diseases of animals.

No slaughter-houses in use during past year.

Manufactories as previously reported, except the addition of three small factories for canning tomatoes.

There have been no contagious diseases throughout the township during the past year. We have been exceedingly healthful. Fever and ague which was so prevalent a year or two back has entirely disappeared.

## MANNINGTON TOWNSHIP.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

E. Smith Bassett, David Fog, Barclay Griscom, Samuel P. Allen, Assessor. Post-office address of all, Salem.

The people of this township use well-water. It is good the year round.

Cellars are mostly dry and in good condition.

The houses as a rule have cellars, they are used some for storing vegetables, but not to any great extent. No houses have more than two families.

We have no sewers. Most cesspools have open bottoms and as a rule are either boarded or bricked up at the sides. The contents are either buried or spread on the land.

There has been no prevalent disease this year.

We have no slaughter-houses.

Our schools and other public buildings are in good shape.

The public health laws require property to be kept in good shape; if they are not the Board of Health takes charge.

In case of contagious diseases all necessary caution is taken to prevent spreading of the disease. Most people are vaccinated.

Board has had no cause to make any sanitary improvements the past year.

SALEM COUNTY—*Continued.*

## OLDMANS TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Josiah Crispen, Pedricktown; George Lippincott, Auburn; Frank J. Gavanta, Pedricktown; Levi C. Justice, Pedricktown; H. T. Johnson, Health Inspector.

This township is located along the Delaware river, and separated on the north from Gloucester county by Oldmans creek.

Soil mostly sandy, ground flat, and meadows along the river and creek.

It is an agricultural district.

The water-supply is obtained by wells entirely. Most of the spring water in the wells is hard.

Have no drainage, except by natural water-courses.

The majority of houses are occupied by the owners.

No contagious or special diseases of animals this year.

We have five school-houses in the township, and four cemeteries.

Vital statistics are duly reported.

Health of the community has been for the past year exceptionally good.

Owing to low meadow land in the township, malaria is always more or less prevalent and complicated with other diseases, when present.

## PILESGROVE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John G. Borton, Geo. B. Grier, Charles B. Humphreys; C. H. Richman, Assessor, Woodstown; Dr. L. A. D. Allen, Physician.

Villages are Woodstown, Sharptown and Yorketown.

Topography, undulating. Drainage, tile and surface.

Water-supply by ordinary wells, except in the borough of Woodstown, which has a supply from artesian wells 150 feet deep.

Streets well cared for. Have no public grounds.

SALEM COUNTY—*Continued.*

Houses, principally dwellings. No house inspection.

Mode of lighting, by oil lamps.

Garbage usually fed to poultry and hogs.

Contents of cesspools applied to the soil.

Have had no prevalent disease among animals.

School-houses in good repair and schools well equipped. Have no other public buildings, except a small lock-up in borough of Woodstown.

No prevalent diseases during the year. Have had but little sickness.

Have had no complaints during the year, except from pig-pens and refuse from canning factories.

Have made no sanitary improvements.

C. H. RICHMAN,  
Assessor.

## PITTSGROVE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

R. M. Hitcher, Elmer; W. W. Golder, Centreton; C. P. Atkinson, Palatine; Lewis Whitaker, Assessor.

## BOROUGH OF ELMER.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

C. F. Hitchner, President; A. B. Woodruff, M.D., Inspector; F. Wentzell, Secretary; Adam Kandle, Jr., M. V. Haines, James Creamer; Dr. A. B. Woodruff, Health Inspector. Post-office address of all, Elmer.

The above members were elected last February by our Borough Council as a Board of Health. We have had several meetings, of which we have the minutes, and attended to everything that came to our notice in regard to the health of our borough. Our town is situated in rather a flat part of the country. We have a run of water right through near the centre, which we have ordered dug deeper and kept clean. A part of it has been done and we hope to finish it soon. Our people, as a general

## SALEM COUNTY—Continued.

thing, are cleanly and healthy, taking pride in their homes. We number about 1,000 inhabitants. We light with coal oil and naphtha lamps. All our water-supply is drawn from wells, each home having its own. Garbage is carted away. We have not had any contagious diseases for several years. Everything will be in first class shape as soon as the run mentioned is deepened and cleaned.

F. WENTZELL,  
Secretary.

## SALEM.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Austin Walton, John P. Sheppard, Thomas Hewes, J. Forman Sinnickson, Lewis Hoetzell, Clinton Bowen; C. M. Sherron, M.D., Physician; William Carney, Health Inspector. Post-office address of all, Salem.

On Salem creek, about five miles from the Delaware river.  
Population, 5,500.

We have sewers on two of our principal streets; the drainage outside of this is poor, the land being flat.

The water-supply is, for drinking purposes, mostly from wells, although some use the city water, which comes from Artesian wells and a small lake about three miles from the city.

No public grounds.

Houses mostly occupied by single families, and inspected occasionally by Inspector.

Lighting is by gas mostly in houses and by electricity in the streets. Stores by both gas and electricity.

Out-houses cared for by individuals. Contents either carted away or buried.

Garbage carted into holes or thrown in creek.

Good public schools.

New cemetery in eastern section of city in good condition and used principally. Four other cemeteries within city limits.

No epidemics, and the health generally good.

Dwellings are mostly heated by hot air heaters and coal stoves. Steam is used in some dwellings and public buildings.

Our Board was re-organized July 5th, 1894, and has been very active since. A number of cases of hog-pens, out-houses, etc.,

## SALEM COUNTY—Continued.

where they were in very bad condition, have been seen after and the nuisances remedied.

CLINTON BOWEN,  
Secretary.

## UPPER PENNS NECK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John M. Bevis, Jos. E. Clark, James Hutchinson, Geo. W. Hewitt, Dr. Bort. Post-office address of all, Pennsgrove.

Board organized November 30th, 1894.

Have held a monthly meeting, but no business or grievances reported. The borough of Pennsgrove having been struck off of said township, we have no village in said township, and therefore have nothing but country farm and tenant houses to deal with. No epidemic or contagious disease of any kind reported in said township during said year.

GEO. W. HEWITT,  
Secretary.

## UPPER PITTS GROVE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry Coombs, Elmer; Israel Newkirk, Thos. Y. Hackett, Joseph Gray, Pittsgrove; Geo. W. Horton Fitch, M.D.

During the early spring our community was visited by an epidemic of measles. We know of no fatal cases, nor serious sequelæ. A number of children have been vaccinated, but a few yet remain who should be vaccinated. Our Board had occasion to order buried the carcass of a cow that had been left in the barnyard to decompose for fertilizer. This, I believe, is the only case of this character that has been brought to the attention of the Township Board of Health.

The out-houses and cesspools of the farmers and town people are looked after, occasionally the Board offering suggestions where needed to correct a defect.

GEO. W. HORTON FITCH, M.D.

## SOMERSET COUNTY.

## BEDMINSTER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Ralph Davenport, Chairman, Pluckamin; Erastus Randall, Bedminster; Ellis Tigar, Peapack; E. F. Farrow, M.D., Peapack; J. B. Beekman, M.D. Pluckamin; H. L. Kennedy, Secretary, Gladstone.

No public water-supply. Water for family use is obtained from wells and springs. Water is good and plenty of it. The drainage is very good, the township being hilly. There is no sewerage system. Cellars are dry as a general thing. Land is drained with open ditches and tile under drains. Very little malaria. Most of the houses are built of wood and not very close together, occupied in most cases by farmers. Do not think that there is any occupied by more than two families. Cesspools well built. No diseases of animals. Only two slaughter-houses in township, and those are well cared for, and all the ground in general is well kept.

H. L. KENNEDY,  
Assessor and Secretary.

## BERNARDS TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

F. P. Olcott, Chairman, Bernardsville; J. A. Layton, Treasurer, Liberty Corner; Calvin Thompson, Basking Ridge; A. F. Voorhis, M.D., Health Inspector, Basking Ridge; J. A. Whitenack, Jr., Secretary, Mine Brook.

Five meetings have been called during the year. Several reports of nuisances, and we have had but little trouble with the cases reported, as all seem anxious and willing to remove whatever may tend to injure health.

Four cases of scarlatina were reported to the Board during the year. On receipt of the notice the Board took prompt measures,

## SOMERSET COUNTY—Continued.

and directed that the patients be isolated, which was willingly done by the parties in charge.

Eight cases of diphtheria were reported. The disease was confined to two houses in the village of Bernardsville. The cases were promptly quarantined. Only one case proved fatal.

The mysterious death of four cows at Mine Brook was investigated by the Board and the organs submitted to the chemist, whose analysis demonstrated arsenical poison, administered in the form of paris green and salt. The suspected party is now under bond for her appearance at court.

J. A. WHITENACK, JR.,  
Secretary.

## BRANCHBURGH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John G. Sutphin, North Branch Station; Geo. S. Corle, Neshanic Station; Henry S. Van Fleet, Readington; Adonis Nelson, M.D., Neshanic Station; L. T. Schenck, Secretary, Readington.

This Board has no cause for an extended report.

The health of the township has been generally good.

No complaints have been made to the Board of sufficient consequence to require a formal meeting.

L. T. SCHENCK,  
Secretary.

## BRIDGEWATER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. H. Brokaw, Raritan; Peter Gulick, Raritan; A. L. Stillwell, M.D., Somerville; C. L. Voorhees, Somerville; Peter H. Smith, Bound Brook; A. L. Stillwell, M.D., Health Inspector.

Since our last report we have improved our sanitary condition in several respects. A new building has been erected on the school grounds in Somerville and an addition added to the building used for the instruction of the colored population.

SOMERSET COUNTY—*Continued.*

The county jail has been recently plumbed and put in good condition.

Sewers have been laid for a portion of Raritan and somewhat extended in Somerville.

One case of glanders was dealt with. The children in the public schools were ordered vaccinated last winter. The Board requires notice of contagious diseases, and such notice is uniformly made. In case of children the principal of the school is notified and the children are not allowed to return to school without a permit from the attending physician. Cases so reported are quarantined and fumigation and disinfection are done by the Board when not otherwise provided for. Last meeting of Board, July 14th, 1894.

C. L. VOORHEES,  
Secretary.

## BOROUGH OF SOMERVILLE.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

A. L. Stillwell, President; Geo. W. Anderson, Secretary; J. B. Betts, E. P. Brown, L. T. Reed. Post-office address of all, Somerville.

Owing to fact that we have been so recently organized, we have no report to make.

## BOROUGH OF BOUND BROOK.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR

C. Howard Perry, President; W. S. Negus, Secretary and Treasurer; C. R. P. Fisher, Medical Officer; Chas. McNabb, Inspector; Geo. Stryker; Chas. McNabb, Health Inspector. Post-office address of all, Bound Brook.

This Local Board would respectfully report:

That all the general conditions of the borough for the last year have been very good, with the possible exception of a slight increase of malaria cases this fall from some unknown causes.

SOMERSET COUNTY—*Continued.*

Nearly all the questions in the schedule having been answered in full last year, and as there have been no changes, it does not seem necessary to go over the same ground again.

We are glad to report that the sewers are under way and that the contractors hope to have them finished by the last of December. Appended is a special report of the borough engineer with all the particulars.

The public school has had steam heating put in, with indirect radiation, and it gives good satisfaction.

The Board has received during the year 17 complaints of nuisances of all kinds, all of which were abated.

Four notices of scarlet fever and three of typhoid fever were received. In no case did the disease spread from the house in which it originated. This Board had the well-water analyzed, and finding it very impure, had the well closed immediately. All the patients recovered.

The Inspector examined, in his general spring inspection, 250 houses, and ordered the out-houses in many instances cleaned and the cesspools emptied.

Dry lime, carbolic acid and copperas was given for disinfecting purposes where the parties were poor and unable to purchase.

*Special Inquiries for 1894.*

Yes, we require report of communicable diseases.

Yes, so far every known case is reported.

The Board orders the floors and walls cleaned and then washed with a solution of corrosive sublimate.

October 10th was the date of last meeting.

CHARLES McNABB,  
Inspector.

W. S. NEGUS,  
Secretary and Treasurer.

*Sewerage System at Bound Brook, N. J.*

The following description of the sewerage system which is now in course of construction in Bound Brook, has kindly been furnished by H. M. Herbert, C. E.:

SOMERSET COUNTY—*Continued.*

The borough of Bound Brook is situated on the north bank of the Raritan river, nineteen miles from its outlet. It has an area of about one and three-tenths square miles, and a population of 2,000. The principal business street is nearly parallel with and only about eleven and one-half feet above the surface of water in the river, at its ordinary stage. This street is approximately level for its entire length. North of this the ground is much higher and undulating. The town has an abundant water-supply, taken from a mountain stream. The water-works were installed in 1889, and, owing to the liberal use of water by the inhabitants, it became imperative that some means be adopted for disposing of the waste-water. The sewerage question was first agitated two years ago, but took no definite shape until October, 1893, when the Council instructed the Engineer to prepare a plan for sewerage Main street, which sewer was also to form a part of a system for the entire borough. This brought the matter fairly before the people, and the Council was soon petitioned to extend the sewers throughout the most thickly-populated portion of the borough. The plans were made, and after the usual amount of opposition and delay, the contract for building the system was awarded on September 4th to Maguire, McKnight & Co., of Buffalo, N. Y., for \$19,140. Ground was broken on October 1st, and the contractors are now laying about 600 feet of pipe per day. The material excavated consists of sand and gravel, with light strata of clay. The work is to be completed on or before March 1st, 1895. The plans are for a "separate" system, the utmost care being taken to exclude surface water as much as possible. The crude sewage is discharged directly into the Raritan river at the east boundary line of the borough. It was deemed unnecessary, at present, to treat the sewerage before entering the river. The part of the system now under contract consists of:

- 325 feet of 20-inch cast iron pipe sewer.
- 562 feet of 20-inch vitrified pipe sewer.
- 3,774 feet of 15-inch vitrified pipe sewer.
- 2,391 feet of 12-inch vitrified pipe sewer.
- 2,188 feet of 10-inch vitrified pipe sewer.
- 15,306 feet of 8-inch vitrified pipe sewer.

SOMERSET COUNTY—*Continued.*

89 manholes.

28 lamp holes.

12 Van Vranken flush tanks.

The minimum grades for the different sizes of pipe are as follows:

20-inch pipe, 0.30 per 100.

15-inch pipe, 0.22 per 100.

12-inch pipe, 0.25 per 100.

10-inch pipe, 0.25 per 100.

8-inch pipe, 0.40 per 100.

Manholes are placed at all changes in grade or alignment, and either a manhole or lamphole at distances of not over 300 feet apart along the line of all sewers. Y connections are placed every 25 feet on each side of sewer. The flush tanks are of 250 gallons capacity, and are placed at all "dead" ends of pipe.

All flush tanks, manholes and lampholes are provided with perforated cast iron covers. To prevent the water, in time of freshets in the river, from backing up in the pipes and flooding the cellars on Main street, an automatic valve, with receiving tank and gasoline pump, will be placed near the outlet, and the sewerage will be pumped during the continuance of high water.

The system was designed by and is being constructed under the supervision of H. M. Herbert. By request of the Board of Trade, the plans were submitted to J. J. R. Croes for examination, and were approved by him.

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BOROUGH OF RARITAN.

We have received the following communication:

*Henry Mitchell, M.D., Secretary State Board of Health:*

DEAR SIR—Raritan is governed by a Board of Commissioners. It has no Local Board of Health.

C. F. SMITH.



## SOMERSET COUNTY—Continued.

## FRANKLIN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John Stothoff, Middlebush; John Suydam, Franklin Park; Peter Statts, South Bound Brook; Sanford, Snyder, East Millstone; J. Howard Cooper, Health Inspector, Middlebush.

This township has a good location; moderately populated, and a temperate climate.

The township is in good healthy condition.

Like all country sites, there is little more to be stated about it.

The Local Board of Health adopted ordinances three years ago, which require that all communicable diseases be reported to above mentioned Board, who take action on said report, and act according to the advice of the Medical Inspector, which is to quarantine said property and attend to out-door buildings, by the rules that are printed by State Board.

The Board has not met during the last year.

## HILLSBOROUGH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

J. V. D. Smith, Weston; Mr. Wikoff, Millstone; J. Hoff; A. D. Baird, Frankfort, Assessor; W. H. Merrell, M.D., Secretary.

There are two small slaughter-houses. These have been inspected. Neither one is satisfactory. The worst of the two is about to close up. A circular giving outline of instructions to butchers might be of use.

There are no manufactories, at least on any considerable scale.

The schools are well kept.

Hillsborough is entirely a rural township, there being no village of 150 inhabitants, so there are but few houses of more than two stories and no fire escapes.

There is a well-located cemetery at Neshanic. The burying grounds are for the most part by the churches. Some of these

## SOMERSET COUNTY—Continued.

are not well located. The Board of Hillsborough has not issued any code.

The care over contagious diseases is by the physician in charge.

But few houses have other means of ventilation than the windows and chimneys.

Very little summer sickness during the year.

The Board organized in the spring. It was called on to inspect a well, the water of which was spoiled. The owner of the well claimed it was contaminated by a brook belonging to himself, and the brook, he claimed, was contaminated by a neighbor. There was no evidence to support this last statement, and the Board held that it was a private matter and they were not under obligations regarding it. The Board was also called upon to abate nuisances emanating from slaughter-houses in two instances.

W. H. MERRELL,  
Secretary.

## MONTGOMERY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Isaac Williamson, Rocky Hill; Jno. S. Hoagland, Griggstown; J. Harvey Stout, Stoutsburg; Arthur Dixon, Assessor, Harlingen; A. B. Mosher, M.D., Griggstown.

Located in the southern part of Somerset county.

Soil, almost entirely red shale. Topography, rolling. Soil nearly all under cultivation.

Water-supply principally from wells.

Houses generally with cellars, largely used for storing vegetables. No inspection.

Lighting generally by kerosene.

No slaughter-houses or abattoirs.

Six schools, all in good order.

Know of but one public cemetery. Several belonging to churches and private parties.

The Board has not exercised any authority in respect to vaccination or contagious diseases.

SOMERSET COUNTY—*Continued.*

No prevalent diseases known to the Board.

Nothing whatever has been done by the Board except organize, and know of nothing calling for action during the year.

JNO. S. HOAGLAND,  
Secretary.

## NORTH PLAINFIELD TOWNSHIP.

The township is very small and nearly all of the territory is included in North Plainfield Borough, so that there is nothing to report.

J. H. COOLEY,  
Assessor.

## BOROUGH OF NORTH PLAINFIELD.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Rev. W. E. Honeyman, President; P. M. French, Andrew Lane, Frank Curtis, Dr. J. H. Carman, Secretary; Frank M. Whiteley, Health Inspector.

North Plainfield has enjoyed another healthy year, having no epidemics, and few sporadic cases of contagious disease.

Have had several cases of tuberculosis in cows reported, which the Board have promptly investigated and reported to the State authorities.

J. H. CARMAN, M.D.,  
Secretary.

## WARREN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John D. Bornmann, Diedrich Ehlen, John Gunten, Peter J. Zeglio, M.D. Peter Newmiller, Assessor. Post-office address of all, Warrenville.

No general system of drainage; the land is drained by blind ditches.

SOMERSET COUNTY—*Continued.*

The general water-supply is from springs, and wells varying in depth. Water in general is good.

There is no sewerage.

Houses are mostly frame buildings.

School-houses are all in good order and are well ventilated. The buildings are nearly all new.

There have been no prevalent or epidemic diseases during the year. The general health in the township has been good.

PETER NEWMILLER,  
Secretary.

## SUSSEX COUNTY.

## ANDOVER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Levi H. Space, Chairman of Town Committee, Newton; Benjamin D. Totten, Township Treasurer, Andover; Charles M. Howell, Andover; Jephtha C. Clark, Andover; Green C. Cook, Assessor, Andover.

Source of water-supply, wells, cisterns and springs.

Population, about 400. Greatest number depend upon cisterns for water-supply.

No system of drainage. Cellars usually dry. No swamps near. No sewers.

Houses all have basements or cellars. No tenement houses of more than two families. No house-to-house inspection.

No prevalent diseases.

No complaints of slaughter-house nuisances.

Our Local Board have passed no ordinances.

General health throughout the town and township has been such that special inquiry or investigation have been uncalled for.

Area of township, about 14,000 acres. Population, about 1,100.

No provision made for dealing with contagious diseases.

SUSSEX COUNTY—*Continued.*

Don't think the Board of Health concern themselves as to the sanitary condition of houses, or as to the health of the community.

GREEN C. COOK.

## BYRAM TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Peter D. Smith, Chairman, Waterloo; Robert Slaght, Stanhope; David Stone, Stanhope; Daniel W. Goble, Assessor, Andover; C. K. Davisson, Health Inspector, Stanhope.

Drainage, natural and rapid.

Slaughter-houses are kept clean and neat.

There are five school-houses in the township. Four of them have been built in the last four years, with all the modern improvements.

Public health laws are well observed.

No prevailing diseases.

The Board of Health meets, but has had nothing to do this year.

## FRANKFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Linus Clark, Victor Compton, Manning F. Lantz, E. S. Dalrymple, M. D., Health inspector; George Phillips, Assessor. Post-office address of all, Branchville.

## GREEN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel VanSyckle, President, Tranquillity; Wm. Van Riper, Tranquillity; M. S. Hibler, Huntsville; Dr. S. B. Straley, Huntsville; M. W. Northrup, Assessor, Huntsville.

SUSSEX COUNTY—*Continued.*

Water supply from springs and wells.

Drainage natural.

Houses have cellars. They are used in the ordinary way and are generally dry.

Yearly house-to-house inspection is not made.

Have no slaughter houses in township.

General health of the township good.

There has been no disease among animals.

Every complaint that has been made has been looked into at once and the cause abated in all cases.

Last meeting of the Board, September 8th, 1894.

M. W. NORTHRUP,  
Assessor.

## HAMPTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Robert G. Kinney, Chairman, Newton; Jacob R. Stoll, Newton; Chas. M. Williams, Bale; Frank Emmans, Assessor, Newton.

This being a small and very healthy township it has been thought unnecessary to go to the expense of a special meeting for the purpose of making a report.

I give above, names of the Board, as required.

FRANK EMMANS,  
Assessor.

## HARDYSTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James I. Crane, Franklin Furnace; Daniel B. Ross, Stockholm; Dr. J. B. Pellet, Hamburg; Horace E. Rude, Hamburg; John Linn, Health Inspector, Hamburg.

We have not been called upon to investigate any cases of sickness, in fact our township has been unusually healthy.

SUSSEX COUNTY—*Continued.*

## LAFAYETTE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel Warbasse, Jacob Maines, John N. Calvin. Post-office address of all, Lafayette.

The Township Committee has not organized as a Board of Health. They think it is not necessary.

NELSON ACKERSON,  
Assessor.

## MONTAGUE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Santford Nearpass, Tristates, N. Y.; Timothy Shay, Montague; James A. Rundle, Montague; Wm. P. Hornbeck, Assessor, Montague.

There have been no special meetings of the Board the past year. There have been no complaints.

## TOWN OF NEWTON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Peter S. Decker, Charles S. Steele, Martin E. Hough; George Hardin, Assessor and Secretary; Shepard Voorhees, M.D., President. Post-office address of all, Newton.

The area of the town of Newton is 1,300 acres. A recent census gives a population of 3,250.

The present water-supply is from wells and cisterns. An appropriation of \$110,000 has recently been voted to place a public water plant in the town. The source of supply will probably be one of the lakes in this vicinity.

Drainage is by a few surface drains, some of which are covered over part of their course. The lay of the land is such as to generally insure good drainage and dry cellars.

SUSSEX COUNTY—*Continued.*

The streets are kept clean and gutters free from obstructions. Each year since 1891 a portion of the business streets has been macadamized, and granolithic sidewalks laid. The present year the work was sufficiently advanced to make these thoroughfares smooth and attractive driveways.

There are not above six houses in the town occupied by more than two families.

Many of the older houses have basements, in which generally are located the kitchen and dining-room. Most of the houses built in recent years have all living rooms above ground.

There is no sanitary inspection of either public or private houses.

Churches, business houses and some dwellings are lighted by gas. During the year an electric light plant, owned by a private company, has been erected. The streets are well lighted by the use of sixty-three arc lights. The company is at present making preparations for inside lighting.

There is no ordinance in force governing the collection of garbage, nor the cleansing of cesspools and out-houses.

Slaughter-houses are in remote parts of the town, back from the public highways, and are not a source of complaint.

The two shoe factories are substantial brick buildings, well lighted and ventilated. There is no known nuisance in connection with them.

The only public school building is a commodious, well-built structure of stone and brick. Last year four new rooms, as an annex, were added to the building, giving ample accommodations for the 500 pupils who attend there. At the same time the

main building was renovated, and three Smead heating and ventilating furnaces were placed in the basement. By means of these furnaces the building is kept in excellent sanitary condition; wholesome air and an even temperature are maintained throughout.

The county built a new and modern jail in the town two years ago, and due regard was given to sanitary features.

Three well-kept cemeteries are within the town limits. Though

SUSSEX COUNTY—*Continued.*

somewhat centrally located, they do not appear to endanger the health of those living near them.

No ordinances have been passed by the present Board of Health.

The last school census gives 808 children of a school age in the district; of these, 363 are reported as unvaccinated. Owing to a recent "small-pox scare," the larger proportion are now vaccinated.

There is no money appropriated for sanitary expenses.

The public health has been good. No epidemic has occurred, and, fortunately for the people, very few, if any, cases of contagious disease have been among them.

*Answers to Special Inquiries for 1894.*

1. The Board does not require communicable diseases to be reported.

4. The Board has not cleansed apartments contaminated by communicable disease.

5. October 1st, 1894, date of last meeting.

SHEPARD VOORHEES, M.D.,  
President.

## SANDYSTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James M. Stoll, Hainesville; George E. Hursh, Layton; Madison Shay.

## SPARTA TOWNSHIP.

No organized Board.

## STILLWATER TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Joseph L. Hetzel, Stillwater; J. S. Obydyke, Stillwater; Jesse Sherrerd, Swartswood; David R. Swazey, Fredon; John Wintermute, Middleville.

SUSSEX COUNTY—*Continued.*

This Board has very little to report in addition to what has been presented in former years.

Tuberculosis of cattle made its appearance in a single herd. The board was promptly notified and the owner at once destroyed the two infected cows. The herd has been repeatedly inspected, and is now free from disease.

The Board has passed no ordinances during the year.

There has been few contagious diseases.

Measles and whooping cough have been the only epidemics.

Scarlet fever and diphtheria appeared in a single case.

One case of smallpox appeared in the month of September, which called the Board to active duty. In fact, the Board has little business except to establish quarantine and provide for the proper management of this disease, which, up to this time, shows that the efforts of the Board have been effectual.

The Board is using all available means to secure systematic vaccination. The State School law regarding vaccination has been enforced. And there is a more general feeling of the protection afforded by vaccination.

There have been three regular meetings of the Board. The last meeting was held on October 20th, 1894.

J. S. OBDYKE,  
Secretary.

## VERNON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Abram Van Winkle, Assessor, Glenwood; Benson F. Snyder, Glenwood; A. P. Shaw, Vernon; John S. Drew, Vernon; Carlos Allen, M.D., Vernon, Health Inspector.

We have no organization, consequently no report.

ABRAM VAN WINKLE.

## WANTAGE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

F. V. R. McCoy, S. M. Parcell, Brice Roy, Jacob Swartwout. Post-office address of all, Deckertown.

SUSSEX COUNTY—*Continued.*

The township is traversed by mountains and valleys extending northeast and southwest.

School buildings are as good as the average of other adjoining townships; some need repairing.

Our township being composed of farmers, having no town under its jurisdiction, there is little cause for action being taken.

We have organized our Town Committee with the Assessor in the Board of Health, and have had occasion to do but little. The village of Deckertown, during the past summer, have dumped their filth and garbage in the township, and from the complaint of some of the citizens, we were obliged to prohibit its continuance. This is all the complaint that has been made.

## BOROUGH OF DECKERTOWN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Edward C. Tuttle, President; William Barkman, Secretary; H. D. VanGaasbeek, M.D., Inspector; J. W. C. Carber, Evi A. Wilson; H. D. VanGaasbeek, M.D., Health Inspector. Post-office address of all, Deckertown.

Located in northern part of Sussex county, on high ground.

Population 1,200.

Slate soil. Natural drainage, good.

No public supply.

No complete report can be made, as the Local Board was appointed and organized on 18th inst.

## WALPACK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Martin Hull, Flatbrookville; Nicholas Tillman, Wallpack Centre; Cornelius D. Gunn, Wallpack Centre.

We have no Board of Health. The above named are the members of Town Committee. I have nothing to report different from last year.

J. W. BUNNELL,  
Assessor.

## UNION COUNTY.

## CLARK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George Cordes, Chairman; Albert Lambert, Isaac Terhune, F. P. Bullman, Assessor; Dr. W. E. Cladek, Medical Member. Post-office address of all, Rahway.

We have nothing new to report. We have had no contagious diseases the past year, very little sickness and but few deaths.

There seems to be no occasion for Board meetings, therefore, we have had none since the organization.

F. P. BULLMAN,  
Assessor.

## CRANFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Edmund B. Horton, President; Nathaniel R. Foster, Lucius Bradley, Philip Jahn, Joseph Severance, J. K. MacConnell, M.D., Edward S. Crane, Assessor. Post-office address of all, Cranford.

There is nothing new to report this year. The health of the township is good. We have no cemeteries. Population about 2,000. The Board met on three occasions to hear complaints; the last on June 19th.

EDWARD S. CRANE,  
Secretary.

## ELIZABETH CITY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John W. Whelan, President; Wm. A. M. Mack, M.D., Norton L. Wilson, M.D., R. I. Montfort, M.D., City Physician; John I. Donohue, I. I. Manning, City Clerk and Secretary; E. G. Putnam, Health Inspector. Post-office address of all, Elizabeth.

UNION COUNTY—Continued.

Repairing of streets has been constantly carried on during the year, with the exception of a short time during the winter. Most of the public parks have been very much improved, and men constantly employed to care for them.

There has been quite a large number of private houses and several of the finest business blocks in the city erected during the past year. Grade crossings of the two railroads have been practically abolished by the elevation of the Pennsylvania railroad tracks and depression of the streets to pass under the tracks of the Central railroad.

Garbage is taken outside of city limits; contents of water-closets and cesspools to almshouse farm.

We have eight public schools, five Catholic schools, one high school and a number of private schools.

Health Inspector visits all cases of contagious diseases, disinfects and quarantines when necessary. Vaccination is compulsory.

The smallpox epidemic, including free vaccination, cost the city about \$6,000. Other sanitary expenses as before.

There has been a vast improvement in ventilation.

No. of cases of smallpox reported .....	30
No. of cases of diphtheria reported.....	29
No. of cases of scarlet fever reported .....	59
No. of cases of measles reported.....	150
No. of cases of typhoid fever reported .....	38

The Board has caused the construction of sewers in several streets. Owing to relaying tracks for the trolley system the streets have been constantly torn up, thus making it impossible for them to be kept in good condition. Aside from this the streets and gutters have been in much better condition than for the past few years. The present Street Commissioner has paid more attention to notices from the Health Inspector than his predecessors, and we see the good effects from it.

On the 6th of last November, at midnight, the first cases of smallpox were reported. There were but three fatal cases out of the thirty that we had. One of those was a child who had been ill for some days before a physician was called, and died before it could be removed. Another, a tramp, who would have died

UNION COUNTY—Continued.

without the aid of smallpox; the third, a child that was reported as having measles by a physician down town and was in the house for four days before a physician was sent for, who found it to be a bad case of smallpox. By activity on the part of all concerned the epidemic was soon under control. During the months of August and September we had a slight epidemic of typhoid fever, owing to the unprecedented dry weather. The water in wells in this city, as well as in other portions of the country, became very low, and the cause of the epidemic was directly traceable to the use of polluted water from wells. The first outbreak occurred on Rahway avenue. There were some twelve or fifteen cases where the people used water from one well. All the wells that supplied water for twenty families on the avenue from Union street to the Pennsylvania railroad were closed, and the owner introduced the city water. Nearly all the cases on Fulton and East Ferry streets were traced to one well, from which they all drew water. This well was also closed. There were 38 cases reported, but from all data available there were probably 60 cases in the city. But few were fatal, the majority of them being of a very mild type. The disease has now nearly disappeared. I have occasional reports of isolated cases. Aside from the smallpox and typhoid epidemics, we have been tolerably free from contagious diseases during the past year.

E. G. PUTNAM,  
Health Inspector.

FANWOOD TOWNSHIP.

NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Wm. Terry, Inspector, Plainfield; L. W. Miller, Scotch Plains; A. B. Downer, Fanwood; John Robison, Scotch Plains; F. W. Westcott, M.D., Secretary, Fanwood.

We have very little to report this year. No prevalent diseases; perhaps a little more malarial trouble than in former years, especially along the brook which is the boundary line of portions of Somerset and Union counties. Here the dry summers, in connection with deposits from mills and sewage from Glen

UNION COUNTY—*Continued.*

Side Park, have caused much trouble. Along this stream I have noticed during the dry season several cases of bowel trouble; no fatal cases.

In Fanwood proper the question of sewerage has engaged the attention of the Board. We ordered a house-to-house inspection, having each cesspool cleansed, and in many cases filters were made for the overflow, which, as a temporary means, seemed to correct all bad odors.

Only a portion of the township has water-supply other than wells and cisterns. This portion is Fanwood, where about thirty houses receive water-supply from the Plainfield Water Company. This comes from driven wells. The water is hard, and is considered very pure and good. The remainder of the township depend on wells and a very few on cisterns for their water-supply. The cesspools in a portion of the township are made with open bottoms, and in Fanwood proper they are mostly cemented sides and bottom, and are emptied by overflow pipes into a second and sometimes a third cesspool, from which the water or contents flow into a filter.

In a few instances we have had trouble about the removal and burial of dead animals.

Our people are prompt to amend any cause for complaint, and seem willing to help the Local Board in all things pertaining to the health of the community.

F. W. WESTCOTT, M.D.,  
Secretary.

## TOWNSHIP OF LINDEN AND LINDEN BOROUGH.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William H. Donalson, Chairman, Linden; Frank B. Stimson, Linden; James W. Hope, Roselle; J. Hampton Eddy, Tremley; Henry C. Van Der Hoef, Roselle; Robert A. Shotwell, Rahway; John F. Spinning, Elizabeth; Daniel W. Reynolds, Roselle; Dr. Henry C. Pierson, Health Physician, Roselle; Milton C. Loudon, Health Inspector, Linden; John A. Etheridge, Secretary, Linden.

UNION COUNTY—*Continued.*

## LINDEN BOROUGH BOARD OF HEALTH.

Edward Gulager, Chairman; John A. Etheridge, Secretary; Oscar Gesner, Ferd. Blancke, Fred. G. Blancke, Parmenus Rue, A. Ernst Knopf; Milton C. Loudon, Health Inspector. Post-office address of all, Linden.

In the borough of Linden and all parts of the township, with the exception of Roselle, unusual good health has prevailed during the year. At Roselle there has been some half dozen cases of typhoid, as well as some cases of typhoid-malaria, all of which have been of a mild form.

*Water-Supply.*—At present is obtained solely from wells. In the near future we anticipate a supply from artesian wells, the Township Committee having granted a franchise to a private corporation for the purpose of supplying the township and borough.

*Drainage.*—Natural. Cellars generally dry.

*Houses.*—One tenement house in borough of Linden, containing six families. All others occupied by private families only. Inspection made upon complaint.

*Cesspools.*—Mostly air-tight, and the excreta is removed by horse and cart, and, as a rule, buried in the earth and in some few cases used as a fertilizer.

*Animals.*—No diseases prevailing among cattle, horses or swine.

*School-Houses.*—Our school-houses are in an excellent sanitary condition.

*Health Laws.*—The Local Board of Health has adopted a code of ordinances, as recommended by the State Board, which will be rigidly enforced if found necessary.

*Vital Statistics.*—Physicians, nurses and undertakers are very derelict in making returns, as per Section 13, Act of 1887.

*Diseases.*—There have been no contagious diseases, except at Roselle. All precautionary measures were taken to limit the same. I would also report a number of cases of mumps and whooping cough, which were prevalent both in the township and borough during the summer months.

*Remarks.*—The general health of the township and borough at the present writing is unusually good. My attention has been called, as Health Inspector, to some extent, to compel private



UNION COUNTY—*Continued.*

property owners to adopt a proper mode of drainage (house) where private dwellings are concerned, and have met with fair success. We have had quite a number of nuisances reported during the past six months, but as yet have not been compelled to prosecute offenders.

JOHN A. ETHERIDGE,  
Secretary.

MILTON C. LOUDEN,  
Health Inspector.

## NEW PROVIDENCE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

John M. Badgley, New Providence; Lewis E. Bergmiller, Berkeley Heights; John R. Burnett, Jr., Chairman, New Providence; A. M. Cory, M.D., Health Inspector.

A few cases of scarlet fever occurred in the past winter, but the spreading of the disease was successfully prevented. There was cholera to a noticeable extent during the summer, but tractable. Fevers have assumed an intermittent form, easily eradicated.

No "Code" adopted.

Inspection has been made of a number of complaints.

A. M. CORY, M.D.,  
Inspector.

## CITY OF PLAINFIELD.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

George W. Rockfellow, President; Lemuel W. Serrell, Henry B. Newhall, Geo. W. Endicott, M.D., H. O. Newman, Secretary; Marvin M. Dunham, Health Inspector. Post-office address of all, Plainfield.

The Board of Health has met with regularity and considered carefully all matters of sanitary interest and have acted promptly in all emergency cases. The health condition of the city compares very favorably with that of previous years. No alarming contagious diseases have prevailed.

UNION COUNTY—*Continued.*

The percentage of deaths among children from scarlet fever and diphtheria has been very small.

Water-supply is from artesian wells and furnished by the Water-supply Company. The public schools are now supplied from this source and it is also being steadily introduced into private dwellings.

Drainage has mostly been effected by cesspools, but the city is now being effectually supplied with sewers.

Garbage matter and out-house collection is disposed of by licensed scavengers.

Diseases among animals have not prevailed to any alarming extent.

Plumbing ordinance now being considered in anticipation of the completion of the sewerage system.

The Inspector has made 677 inspections. 618 cesspools and 377 vaults have been emptied.

H. O. NEWMAN,  
Secretary.

## CITY OF RAHWAY.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Chas. B. Holmer, M.D., President; H. Page Hough, M.D., John M. Randolph, M.D., H. B. Rollinson, Daniel K. Ryno; S. Rusling Ryno, Secretary and Inspector; A. E. Jewell, Assistant Health Inspector. Post-office address of all, Rahway.

There is nothing much to report this year. General information with reference to location, climate, sanitary laws and requirements, water-supply, sewers, etc., has been heretofore reported. Plans are being considered for an extension of our sewer system during the coming year. The past year has been generally healthful, no contagious or infectious diseases being prevalent. A few cases of scarlet fever have been recently reported, but not in any sense an epidemic.

A house-to-house inspection was made last spring, and wherever nuisances were found to exist steps were taken to abate them.

S. RUSLING RYNO,  
Secretary and Inspector.

UNION COUNTY—*Continued.*

## SPRINGFIELD.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Edward D. Williams, J. J. Hoff, Albert P. Carter, Abner P. Stiles, T. W. Harris, M.D.; T. W. Harris, Health Inspector. Post-office address of all, Springfield.

The general health of the township has been unusually good during the past year. There have been no contagious diseases, with the exception of two cases of scarlet fever; both mild.

There have been but very few complaints made to the Board. The sanitary condition of the dwellings in the township will compare favorably with most country towns.

The Board has met as often as seemed necessary.

T. W. HARRIS, M.D.

## SUMMIT TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Chas. S. Day, Parker W. Page, Dr. Wm. H. Risk, Wm. H. Lawrence, Jas. W. Reeves, J. J. Lane, Acting Secretary and Inspector; J. J. Lane, Health Inspector. Post-office address of all, Summit.

Natural drainage. Plumbing partly controlled by Board.

All garbage taken out of township.

Out-houses and cesspools water tight, within 100 feet of water-supply.

The Board has adopted a new code of ordinances, one section which prevents owners of lands to have sunken lots on marsh lands.

## UNION TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

D. H. Beach, Union; William A. Allen, Hilton; Thomas Grey, Union; D. Hobart Sayre, Union.

UNION COUNTY—*Continued.*

We have the pleasure to report that the condition of the public health has been exceptionally good during the year past.

No diseases have been epidemic, and but few complaints of existing nuisances have been received. Our rule is to serve notice on all parties complained of to abate the nuisance within a given time, or penalty will be imposed. The drouth affected the water-supply in some sections.

Our rule is that notice must be given when communicable disease occurs, and most of the physicians comply. Action is taken on such reports when thought necessary.

In cases of contagious diseases the premises are disinfected, and any clothing or articles deemed dangerous are burned.

Our last regular meeting was held June 4th, 1894, but complaints are always noticed by our individual members without the expense of a regular meeting, unless the case is thought to be grave enough to warrant the same.

Our ordinances and rules are on the lines laid down by the copy issued by the State Board.

D. HOBART SAYRE,  
Secretary.

## WESTFIELD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Martin Wells, Charles F. Connant, Nathaniel B. Gardner, Jos. B. Harrison, M.D., John M. C. Marsh. Post-office address of all, Westfield.

Public school buildings are inspected monthly.

Report of contagious diseases is required. Such reports are usually made through the medical attendant; isolation is secured; contagious disease cards are put in a prominent place on the house and not removed until fumigation and cleaning is done.

Fumigation not done by the Board, but by attendant. All children from houses containing contagious disease are excluded from school. Vaccination is recommended, but not compulsory. Usual number of cases of pneumonia during winter.

Diarrhœal trouble with dysenteric tendencies was quite prevalent during the summer.

UNION COUNTY—*Continued.*

Malarial fever rather more frequent than during past year. No epidemic.

We have had a brook cleaned out; compelled emptying of cesspools and cleaning out water-closets. We forbid emptying dirty or waste water into gutters or running streams, and compelled the building of many cesspools.

Upon complaint of nuisance the subjects are investigated and official notice promptly sent to offending parties to abate said nuisance within a certain number of days.

The entire village is inspected each year and reported upon, and unsanitary conditions are corrected.

JOHN M. C. MARSH,  
Secretary.

## WARREN COUNTY.

## ALLAMUCHY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Samuel H. Drake, Mathias Hibler, C. M. Townsend, B. A. Hendershot, E. J. Harden; C. M. Townsend, Health Inspector. Post-office address of all, Allamuchy.

Location, on the side of Allamuchy mountain.

Climate is fresh and bracing.

Population, between 500 and 600.

About four-fifths of the township is a rolling table-land with the mountain on the southeast, with vast mineral resources; the rest low meadows and swamps, but well drained.

Water-supply by private wells and springs.

No public system of drainage.

Roads are in good condition. A great improvement is being made by graveling.

Houses are well-built frame structures.

Out-houses are cleaned when necessary and contents buried.

No disease of animals as far as heard from.

WARREN COUNTY—*Continued.*

No slaughter-houses.

Four school-houses; no other public buildings.

No diseases of a more serious nature than colds.

There has not been a complaint made to the Board of Health this year. The people are in general good health, and are alive to the importance of good sanitary conditions favoring good health, so it left us nothing in particular to do.

BENJ. A. HENDERSHOT,

Clerk.

## BLAIRSTOWN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

E. C. Hoagland, Chairman, Vail; W. E. Sigler, Clerk, Blairstown; H. O. Carhart, M.D., Blairstown; Wm. C. Howell, Blairstown; J. J. Linaberry, Blairstown; Nathan Alpaugh, Blairstown; H. O. Carhart, Health Inspector.

Location, along Paulins Kill creek, six miles east of Blue Mountains. Population, 1,700. Climate changeable.

Limestone soil. Drainage not good. Surface conditions bad.

Public water-supply. But a number of wells used which are bad, owing to surface-water emptying therein.

The main street in the village of Blairstown is in a very bad state; some parts of it seldom dry.

One house has been condemned on account of uncleanness.

Garbage is dumped in suburbs. Out-houses emptied and contents drawn away at night.

Slaughter-houses were in bad shape previous to organization of Health Board.

Nine school-houses; six good, three bad. The public school building in the village of Blairstown should be condemned.

Cemeteries and burial grounds all right.

Board passed an ordinance, and Health Inspector has done some good work in cleaning up out-houses, etc.

The Assessor collects vital statistics.

Only one case of quarantine, which was in a case of scarlet fever in a public institution. Patient was isolated, and disease prevented from spreading. A large number were vaccinated during past summer, owing to small-pox case six miles away.

WARREN COUNTY—*Continued.*

Whooping cough, and two cases of diphtheria have occurred.

An ordinance sent out by State Board was passed, and a number of out-houses were cleaned and pig-styes removed to suburbs of village. Also public buildings were inspected and drainage improved. Several wells condemned and also slaughter-houses.

W. B. SIGLER,  
Clerk.

## FRANKLIN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

James K. Smith, New Village; Elisha Beers, New Village; J. M. Huffman, Asbury; Dr. Samuel Johnson, Asbury; W. F. Pursel, New Village.

## FRELINGHUYSEN TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Price Sticles, Johnsonburg; Geo. Lundey, Johnsonburg; Geo. B. Armstrong, Marksboro; A. L. Cook, Assessor, Marksboro.

Very hilly country.

About 900 population.

Drainage, moderately good.

Mostly wells used.

Garbage mostly thrown in highway or out in the back lot.

Five churches.

Four cemeteries.

There has been nothing done, for there has been no organized Board.

## GREENWICH TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

H. H. Stone, Stewartville; F. H. Metler, Stewartville; Enos E. B. Beatty, M.D., Stewartville; Philip Hance, Bloomsbury; William Sherrer, Secretary, Bloomsbury.

WARREN COUNTY—*Continued.*

## HARDWICK TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Geo. B. Armstrong, Marksboro, Chairman; Geo. Lundy, Johnsonburg; Price Sticles, A. L. Cook, Assessor, Marksboro.

There is no organized Board of Health.

## BOROUGH OF HACKETTSTOWN.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Geo. W. Smith, President; Jas. Tamblin, Vice-President; A. W. Cutler, Dr. A. E. Martin, Dr. J. S. Cook, Judson Martenis, Thos. Nolan, J. M. Everitt, Health Inspector. Post-office address of all, Hackettstown.

Water-supply from a reservoir owned by the town. Nearly all the houses take it. It is never discolored; has no iron taste; soft. It is very good at all seasons of the year. Reservoirs and pipes are cleaned occasionally, but very few, if any, depend on wells or cisterns.

Surface drainage. Water-level is such as to secure dry cellars. No malaria.

Houses generally have cellars. About a dozen houses of more than two families. No yearly house-to-house inspection.

Refuse dumped in unused streets, and excreta disposed of in cesspools and privies.

No prevalent diseases this year. Assessor does not inquire as to losses of animals and as to contagious diseases. No registry of persons keeping horses, cows, hogs, etc.

No slaughter-houses in borough limits.

No new manufactories, or nuisances from any factories.

One public school building and seminary.

No almshouses or hospitals.

One union cemetery.

Board has passed no ordinances.

No contagious diseases and vaccination is general.

WARREN COUNTY—*Continued.*

Last meeting of Board, June 15th. Amount of money appropriated for use of Board this year, \$150.

Board have had three meetings this year. One death from diphtheria was reported June 12th, and the Board ordered the child buried at once, and the Inspector to see that the house was properly fumigated.

At the meeting on June 15th, the Board recommended a sewer to dispose of the surface drainage on one of the streets of the town.

A. C. PROTZMAN,  
Secretary.

## HARMONY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Henry Metz, Harmony; James W. DeWitt, Harmony; Ralph Rush, Montana; James D. DeWitt, M.D., Harmony; Cornelius Pittinger, Clerk, Harmony; J. D. DeWitt, M.D., Health Inspector.

The health of the people in the township, since our last report, has been good. There has been no diseases of a contagious or malignant nature, except two cases of diphtheria—ordinary type. No contagious diseases among our domestic animals. Very little or no attention paid to vaccination.

J. D. DeWITT, M.D.

## HOPE TOWNSHIP.

## NAMES AND POST OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

I. B. Hildebrant, Mount Herman; Samuel Wildrick, Butteville; Henry Whitsull, Townsbury; A. A. Van Horn, Assessor, Hope.

## INDEPENDENCE TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Dr. F. W. Hogerty, Vienna; A. B. Leigh, Danville; Geo. F. Martenis, Danville; John Titus, Hackettstown; C. H. Albertson, Assessor, Vienna.

WARREN COUNTY—*Continued.*

We have had no contagious or epidemic diseases, and nothing unusual in regard to health or sanitary conditions.

C. H. ALBERTSON,  
Assessor.

## KNOWLTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Andrew N. Van Horn, Hainesburg; J. Wesley Linaberry, Knowlton; Albert Amerman, Delaware; Woodley Brugler, Secretary, Columbia.

Our Local Board of Health has adopted a code of health regulations and this fact has made very little for our Board to attend to. We are located in a very healthy part of the country. Have had no prevalent or contagious diseases during the year.

The Board organized at the spring meeting of Town Committee, and appointed the annual meeting for the hearing of complaints, &c., as required by the act of 1892, to be held at Hainesburg, July 28th. At this meeting there was no complaints made.

WOODLEY BRUGLER,  
Assessor.

## LOPATCONG TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF TOWNSHIP COMMITTEE.

J. H. Amey, Edwin H. Paulus, John Hamlin; R. Firth, Assessor. Post-office address of all, Phillipsburg.

## MANSFIELD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Nicholas Martenis, Port Murray; William H. Thompson, Beattystown; Benjamin C. Perry, Karrville; Dr. Henry M. Cox; James Beaty, Assessor.

WARREN COUNTY—*Continued.*

## OXFORD TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

William Miller, Jr., Chairman, Oxford; John H. Heldebrant, Treasurer, Belvidere; L. B. Hoagland, M.D., Secretary, Oxford; Samuel Sheridan, Oxford; David Trimmer, Assessor.

We have nothing special to report. There have been no prevalent or epidemic diseases in our township since our last report.

There has been little or nothing for the Board to do during the past year, and we report our township at this time in good and healthy condition, and better sanitary condition than ever before.

DAVID TRIMMER,  
Assessor.

## PAHAQUARRY TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Elisa Gariss, Millbrook; Oliver Courtright, Calno; Charles Smith, Delaware Gap; Fletcher Fuller, Calno, Assessor.

## POHATCONG TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

Jas. C. Weller, Phillipsburg; John B. Hughes, Carpentersville; John Leigh, Finesville; R. T. Crouse, Finesville.

Water-supply generally from wells and cisterns.

Not much has been done, as there was no necessity. Some garbage from along the public highway has been removed.

## WASHINGTON TOWNSHIP.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

R. Q. Bowers, Washington; David Wise, Washington; William Cowell, New Hampton; Christopher Dalrymple, Washington; C. B. Smith, M.D., Health Inspector, Washington.

WARREN COUNTY—*Continued.*

## BOROUGH OF WASHINGTON.

## NAMES AND POST-OFFICE ADDRESS OF MEMBERS AND HEALTH INSPECTOR.

F. P. McKinstry, M.D., John Hornbaker, George Campbel, John Bigler, William Vannata; William Stites, M.D., Health Inspector; Minor Beatty, Secretary. Post-office address of all, Washington.

There is nothing to report from Washington borough different from last year, except that the Board of Health caused the sewer pipes to be extended some distance down the creek.

The water-supply the same as former years, from mountain stream. The reservoir has been inspected by the Board and found in good condition.

The streets are being macadamized, and are in good condition.

Washington has now an electric plant.

There was an outbreak of small-pox in Washington in the month of March last. There were five persons directly exposed to the disease and six indirectly, but all the parties reported to the Health Inspector within twenty-four hours after exposure. The Inspector had them all vaccinated immediately and all their clothing fumigated, and the parties that were directly exposed were put under quarantine for twenty-one days. There were but two cases of small-pox developed, which ran their usual course and recovered, after which the clothing and bedding was well saturated with powdered sulphur and coal-oil and burned, and the house was thoroughly cleansed and fumigated. The expense for the care of the two cases was about \$500.

The town was carefully examined by the Inspector as regards vaccination, and over seven hundred persons were found that were not vaccinated, and the Board of Health ordered a general vaccination, which was generally complied with.

The town has been remarkably healthy during the past year.

WILLIAM STITES, M.D.,  
Health Inspector.

## Diphtheria.

BY DANIEL STROCK, M.D., CAMDEN, N. J., SECRETARY NEW JERSEY  
SANITARY ASSOCIATION.

The cause and prevention of diphtheria are problems engaging the attention of the entire world to-day, to an extent that has been heretofore unknown, and notwithstanding the increased activity in sanitary and medical circles, the employment of more precise methods of treatment, based upon a scientific knowledge of the disease and its sequelæ, the dissemination through the public press of information relating to its cause and methods of contagion, the disease continues to be one of the great scourges of the human race, and annually numbers its victims by the thousands.

Apparently, knowledge of the etiological factor (the bacillus) concerned in the production of diphtheria has far outstripped knowledge of the ways and means to prevent its development and growth in families and communities.

While we know that true diphtheria is dependent upon the presence and propagation of the Klebs-Loeffler bacillus; that this bacillus will retain vitality for many months under various conditions of environment, yet we have not yet fully mastered the laws governing its origin and growth.

Investigators have shown that the germ will live on blood serum, on gelatine, and on agar-agar for many months; that dried membrane containing the bacillus, and placed carefully aside in a dark place, will yet be potent to cause the disease after five months.

While these experiments are very valuable, as demonstrations of the non-ephemeral existence of the bacillus under conditions that partake somewhat of paternal fostering, they do not inform us why the uncared for bacillus should be so tenacious of life;

why the house that has been cleaned and disinfected should still be the abiding place of it; why it may appear in families or individuals apparently *de novo*—because there has been no known possibility of contagion; or why, with the entire scientific world arrayed against it, it yet is met with in every community, and destroys from 25 to 70 per cent. of those attacked.

We know that filthy or unsanitary conditions are co-existent with outbreaks of diphtheria, and moisture, ordinary temperature, and absence of sunlight and pure air are important factors in originating epidemics and endemics of this disease. That this should be so is not surprising, as many other diseases are developed and maintained under similar conditions. But, we are baffled when confronted with the evidence that sanitary measures, calculated to eradicate many of the other contagious diseases, will apparently exert but little influence upon the progress of outbreaks of diphtheria. Cholera has been banished from the more highly civilized portions of the globe; yellow fever has ceased to be a terror in those cities that combat it on scientific principles, and typhus is powerless to gain a foothold where formerly its ravages were unchecked.

Notwithstanding that the same efforts have been put forth to exterminate diphtheria as have been resorted to in overcoming the above-mentioned diseases, it yet continues, with unabated vigor, to hold sway, and the cities and large towns are practically never free from it.

Therefore, the consideration of the prevention of diphtheria is one of the most serious problems that confront sanitarians to-day.

The disease is contagious and infectious, and its prevalence in communities after the appearance of one or two cases is largely due to this fact. If a member of a family takes the disease other cases may occur in the household. Children sent from an infected house as a precautionary measure may convey the affliction to those who have not previously been exposed to contagion. The disease may be spread by the dried membrane or expectoration upon pillow-cases, sheets, bedding, articles of clothing, handkerchiefs, toys, books, drinking vessels, etc., by domestic animals who may be suffering with it. Investigation will demonstrate that a large proportion of those having the disease have been in contact with infected individuals or localities, and local-

ities may be centres of infection for a year or more if not radically disinfected.

The milk-supply is frequently the means of disseminating the bacillus of diphtheria, and, as one of the causes of the spread of this disease, is worthy of careful attention. Milk is peculiarly susceptible to contamination, and then becomes a culture media for the propagation of the germs.

While it is not clear that water performs an active part in the spreading of diphtheria, yet it is reasonable to assume that in some districts it does. A well in proximity to a cesspool that receives the expectorated matter from a patient must be a menace to those who partake of its waters; and water-supplies that receive the sewage of cities and towns where the disease prevails are, no doubt, active factors in distributing the bacillus.

But, probably, the most potent agents in causing the spread of diphtheria in communities are the schools—public, private and Sabbath schools. Recent investigations have shown that the bacillus diphtheriæ is present, in some cases, for a number of weeks after the recovery of the patient, and may be in the mouth of those who do not ultimately become infected. We must assume, therefore, that it is also in the mouth of the destined victim for a variable period before its presence is manifest by the usual symptoms denoting invasion. Therefore, that individual is a menace to her or his companions, even during the stage of apparent immunity. In many other instances the children are really sufferers from the malady while yet in daily attendance upon school. In some of these cases the disease is in a very mild form, and, perhaps, does not excite the attention of the child or its parents; in others, the child may be in the first stage of what may prove to be a malignant attack.

In any of these conditions the individual is a source of danger to its companions, and its presence at school may result in their infection and death.

Although the above does not include all the avenues through which diphtheria may be conveyed, it sufficiently indicates the line of policy to be pursued to lessen its ravages; and in this connection it is well, perhaps, to consider some of the questions relating to the management of the disease, whether it occurs as an isolated case or a general outbreak.



One of the most important questions that may present itself to the health authorities is that of domiciliary quarantine. If thoroughly enforced, combined with early disinfection of the premises and the effects of the occupants, there can be no doubt of its efficacy as a measure for the suppression of epidemics. But the hardship entailed upon those thus isolated from the community is fully recognized, and frequently the proper authorities hesitate to inaugurate this extreme measure of repression. The legality of house quarantine does not enter into this problem, as it is a settled point of law that municipalities, as well as Nations and States, may resort to this measure as a safeguard to the public health.

In instances where, due to the lack of means, individuals ill with diphtheria cannot receive the proper attention at home, they should be removed to a hospital provided for this class of contagious diseases. Frequently several members of a family are infected, because the premises are too small to allow of perfect isolation of the original case. It is to this class that removal of the patient to a hospital is particularly applicable; and it then becomes a measure of consideration for the family's safety.

Attempts of the physician or health authorities to isolate a patient may prove futile because of the ignorance or lack of cooperation of the family. In such instances, in the absence of the physician, and despite the efforts of the nurse, if one be in attendance, the members of the family will pass to and from the patient's room, and thus defeat the object contemplated by sequestration. In some families of this class other cases occur, as I have reason to believe, because the children surreptitiously enter the sick room, and partake of the food and drink designed for the patient.

So long as such practices obtain in households, it is useless to expect that the disease can be eradicated; and the only remedies for this evil are removal of the patient from home, or educating the public in knowledge of the necessity for rigid observance of the rules that we know are essential to prevent contagion.

While all admit there are many public avenues for the transmission of disease germs from one individual to another—as the church, the theatre, the railway and street cars—there can be no

doubt that diphtheria is largely propagated through the instrumentality of the schools, where large numbers of children gather and intimately associate during the hours of study and play. In the young, marked susceptibility to diphtheria exists, and at school the opportunities for infection are multiplied; so it is not surprising that, in a majority of instances, the original case of the disease in a family is the child who has been attending school. Therefore, during the prevalence of diphtheria, all public and private schools should be closed, and the infant classes of Sunday-schools should be dismissed until such time as the disease is in abeyance. If this were done, the progress of diphtheria in any community would be controlled before its ravages had made so many homes desolate.

Attendance at school during the prevalence of contagious disease constitutes one of the most grave perils of childhood. Many valuable lives have been, and may be, lost by reason of the dissemination of infectious diseases among school children, and the closing of the schools during the prevalence of such diseases should be considered one of the most important measures to be instituted for their eradication. But, that it may be effective, it should be done early. A most serious responsibility rests upon boards of education and school trustees in this particular. To keep the schools in session and inflict penalties for non-attendance, after one or more of the scholars have been attacked by contagious disease, is little less than criminal disregard for the safety of others. To quarantine families, while those who have been exposed to infection are permitted to mingle with those who have not been so exposed, is a travesty upon prevention of epidemics.

Immediate closure of the school should be the rule in such cases, and the building thoroughly cleansed and disinfected before it is used again.

It would be an added measure of precaution if school-houses were periodically disinfected during the term. This could be done readily, if the process of fumigation were commenced after dismissal on Fridays and the building kept closed until Sunday morning. It would then be sufficiently aired to permit occupancy on Monday.

As a further step in the direction of disease prevention, systematic instruction in the essentials of sanitation should be given

in the schools, that children may better understand the dangers they should avoid; and to make the teaching impressive, public drinking vessels should be banished from the building and every scholar compelled to carry and use an individual cup.

In an article on the subject of diphtheria, prepared for the New Jersey Sanitary Association in 1882, I referred to a great source of danger to the public in the following words:

“One of the potent factors in the dissemination of disease, and one to which but too little heed has been given, is the vacating of houses after the recovery or death of a patient ill with a contagious disease, and its occupancy by another family that, up to this time, was free from infection. Many houses are vacated as soon as a patient has recovered, or soon after the funeral; and, in some instances, immediately re-occupied by another family who are ignorant of the danger they incur. It should be the province of health boards to prevent this. Physicians are required to give information of cases of contagious disease, and to report deaths due to such causes. For the purpose of preventing the evil above referred to, the original notice of the existence of a contagious disease in a house should be sufficient, and it then should be the duty of the Inspector of the Local Board of Health to caution the head of the family not to vacate the premises without first notifying the Board of such intention to move. Failure to do this should constitute a misdemeanor. After the health authorities have received such notification of intention to move, then all the effects of that family should be disinfected before they are allowed to be taken from the premises. When the house is vacated it should be unlawful to rent it again until it has been properly cleansed and disinfected; and the process of purification should be under the supervision of the Board of Health.”

This is the legitimate function of Health Boards, and until rigid observance of the precaution to take cognizance of the movements of infected families is the rule in all city and country districts, it is improbable that other repressive measures, in the absence of this, will ever be successful in eradicating such contagious diseases as diphtheria.

As bearing upon this point, I have knowledge of a house that was vacated the day following the funeral of a child dead of

diphtheria, and it remained unoccupied for one year. It was then taken by a family consisting of parents and one child. In three weeks thereafter the child died of diphtheria. In the absence of any history of exposure to infection elsewhere, we are forced to the conclusion that the second death in that house was the direct sequel to the first case. In another instance, a child died of what was diagnosed as membranous croup, and the family vacated the premises a few days after the funeral. The house was unoccupied for several months, but soon after it became tenanted again a child was taken sick with diphtheria and died.

Deaths occurring under such circumstances can properly be classed as preventable, as they directly traceable to infected localities. Experiments have proven that the bacillus of diphtheria, as found on dried bits of membrane, will be active after five months, when kept in a dark place; and we must assume, in view of the above instances, that a house closed to the sunlight and air will supply the necessary conditions for prolonging its existence for a very much longer period.

Therefore, to prevent localities from being centres of infection, Boards of Health should keep a register of all vacant houses wherein contagious diseases have occurred; and owners and agents should be required to give notice to the Board when any of the properties are about to be occupied again. It should then be the duty of the Medical Inspector to disinfect the house, notwithstanding the disinfection that was done at the time it was vacated. Nuisance Inspectors could not be more profitably employed than in seeing to it that such houses were not occupied surreptitiously; as they constitute one of the gravest nuisances they would be called upon to deal with—using the term as a menace to health.

Finally, every Local Health Board should have in its employ a competent bacteriologist, whose duty should be to determine the presence or absence of the bacillus diphtheriæ in the throats of those supposed to be suffering with diphtheria; and convalescents from this disease should not be permitted to mingle with the unaffected until such examination has demonstrated that the individual is no longer a source of possible danger to others.

In view of the great mortality of diphtheria, the best results in dealing with the disease are to be obtained by anticipating its approach in families or districts, and instituting pre-invasion treatment of the cause, by cleansing the unclean places, isolating those who are sick or have been exposed to the contagion, and preventing the risk of the healthy coming in contact with infected localities. Thus we may have the satisfaction of securing the effects contemplated by sanitation.

## New Jersey Sanitary Association.

REPORT WITH OUTLINE OF PAPERS AND DISCUSSIONS. SESSION OF  
1894. BY D. C. ENGLISH, M.D.

The twentieth annual meeting of the Association convened in the Assembly Chamber, at the State House, Trenton, at eleven o'clock A. M., Friday, December 8th, 1894. The President, Addison B. Poland, Ph.D., State Superintendent of Education, with a few appropriate remarks, called the meeting to order and introduced State Geologist John C. Smock, Ph.D., who presented a paper on the "Extent of the Diffusion of Malarial Poison from Large Areas of Wet Land in New Jersey."

Dr. Smock first defined the title "malarial poison," as connected with the old and common designations of "marsh miasm," "palludal miasm," "swamp poison" where malarial disorders were referred to swamps and marshes as their source, as distinguished from upland and hard ground, and all swamps were regarded as malarious and unhealthy. He then referred to scientific investigations which had demonstrated the germ theory of the disease, the microscope revealing these vegetable micro-organisms pigmented and rosetted, crescentic and flagellated in shape. The mediums of conveyance were then discussed by the writer, the air, water and winds. Tommasi, Crudeli, Corrado and others were quoted as having found the bacilli in air, water and winds of Campagna. The essential conditions for the existence of the malady were then given as, (1) a temperature not below 58° F.; (2) a moderate degree of permanent humidity in the malarious soil; (3) the direct action of the oxygen of the air on the strata of the soil containing the ferment. These conditions existing, the prevalence of malaria is almost assured. It is not limited to marshes or swamps, and the area distribution is evidence that it is not confined within or near such tracts, and that

it is noted upon all kinds of soil, although not on all geologic formations, as the writer shows later in the paper. He cites several instances to show that moist and wet conditions of climate and soil are not alone essential; that the fogs of ocean air are not malarious, nor is the heat of excessive range, as in desert lands, causative of malaria, nor is vegetable matter necessarily a condition. The severe epidemic in the Island of Mauritius, in 1866, is cited as showing that the malarial poison may be introduced into a country or district; the favoring conditions in this instance were inundations followed by drought, and the use of a black mud as a fertilizer spread over large areas, while the bacteriological cause seems to be essential to the explanation of that epidemic.

The writer then argues that the means used to protect localities or to ameliorate malarial disorders seem to offset the belief that the transmission to a considerable distance is possible, citing the earth covering laid down over a malarious hill in Rome in 1883, after a thorough drainage system had been carried out. (Janiculum hill. No malaria in the college near it afterwards; common before that work was done.) Other similar instances are cited, while on the other hand the case of the Mississippi river bottoms and the adjacent strip of upland would appear to favor the transmission by winds to distances of twenty to thirty miles. In reference to the upward distribution or diffusion of the poison, Dr. Smock refers to the fact, so well known to dwellers in malarious districts, that protection is afforded or coincident with an altitude of fifteen to eighteen feet in sleeping at night; also to the immunity of the inhabitants of mountain heights of 4,000 feet in India (Parke's Manual of Hygiene, 1878, p. 444), as well as of other mountain districts in malarious countries. These, he argued, would seem to show an upward limit, while he admits that the generally lower temperatures may explain this limitation. The occurrence of the disease on shipboard, where the vessels were within a short distance of a malarious coast, *e. g.*, African West Coast, was also cited as apparently due to air-carried germs. The range of transmission is believed to be comparatively limited, possibly one or two miles; the ablest and latest writers venture no precise statements, and some no expression at all, as to distance of transmission range by air

currents. From personal observations, and the observations of others, the writer summarizes the facts as to the areas indicated in the title of the paper, in the following generalizations:

1. Malarial fevers prevail over that part of the State which lies north of the terminal moraine, wherever the conditions are favorable to it.

2. There is a remarkable absence of malaria in the country south of the terminal moraine, excepting localities and districts of limited extent, where aggravated conditions of its determination exist.

3. The existence of malaria is not necessarily due to a geologic formation, but to a sub-surface condition, common in the country which is north of the terminal moraine, and covered more or less by glacial drift.

4. The element of imperfect or disturbed under-drainage is a more potent condition in determining malaria than any other.

5. The thorough under-draining of a district or tract is the most practicable and most effective means in order to amelioration and protection.

6. The distance to which the malarial poison may be carried by winds or air-currents is comparatively short, and not over hills and mountains miles away, as often popularly stated.

7. Belts of forests, and even hedges, tend to arrest this conveyance of malaria by winds. One instance was cited where, in the northern part of the State, a hedge is reported to have prevented malaria. The hedge was cut down and the whole family was taken down sick with malarial disease. The occurrence of malaria or its distribution areally in New Jersey seems to be explained by these conditions of sub-surface drainage and the essential factors of heat, moisture and dead vegetation, and not by wind-transmission, otherwise there would be greater uniformity in the occurrence, instead of the irregular distribution. We have here a fever-stricken locality, and there an area free from it.

The writer cited the testimony of several physicians of the northern part of the State as opposed to any wide diffusion by winds. The wet tracts of the Upper Passaic Valley are reputed to be the source of all the malaria in all the northeast part of the State, which has been designated as a pestilential nest of malaria; but malaria does not occur on all of the adjacent slopes of the

Archæan hills and the trap-rock ridges, as would be expected if the prevailing winds carried it any great distance. The possibility is suggested that the many tracts of woodland serve as barriers to arrest the progress upon these higher surrounding hills. That malaria may be carried short distances would seem evident along the valley of the Passaic at Belleville, according to Dr. Skinner, while the physicians of Montclair and the Oranges, from whom Dr. Smock quoted at some length, refer their cases of malaria to local causes, and not to any possible wave of it sweeping over the Orange Mountains. Dr. Wolfe, of Chatham, limits the distance of such transmission to one-half or one mile.

Referring to the Great Meadows of the Pequest Valley, in Warren county, the testimony of intelligent laymen there resident led the writer to believe that there is no malaria there. Formerly this valley was "full of it;" as one said, "Nearly every one had the shakes." The beneficial effects are attributed to the lowering of the bed of the Pequest river and the more rapid delivery of its waters. Where formerly were wide-spread inundated lands and a sluggish stream with scarcely a perceptible current, there are to-day productive gardens and a swift current. The possibility of future outbreaks was suggested by the writer, until the whole tract has its ground-water lowered sufficiently to make a well-drained soil and sub-soil, as well as a thorough surface system of drainage. Continuing northward to the great wet tract on the Wallkill, in Sussex county and Orange county (N. Y.), known as the Drowned Lands, Dr. Van Gaasbeck's testimony was quoted as clear and explicit in narrowing the range of extent of malarial poison. Dr. Dennis, of Unionville, N. Y., was also quoted at length. In closing, Dr. Smock quoted from the "Lancet," 1892, pp. 1307, 1308: "Malarious countries are synonymous with unhealthy countries. Malaria is responsible for half the mortality in malarious countries, directly or indirectly." "Ague was one of the most serious items in the annual bills of mortality" in the British Isles. "The progress of agriculture, the drainage of marshlands, the general elevation of the average of comfort among us had done much to banish it." Ague is now unknown in districts in Kent and Essex where once it abounded. The Netherlands are a wonderful testimony to the value not only

of surface drainage, but deep underdraining, in promoting healthfulness of what otherwise could be an unhealthy country. The writer closed with the practical application that if we would arrest the distribution as well as the diffusion of this poison, there is the necessity of drainage and deep underdraining. In a word, it is the work of man to make habitable these wet tracts and all of these areas liable or exposed to malaria and its consequent train of miseries, by restoring them in a measure to their original condition of thorough drainage, which characterized them before the on-coming of the cold of the glacial epoch, and its continental ice-sheet. The scripture lesson bears here as everywhere and imposed the burden of subduing the earth, in order that we may have the more abundant fruits thereof.

It was a matter of regret that Dr. Simon Baruch, of New York City, was unable to be present and open the discussion, as had been expected, on Geologist Smock's paper. But L. B. Ward, C. E., of Jersey City, was introduced and spoke thereon.

He said that in the discharge of his official duties as one of the Board of Managers of the Geological Survey of the State, the problem of the unwatering of the extensive fresh-water marshes in the valley of the Upper Passaic has come up for practical consideration. The total area of these wet lands above the Little Falls of the Passaic river aggregates 30,000 acres or 45 square miles. The whole of this area is subject to occasional overflow by floods, and consequent long periods of saturation, impairing greatly the value of the lands for agriculture, and rendering the air of the whole region unwholesome and malarious. The only remedy for which is thorough drainage by river improvement—removal of reefs and bars and other natural obstructions, deepening, straightening and occasional enlargement of the channel, and, in some cases, the construction of artificial supplemental channels for the relief of the river in the discharge of flood waters. The difficulty is that the cost of these improvements will be too great if made a charge upon the drained lands exclusively. Assessments upon the local communities immediately affected, and appropriations from the treasuries of the counties and the State, upon the same principle that similar appropriations and assessments are authorized under the general road law, seemed to be the only effective method to accomplish the work. If the belief

that the emanations from lands of this class were wind-borne to considerable distances can be demonstrated, the application for public aid would be greatly strengthened.

Mr. Ward said that another pertinent consideration relates to the recently accepted fact that malarial germs are frequently conveyed in the water of springs and streams fed by drainage, or infiltration from lands in which these germs are believed to be propagated, thereby frequently affecting the water supply of whole communities. He believed that the microscopic study of the malarial germ has been thus far almost entirely confined to its life history within the human body, and that the mode and phenomena of its original propagation and development, whether these occur in the soil, as is popularly supposed, or in the air or water, are, at the present time, matters mainly of conjecture.

Dr. G. J. Van Schott, of Passaic, remarked that in North and South Holland, freedom from malaria was not mainly due to the deep sub-draining of the soil; that the water not being much below the land level (from 6 to 12 inches) sub-drainage could not well be practiced, but that, according to his information, the freedom from malaria was due to the permanent circulation of the water, which was kept in motion by the water engines and mills, pumping it into the rivers, thus preventing stagnation, and also by the difference in climate.

The President then introduced John L. Leal, M.D., of Paterson, who presented a paper on "Restriction and Prevention of Communicable Diseases of Children." The paper discusses the subject in its relation to pertussis, rubeola, scarlatina and diphtheria, and will be found printed in full under its title in this Report of the State Board of Health.

Dr. Henry R. Baldwin, of New Brunswick, was introduced, and opened the discussion on Dr. Leal's paper. He spoke substantially as follows: That the subject was worthy of most serious consideration because of the helplessness of the child, his rapid metamorphosis of tissue, his liability to impressions, the capability of development of diseased conditions dependent upon faulty nutrition, his ignorance of the avenues leading to infective exposure. That these conspire to awaken the most philanthropic efforts to encircle him with all the safeguards which enlightened science can suggest. He then considered some of the methods

by which diseases can be propagated. The mistaken sympathy of neighbors and friends in offering their generous services when an infectious disease seizes upon one in their immediate vicinage, especially noticeable among the poor, while commendable from a moral point of view, it is often most potent in defeating the best directed efforts, as these friends carry from the infected the germs of disease to their own households. The habit of donating clothing formerly worn by deceased children to relatives had, in his personal experience, devastated a whole family. Allowing children to attend funerals when children have died of infected diseases is another custom which cannot be too severely reprobated.

A proper inspection of dwelling-houses should not be neglected. Our knowledge of the essential factors in spreading many diseases is now sufficient to enable us to enucleate the specific germ to which its spread is due. Apartments become saturated with such bacteria and they remain in active presence for months. The demolition of such houses has been followed by marked decrease in mortality. The isolation of the sick is one of the most successful methods of restriction. He had, on several occasions, arrested the spread of scarlatina in large families by pursuing this course—placing the child in an apartment with a single attendant, and so confining them during the continuance of the attack, food and drink being brought to them. The use of germicides as are known to be useful was dwelt upon as important; boiling water in which soiled garments can be placed as well as the solution of bi-chloride of mercury; solutions of zinc, or of coperas, when not objectionable as destructive to the fabrics or utensils. Remembering that the excretions afford a fruitful source of spread of disease, these should command the attention of the physician and the attendant nurse. The doctor spoke of a case of failure to disinfect the discharges of a small-pox patient which were deposited in an out-house adjoining the neighbor's, though the dwellings proper were distant nearly two hundred feet from each other; as a result the disease seized upon the mother of the neighbor's family and carried her to the grave. He spoke a word of caution in reference to the popular error in supposing that the vapors of carbolic acid, chloride of lime, chloride of soda, &c., were efficacious. These and similar sub-

stances in such strength as to be noticeable to the senses only, are entirely inoperative in the destruction of the germs which will live wherever a human being can breathe, and whatever saturation of the atmosphere is necessary to destroy the germ will also destroy human life.

We should not, therefore, allow false security to deceive us. Free ventilation and sunlight were mentioned as important, as fresh air changes the saturated atmosphere, dilutes the toxins and scatters the bacilli, while direct sunlight is itself destructive to many germs. Dr. Baldwin then spoke of the permanence of germs as shown by recent observations, that the Klebs-Loeffler bacillus (of diphtheria) often occupies the vault of the pharynx long after the exudation has disappeared from the throat. So, too, the poison of scarlet fever will remain in an apartment for months with all its virulent potency, and it is therefore unsafe to use such apartment until the most diligent and effective sanitation measures have been taken. He spoke of the education of parents as essential for the successful practice of these suggestions. The physician must warn, entreat and insist. Secure confidence and then systematically instruct them.

He regarded the cognate subject of the question under discussion—the prevention of disease—as the highest aim to which State Medicine can be directed, and spoke of food and drink as conveyers of pathogenic bacteria. The careful analyses of the waters we drink have given us some of the most brilliant successes in the prevention of disease. The abandonment of wells in our cities and the substitution of water from streams free from pollution has done much to eradicate typhoid fever. The public has become so intelligent upon this subject that they appreciate the importance of care as to its source and purity. Their fear of polluted water is the product of just such assemblages and discussions as the present. Still the speaker believed that more cases of typhoid fever occur than should be allowed, in many instances because of the lack of knowledge when water is contaminated. He believed that there should be established in the State at public expense, a department for the examination of all suspected water, and this might be conducted under the auspices of the State Board of Health. The doctor then dwelt upon the prevention of tuberculosis as a subject which

should call forth even more scientific ardor, when one-seventh of the mortality of the human race is due to this disease. There is no doubt of its infectiousness, as any physician of experience could point to hundreds of cases proving this long before the discovery of the bacillus tuberculosis by Koch. The occupation of the same bed with a tuberculous patient; the cups with tuberculous matter standing about, drying up and through accidental pulverization spread through the apartment, were cited as causing the disease. Dr. Baldwin then dwelt upon the spread of this disease through cows having tuberculosis, and believed that many of our dairies were foci of the disease; some having shown on careful examination that three-fourths of the cows were tuberculous. He spoke of such examinations in New Jersey, New York, Massachusetts and Dakota. The evidence is accumulating that milk is a possible agent of communication. This subject calls for legislation. The State should provide some compensation so that all such cattle can be destroyed.

In discussing other means of preventing disease, the doctor mentioned our public schools as a constant source of anxiety in reference to the spread of disease. The spirit of emulation is carried to such a degree that children ambitious for promotion, or meritorious mention for punctuality, often incur the greatest risks for themselves as well as for their fellows, by an attendance when the germs of disease are rapidly developing into conditions fraught with the greatest peril. He also spoke of the dangerous habit of drinking-cups used promiscuously by the scholars, and of the establishment of public fountains. If the churches are moving for the separate vessels for the distribution of the sacred elements, how much more is it required that such safeguards be thrown about our children. Boards of Health are zealous to have cases of disease in their various localities reported, but should they be less exacting in restraining members of families where disease exists from commingling with other children at school, and to seek power through legislative enactment, in all instances to notify the public by a suitable emblem of the presence of such disease? Stringent rules governing the public schools in these matters should be made and enforced.

The doctor then spoke of the importance of good and pure food as essential to good tissue formation, and the recent inves-

gations carried on in the State of Ohio concerning certain foods offered to the public, which, by chemical analysis, were found to be deficient in quality for the purposes indicated, and under statutory enactments, arrests were made and convictions found. After giving some facts in reference to some of the so-called foods examined, Dr. Baldwin asked if it is not high time that New Jersey enacted such laws as shall protect the health of its citizens against the rapacity of unscrupulous dealers? Filthy streets were then referred to as the pregnant source of disease, and Boards of health were advised, as some have done, to give foul gutters and sewers a bountiful irrigation, that germs of decaying vegetable and animal matter may be swept away and disease checked. In one city irrigation of the gutters is systematically pursued during the whole dry season. Copperas is used by the barrel, and all foul places, either in gutters, sewers or private yards are treated with a solution of bromine, one pound to one hundred gallons of water; where the vital statistics for the past twelve months gives for 20,000 people, 16 deaths from cholera infantum, 11 from diphtheria, 1 from scarlatina and 6 from typhoid fever.

Dr. F. Gauwtt, of Burlington, said that we all regard it as a crime to kill a fellow-being, but that when a child dies of a preventable disease we talk of the ways of Providence being past finding out. He believed it ought to be considered a crime for a parent to allow a child having a contagious disease to go into the presence of other children. He thought we should have legislation that would effectually prevent it by making it a crime. He believed in hospitals for such patients, especially in our tenement districts.

Dr. Henry Mitchell, Secretary of the State Board of Health, commended the paper and the remarks of Dr. Baldwin thereon. He believed that the positions taken in the main reflect the opinions of sanitarians generally at the present time. He spoke of the great progress which had been made in this department of scientific investigation during the past ten years. And yet we knew years ago that diphtheria was preventable and that it destroyed more lives than any other disease, with the exception of consumption; but our physicians and other sanitarians, moved slow in taking decisive steps, because they knew they would have no backing. We have been asking whether the time has

arrived for the interference of the State by stringent legislation to prevent the spread of these destructive diseases. He believed the time had fully come to take an advanced position, but the great problem is, what line of action can we, should we, agree upon? Large outbreaks of diphtheria may occur in any of our cities. With the beginning of the first suspicious sore throat the diagnosis should be made sure, at public expense, or by some organized society providing methods for diagnosing this and other contagious diseases. He spoke of the excellent work being done by the New York Board of Health in this direction; of the method of stamping out disease by serum therapy, and of the decreased mortality per cent. already attained by the use of immunized serum. He looked with much favor upon the proposition that the State should establish a Bacteriology Laboratory that would investigate and report upon, without delay, at public expense, all suspected cases of tuberculosis, diphtheria or other bacteriological diseases.

Prof. Davey, of East Orange, said he believed that our schools are sometimes centres from which these contagious diseases spread, and that if teachers would observe a proper degree of caution this might be, to a great extent, prevented. He said that in East Orange all the teachers are provided with blanks to be used when a pupil appears to show languor, or is flushed, or in any way sick; these blanks are sent by the child to the parent, and state that the child is permitted to return home for the reasons given and suggesting that the pupil remain at home till well.

Dr. H. R. Baldwin, who had been appointed by the Executive Council, to prepare a biographical minute with resolutions, on the death of Dr. Ezra M. Hunt, late Secretary of the State Board of Health, and an Honorary Member of the Council, reported. (See page 61.)

Dr. D. C. English in a few remarks called the attention of the association to the death of Rev. Samuel Lockwood, Ph.D., a member of the Executive Council and an eminent microscopist and educator, and moved the appointment of a committee to prepare a minute for our records, with Professor James M. Green, Ph.D. as chairman. It was carried. Dr. Mitchell and Prof. Davey were added. They subsequently reported as follows:



Samuel Lockwood, Ph.D. died at his home in Freehold, Monmouth county, N. J., January 10, 1894.

Deceased had been for many years a member of the New Jersey State Sanitary Association, and for a considerable time a member of its Executive Council.

*Resolved*, That in his death we recognize the loss of a man of a man of thoroughly scientific habits, a ripe scholar, a warm advocate, a good counsel and a congenial friend.

*Resolved*, That we extend to his family our sincere sympathy.

*Resolved*, That a copy of these resolutions be furnished to the family of the deceased, also to the press for publication.

This minute was unanimously adopted.

FRIDAY AFTERNOON SESSION, 3 O'CLOCK.

Dr. H. R. Baldwin said that by request he offered the following:

WHEREAS, Consumption is a communicable disease; its cause is a parasite germ which has great vitality, resisting heat, cold, moisture, drought and decay; and persons who are affected by it daily expel from the lungs millions of the tubercle bacilli, and, if they reach the mucous membrane of another individual who is susceptible, the disease is quickly conveyed; the main sources of infection are (1) the dried spittle of consumptives, either breathed or swallowed; (2) contact with consumptive persons; the disease is rarely, if ever, inherited, but is always contracted by exposure to the direct infection by the tubercle bacillus; therefore

*Resolved*, That the New Jersey Sanitary Association hereby petitions the Legislature of this State to prohibit by statute any person from teaching in any school, and from serving as a professional nurse upon the sick, if said person shall have any conveyable form of tuberculosis.

Dr. Baldwin said he was satisfied, from an experience of over thirty-five years in the practice of medicine, that he could point to hundreds of instances where one person after another has died—as, for instance, if the wife has consumption the husband manifests the disease in the course of two years, and *vice versa*. Regarding the developments which have taken place in the last

decade, it seemed to him that anyone who is at all alive to the present conditions must be certain that this is a menace to the lives of our citizens, which cannot be disregarded. We owe it to ourselves as citizens to importune our Legislature to take all and every means to check this disease. He hoped the whole subject would come before the Legislature, and he knew an effort is to be made by the State Medical Society in that direction. If there is a teacher who is casting out into a school-room germs of disease, there should be a statutory prohibition. He hoped this will be discussed by those here present.

Dr. Henry Mitchell wished to second the resolution, and to say that this impressed him as one of the subjects which will soon lead the persons who have charge of our school interests in this State to adopt some systematic method of hygienic control over school premises, teachers and pupils. If this is to be accomplished—if the State is by statute to regulate this subject, there must be established a suitable authority for the physical examination of teachers and scholars; without such an examination there will be no way of knowing whether tuberculosis exists or not. It is very likely that if the attention of school superintendents and school trustees is drawn to the subject, an effort to control the whole subject will be made.

Dr. E. L. B. Godfrey, of Camden, said it seemed to him that the purposes of the resolution will not be accomplished, because, in the first place, no provision is made for ascertaining whether any person is affected or infected with tuberculosis, and secondly, why should you limit this to nurses and teachers? Why not extend it to physicians and ministers? The resolution did not impress him favorably. He believed the disease is spreading by the methods suggested in the preamble of the resolution, but if you petition the Legislature to throw certain safeguards or certain preventive conditions about our school children or the sick, or prevent certain classes of people from following their avocations on account of tuberculosis, why limit it to those? Why not extend it to the lawyer, doctor, minister, to the husband and wife? He could not see, for his part, that much good could come from a resolution of this sort. This is an association of considerable importance—we all agree to that—therefore let us be particular as to the manner or kind of resolutions we submit to the

Legislature for legislative enactments. He could not see that this is the proper way to go about the subject.

Dr. T. R. Chambers, of Jersey City, said he did not agree that in some cases tuberculosis is entirely hereditary, yet he felt that he should like to compliment this New Jersey State Sanitary Association when she takes the initiative step. To-day is the day when they are trying in New York City to stamp out tuberculosis, but he felt that the resolution does not quite fill the bill, and yet he would vote for it and vote heartily, because it states that the State Sanitary Association is ready to take the steps that it can to check tuberculosis. You have to produce some evidence that a teacher has tuberculosis before you can compel her to stop her avocation. If you stop her you have to provide a means of livelihood. The examination is going to cost money. There are lots of questions that will come up, but he would vote for it heartily.

Dr. A. C. Hunt moved that this resolution be referred to the Committee on Legislation with power to modify it and act for the Association. He thought it would save a good deal of time and discussion.

Prof. J. M. Watson, of Elizabeth, said he was about to suggest that it seemed to him that the resolution is very labored. The whereases are the major portion of the resolution. It would be a good thing to refer it to the committee for revision. He was in favor of having it presented in some form, and action taken upon it, but just at present it seemed to him that it would be better, since there are gentlemen present who have papers, to proceed with the regular order of business.

Dr. Hunt's motion was then adopted.

Prof. Vernon L. Davey, Superintendent of Schools, East Orange, was introduced and presented a paper on

#### ARTIFICIAL HEATING AND VENTILATION OF SCHOOL-HOUSES.

He began with the statement that the aim of every school should be to produce good citizens, that is men and women upright in character, sound in body and well disciplined in mind; these he named in the order of their relative importance. To secure these ends a well-qualified teacher and a comfortable room in which the air is always pure, are essential. Until recent

years while generally the good teacher was sought, the air has been allowed to take care of itself. The progressive spirit of these latter days few school-houses are erected in which there is not an attempt to introduce some system of ventilation; though some are crude and some ridiculous, they are the forerunner of better methods, and the mistakes help toward something better. He spoke of several well-developed systems of heating and ventilation now prominently before the School Boards of the country, differing in details but agreeing in many of the essentials.

The source of heat and of power for ventilation, whether hot water, steam or furnaces, is chiefly a matter of expense and convenience. All are good. The most important question has to do with the quantity of fresh air required, and the method of getting it into the rooms and out again when vitiated. The presence of carbonic acid gas in the air is not as dangerous as generally supposed, and its presence in considerable quantities does not make ventilation necessary. It is accompanied, however, by organic products which are very detrimental to health. These produce the disagreeable odor of an unventilated room. As they vary in amount in nearly the same ratio as the carbonic acid gas, and the latter is easily detected and measured, this alone is generally considered in determining the purity of the air. Considered in this way the proportion of this gas can not exceed eight parts in ten thousand without producing a perceptible odor. To maintain this degree of purity it is necessary to furnish thirty cubic feet of fresh air to every child in a school-room. This should not move faster than five feet per second. A flue with a clear opening of five square feet is therefore required to admit the air, and a similar one for its discharge. It is ridiculous to attempt to furnish this amount of air through a few small openings under window sills, as is being done in one or two new buildings in this State. The large openings, however, signify large flues and they occupy space which is costly, and here is one of the rocks on which Boards of Education often split. He spoke of some of the defective systems offered to meet the demand for inexpensive ventilation, and quoted Dr. Billings: "First of all, keep in mind this axiom, viz.: In this climate it is impossible to have at the same time good ventilation, sufficient heating and cheapness." He did not wish to be understood as advising

extravagance, but as insisting that ventilation is expensive. It does cost a good deal of money to put in a suitable plant, but it is worth all it costs if it accomplishes the desired ends. The fresh air, whether warm or cold, is best introduced near the ceiling. The outlet should be near the floor and as nearly as possible under the inlet. The inlet should not be in a corner. The air should be thrown the short way of the room, and, if possible, in the direction of the prevailing cold winds. One outlet for a room is better than several. If the vacuum system is used, in which a powerful exhaust draws the air into and through the room, some air is sure to come from the halls and, therefore, from the basement.

In order to obtain scientific ventilation the walls, floors and window-casings should be as tight as possible. It is ventilated in cold weather, even with a comparatively poor system.

There are few systems able to provide and remove sufficient air in May or September. Any building not supplied with a fan should have a large number of ventilating chimneys or "stacks." The writer then discussed the use of fans, and cited a Massachusetts building just completed, which has a fan arranged for use in mild weather only; this he regarded in some respects an ideal system.

All air inlets should be adjustable in size, as a change in the wind may seriously modify the air currents in the flues. In large buildings a fan at each end would be much better than one in the middle.

All exhaust flues should be of sheet iron, or smoothly plastered brick walls, and should be tight, smooth and as direct as possible. A rough flue offers great friction, and wood will absorb the impurities of the foul air.

The rooms should not be ventilated into one flue, for the foul air of one will thus occasionally escape into the other. To connect the ventilation with the closets is to take large risks. A careless janitor may cause a back draft of the foulest air into the school-rooms. Direct upward ventilating flues demand special heat in each in mild weather, and are therefore troublesome in a furnace-heated building unless gas is used.

In closing, Prof. Davey quoted as most wise and reasonable the statements as to the needs of a school-room, laid down in 1882, by the Commission Appointed to Examine the Public Schools of the District of Columbia, as follows:

"In each class-room not less than fifteen square feet of floor shall be allotted to each pupil. In each class-room the window space should not be less than one-fourth of the floor space, and the distance of the desk most remote from the window should not be more than one and a half times the height of the top of the window from the floor. The height of the class-room should never exceed fourteen feet. The provisions for ventilation should be such as to provide for each person in a class-room not less than 30 cubic feet of fresh air per minute, which amount must be introduced and thoroughly distributed without creating unpleasant draughts, or causing any two parts of the room to differ in temperature more than 2° F., or the maximum temperature to exceed 70° F."

The discussion of this paper was to have been opened by Architect Arnold H. Moses, of Merchantville, but having been unavoidably detained he forwarded a brief paper, of which we give the following outline:

If the word artificial, as given in the subject under discussion, is to be applied in a large sense, that is to all those systems in which more than mere openings for the supply and exit of air are used, we find three systems in operation:

1st. Those in which the vitiated air is withdrawn through flues in which heat is maintained in order to form a draught.

2d. Those in which the draught is created by constructing chimneys or stacks of sufficient height and capacity to draw the air from the rooms.

3d. Those in which the plenum principle of drawing pure air into a building and drawing out the impure air by means of machinery is resorted to.

In the writer's experience with school buildings he had found the second system the most economical, but believed that owing to the varying conditions of the atmosphere the third system is the best.

In regard to the heating of school buildings, he believed that low pressure indirect steam heat is the best, but for economic reasons the use of heaters with proper arrangements for moderately warming the cold air on its admission to the building, is very satisfactory. Whichever system of heating and ventilation is employed, the main condition of success, in his judgment,

lies in *maintaining a constant circulation of air at a comfortable temperature.* To do this the openings for the supply of the fresh warm air and exit of the vitiated air must be proportioned to the cubical capacity of the rooms to be heated, in such a manner as to keep up the circulation, or the machinery employed must be regulated to maintain it without causing unpleasant draught.

He cited the school buildings of Camden, where they had given the subject much attention, and the Commissioners of Public Instruction made tests of the circulation of air in several of the buildings; the most satisfactory of which showed an average supply in eight class-rooms, each accommodating forty pupils, of over 4,500 cubic feet per hour to each scholar.

He believed in the use of both floor and ceiling ventilation, and the admission of the warm air at a point of about eight feet from the floor.

The old methods of casual flushing of the school-rooms with fresh air will not remove all the impurities, as can readily be observed in close, poorly ventilated rooms, while in those buildings in which a systematic ventilation is attempted (that is, a circulation of air), the rooms will be in great measure clear of impurities, and the health of both teachers and scholars greatly improved. The great advantage of the plenum or fan system, is the fact that whatever the condition of the atmosphere outside may be, the movement of the air is entirely under control. In the other systems mentioned there may be at times such conditions as will cause a partial reversal, or, at least, a great diminution in the amount of air circulated.

James Owen, C. E., of Montclair, said he had listened to the paper with great interest. He thought the writer had conferred a favor on this association, and also on the State at large. He had been interested in such matters and had arrived at one or two conclusions. First, that there is no successful ventilating system; and second, that the mechanical ventilation gives a higher degree of efficiency than an automatic ventilation, so that in all possible cases where the expenditure can be managed, he would recommend the mechanical movement of air rather than the automatic movement.

Dr. T. R. Chambers said Boards of Education and Boards of Trustees will differ as to whether they will ventilate their school

buildings by the fan or by the stack, but it seems to me that now is the time for the State of New Jersey to take a hand. In Massachusetts they have done it for a number of years—for seven or eight years I am sure—they have compelled all new buildings to be ventilated, and, therefore, after the able paper of Mr. Davey, he offered the following resolution:

1. *Resolved*, That the Committee on Legislation of the State Sanitary Association, be requested to formulate and present to the Legislature an act which will compel a sufficient supply of fresh air in the construction of new buildings for public or private schools or where large numbers of people congregate, in all the cities, towns and boroughs of this State.

2. That the plans for ventilation and warming of new buildings or in changing the same in old buildings, be referred to the Superintendent of Schools."

These resolutions were seconded.

Mr. H. B. Francis, of Camden, spoke in reference to the system of storage of excreta in the cellar in connection with the ventilating system, and advocated that the dry-earth closet system shall be wholly separated from the ventilating system and that a water-carriage system shall be used for school buildings, and all buildings, wherever possible. Mr. Francis also spoke of a school in Camden having the dry-closet system, and also in Newark, where the odors were very offensive. He favored the water-closet system.

G. J. VanSchott, M.D., Health Inspector, Passaic, said he thought the local boards have power to see that schools, and new buildings especially, are properly ventilated. The local boards, however, should not be left to decide which sanitary system should be used in the schools; that should be submitted to some central power like the State Superintendent of Public Instruction.

Mr. Davison said the ventilating system is all right if you separate the dry closets from it, but no Board of Health can consistently allow a dry closet and condemn a vault in the yard.

Mr. George P. Olcott, East Orange, said he thought it would be unwise at this time to pass such resolutions. If the gentlemen will look over the laws passed last winter by the Legislature, they will find that there is not a school board in any township in the State but that can build a school-house and put in any system

of ventilation they wish, if they get the consent of the taxpayers. Now, the school laws that were passed and the laws that you have at present, are entirely sufficient to allow any board of trustees to build a school-house anywheres, as soon as they get the money. He did not think we need to burden our State Superintendent with this work; we ought to know that his work now is more than he ought to have. He believed every board is competent and ought to be able to judge what system they want for ventilation, because there is no trouble in finding out, even if they are not educated in the matter, what is the best system. Now, just one word in regard to dry closets. In East Orange we have dry closets and they are working splendidly.

Dr. T. R. Chambers said the honorable member of the State Legislature has spoken against this resolution. He assured the gentlemen of the Sanitary Association that he will vote for it if we will put it in his hands. Now he says they have power—all the Boards of Education have power. Yes, they have power. This simply calls to their attention the fact that people in our country want to be compelled to do the right thing. "I can take you to a half dozen school buildings in this State without any ventilation. Within a mile of my house there is an eight-room building without any ventilation."

Mr. G. P. Olcott said the proper course to pursue is to insist on a legislative committee coming together and insisting on a bill being passed that all buildings be ventilated throughout the State. The resolution is that the State Superintendent should have charge, but he thought the Boards of Education, on the salaries they receive, can afford to spend some time on it. If Dr. Chambers wishes to have every building in the State ventilated, it is a very good thing; but let us go to the bottom of the matter and have a law passed for the ventilation of every building, but do not throw on the State Superintendent the trouble of deciding between differences of opinion of the local boards; let every board build their school-house, and let every board insist on proper ventilation.

Dr. G. T. VanSchott—Mr. Olcott says he is in favor of dry closets. A good many gentlemen here are opposed to them. Now don't you think it would be better to leave it to one central body to decide upon the method of ventilation and sanitary arrangements for all public buildings?

Mr. Randolph Spaulding, of Montclair, said the science of ventilation is yet an uncrystalized art, and it seemed to him that the State of New Jersey can well pass such a law.

Dr. D. E. English, of Millburn, said several gentlemen have spoken of the powers of the boards of education; sometimes the boards of education and Boards of Health are not entirely harmonious and the law is different for townships of the first and second class. He was unfortunate enough to live in a township of the second class. Now under the law his Board of Health cannot say anything at all as to how school buildings are to be completed; all it can do is to either approve or condemn them after they are completed.

The resolution of Dr. Chambers was then voted upon and lost.

The President then introduced Parker N. Black, C. E., of Asbury Park, who presented a paper on

#### VENTILATION OF SEPERATE SYSTEMS OF SEWERAGE.

The following is an abstract of this paper:

The conditions which exist in the separate systems are practically identical with those of the combined as regards ventilation. Little has been written regarding the separate system, and few, if any, experiments have been made, regarding the movements of air within them. There have been many theories expounded for the ventilation of the combined system and demonstrated by actual construction, some of which have occasioned great expenditure of money, only to prove that they were not practical or even successful in attaining the desired relief from foul gases emanating from the sewer.

\* \* \* \* \*

The fetid organic vapor, which is more or less present in all sewers, is the most subtle and dangerous matter present in the air of a sewer. Of its exact nature and composition but little is known; either it is itself the cause of disease, or it carries the germs of disease, which are supposed to float about in the air of sewers.

These gases, resulting from decomposition of the sewage, are the means of conveyance of disease germs, and it is most essential that it shall not be possible for air to pass direct from the sewer into any house.

The amount of foul air is effected by forces at work within the sewer. In referring to these forces, Mr. Latham says :

"Barometric changes affect the amount of foul air present in sewers. The diminution in barometric pressure leads to the escape of gases which are stored in the interstices of the sewage and favors decomposition. An increase of barometric pressure enables sewer air to carry a large amount of the vapor of water, and for the sewage to retain a large amount of the offensive gases in decomposition or absorption without parting with them.

"Air held in the interstices of water is subject to the same laws with respect to its pressure and dilatation as free air under like circumstances. It naturally follows, that increased temperature of water tends to dilate the air held in the interstices, and consequently a portion of the air will escape, and such air, driven off from sewage, will be offensive; hence an increase of temperature makes the air of sewage offensive. Again during the period of rapid falls of the barometer, air again becomes dilated, and as a natural consequence, escapes with the same effect as increase of temperature, and with a rise of the barometric pressure, the capacity of water for air is increased, a fall of temperature in water also increasing its capacity for air.

"Temperature and barometric changes are therefore the fruitful agents by which air is liberated from sewage, and it is consequently through atmospheric changes that sewers, which appear to be sweet at other times, become offensive and noxious.

"Sewers are used chiefly through certain hours of the day, at which time much hot water passes into them. The temperature therefore is increased and at the same time the air space is reduced by the increase in the volume of sewage, and there becomes a pressure on the air in the sewer, and in consequence the water-seal of the traps, offering little resistance, will be broken to relieve the pressure. The foul gases will enter the dwelling and may be the means of conveying the germs of certain diseases.

"Sewers should therefore be ventilated, but such ventilation should be accomplished entirely independent of the house drains. Provisions should be made to isolate every house as far as possible from the main sewer. It is unwise to trust to thorough workmanship in order to use the house drains as a vent for the gases which are liable to form within a sewer.

"It is imperative that there be direct communication between the sewer and the outer atmosphere to admit pure air, and to relieve compression of the gases. It has been practically demonstrated that if provision be made for the free admission and circulation of fresh air in the sewer, these gases will be diluted to such an extent as to render them harmless.

"Sewers constructed with proper gradients will remove sewage at such a velocity as to prevent decomposition and generation of gases in the sewers."

\* \* \* \* \*

I conclude from the foregoing facts—That water aids in, and stagnation is the most favorable condition for decomposition.

That temperature and barometric changes are agents by which air is liberated from sewage.

That any slight compression of air within a sewer is liable to break water-seals, and, therefore, a vent to relieve this pressure is necessary.

That admission and circulation of fresh air is necessary, and that fresh air will dilute the sewer gases to such an extent as to render them harmless.

That proper gradients will remove sewage at such a velocity as to prevent decomposition and generation of gases within the sewers.

That sewer air found in well-ventilated sewers is slightly different from what is often found in badly ventilated dwellings.

That the ventilation of the separate system of sewage is safe and easy.

That sewers will ventilate themselves if sufficient openings are made.

That there is a constant flow of air in one direction or other through perforated man-hole covers, in at one and out of the other, with a velocity of one to five feet per second.

That the simplest, cheapest and most certain method of ventilation is to provide openings to the sewer at sufficient intervals, and in such a manner that will not require connection with additional pipes or shafts.

That trouble is more likely to arise from house drainage than from sewers properly constructed and ventilated.

In all cases local conditions and circumstances must necessarily be considered, for what may be applicable at one place would be entirely undesirable and unsatisfactory in others.

The whole solution is, however, in every case to provide the openings for the admission and free circulation of air.

Dr. C. P. Bassett, C. E., who was to have taken part in the discussion, could not be present.

Mr. H. B. Francis said the topic he wished to dwell upon, was the ventilating of sewers in dwellings. He thought the ventilation of the public sewers belonged to the public, to be done by shafts at particular places.

Mr. James Owen, C. E., said there is only one weak point that he knew of in sewers, that is dead ends; a great many towns have dead ends where there is no opening except by the trap-ventilating pipe along the house.

Mr. P. N. Black said he would like to state in connection with the point Mr. Owen made, that it was always considered impracticable to place a manhole at the end of each sewer.

#### MISCELLANEOUS.

The report of the treasurer, George W. Howell, C. E., of Morristown, was then read and referred to Committee of Audit, who subsequently reported it correct.

President Poland read a communication from the Board of Health of Atlantic City, through W. G. Hoopes, president, inviting the association to hold its next annual meeting there. The communication was received and referred to the Executive Council for its action.

#### EVENING SESSION, 7:45 O'CLOCK P. M.

The evening session opened with prayer by Rev. Dr. John Dixon, of Trenton. There was a very large audience, which filled the chamber, including the galleries.

The Vice-President, Dr. English, introduced the President, Addison B. Poland, Ph.D., who delivered the annual address on

#### "THE CHILD AND THE STATE."

It was an able and scholarly paper, of which we give the following outline, which we are aware fails to do justice to it.

He spoke of the present epoch as one of transition in the intellectual progress of mankind; that the psychology of the past based on purely subjective phases of universal processes could never become an exact science, because its data are variable, evanescent and unverifiable; while the trend in psychology today is more and more scientific, and he used that word as meaning a series of logical and interdependent deductions based upon verified and always verifiable observations, as distinguished from conclusions made from testimony, whether communicated or direct. He referred to the excellent work of the psychological laboratories in the leading universities of this country and Europe, in furnishing data from which truly scientific and unassailable deductions may be made. He then explained at some length the three-fold nature of mental action and dwelt upon the necessity for a close and accurate observation of the objective manifestations of children, as the basis for a scientific psychology; that experiments on adults would not supply the place of the observation of children, not only because there is no proof of the unity throughout life of the objective manifestations of psychic experiences, but also because there is much evidence already obtained tending to show great variation at different periods of life, more especially at the periods of functioning of the reproductive cells. He then dwelt upon the two questions presenting themselves to the public educator: (1) What can be done in the way of exact scientific observation of children in the public schools? (2) What is the duty of the State through its agent, the teacher, in the making of these observations? Reply to the first question is comparatively easy. Schools are the only places where large numbers of differently constituted children are constantly under the eye of a supposedly trained observer. While it would be impracticable to introduce into the school-room the instruments and methods of the psychological laboratory, there is a vast mass of data which can nowhere be obtained so well as in a school, and by no one so well as by the teacher. While not prescribing a detailed system, he offered, later in the

paper, some general suggestions as to the direction that observation should take. In reply to the second question, he remarked that it involved an answer to that other old question—why does the State educate its children? Is it because such education fits the child to better succeed in the struggle for existence with another child, equally the child of the State, or because of some direct benefit to society arising from the fact that the child is educated?

He traced the struggle for existence in the lower forms of life as influenced by environments and their more or less highly developed nervous systems, and then referred to man where he found the same law persists. He argued that any education furnished by the State to the child rendered him more and more capable in the struggle for existence, by developing, or possibly increasing, the psychic complexity within him; and that the advantage to the State lies in the fact that trained men are less liable to become a charge to the State, either as criminals or paupers. He developed the further thought that the trained mind possesses more self-respect, and consequently seeks to win or preserve the respect of others by his conduct. The question of the survival of the fit as co-related to the extinction of the unfit, was then considered, and also whether the part of an exaggerated philanthropy in not only ameliorating the unhappiness of the latter, but in advocating their right to propagate the unfit, was of untold injury to humanity. It was suggested that the unfit propagated more rapidly than the fit, and that it may be doubted if the leveling up by moral growth is as efficient a means as elimination. In connection with this Dr. Poland dwelt upon the development of criminal tendencies in the child, and the question of their prevention or transmission to future generations. It is usually said that the purpose of education is the fitting of the child for his environment. He took exception to so unmodified a statement. If the environment of a child is of a criminal or debauched nature it is not the purpose of education to fit him for that. Education may mean to lead out, but the education of the State's child must be to lead out the good and repress the bad.

Through the development of the new psychology, and the related sciences of criminology and pathologic neurology, we

will be enabled to more understandingly classify the children in our keeping, and thus by degrees approach a complete solution of the problem. Superintendent Poland then referred to the excellent work being done in the properly regulated gymnasiums of our colleges and Young Men's Christian Associations in the careful, thorough physical examinations made and tabulated, and then have the exercise directed to build up all weak points and tone down all excessive developments.

What is attempted in the gymnasium with the body, should in the scientifically-controlled school be attempted with the intellectual and ethical curve of the child. The cry that this system would tend to reduce to a dead level of mediocrity and that individuality was being sacrificed, he answered by saying that the line of the ideal is never the dead-level of mediocrity, but the even, steady and vigorous advance towards the highest levels of attainment.

When the science of criminalology and morbid conditions has reached the point of certitude we shall have a more perfect system of education, based on accurate laws of aptitude and tendency, but he believed we could do something now toward making a more scientific classification of children, in which a more exact application of method may be made in individual cases. The first difficulty to be met, however, was the economic one. A given number of children are to be given an education for a given number of dollars, which results in a larger number of children being confided to the care of one teacher than can be properly cared for. Unfortunately the curve of the teacher's psychologic ability does not often approach the line of the ideal. He suggested in the first place a series of exact and recorded measurements as tending to hasten the day of a scientific pedagogy. Then by tabulating, side by side with the physical measurements of a child, his individual characteristics of manner, physical habits and peculiarities, and with these his mental aptitudes and moral tendencies, all of these as exemplified by objective phenomena.

In conclusion, President Poland suggested the general lines along which advance may be made, substantially as follows:

Every child should be tabulated on a chart, on which should appear every measurement known to anthropometry; the circu-



latory, nutritive and general physical status. This chart should be filled out by an expert. These measurements, supplemented by a complete medical examination, being thus charted, should be placed on the school file for the guidance of the teacher. Then the from-day-to-day observations of the teacher should be recorded, as to habits, tendencies, not expressed as the teacher's impressions, about the child, but given just as observed. She, of course, must draw conclusions for her own use, but these will be more apt to be correct as she records her observations exactly.

With a sufficient mass of data, it was argued, there will be an inducement for devoted educators with philosophical capacity to work this mine of wealth, because of professional pride and *esprit de corps*, and a real desire to be of benefit to their kind.

He believed such study would show (1) that a certain type of child has an injurious influence on the development of another type of child, which would result in keeping such opposed natures apart until the power of self-abnegation and self-control is developed; (2) that many types of children develop best when segregated, and separate schools will arise for these classes; (3) that many natures will never attain the power of self-control or self-abnegation, and such children will eventually become the cherished wards of the State to save them from becoming criminals. Although petty egotisms, personal and family pride may interpose opposition, the wounds to individuality must be of no moment when the future of our race is at stake.

After a vote of thanks was passed to President Poland for his admirable address, and a copy was requested for preservation, Dr. E. M. Hartwell, Supervisor of Physical Culture, of the city of Boston, Mass., was introduced and delivered an address on

#### "HYGIENIC SUPERVISION OF SCHOOLS."

We can give only a very brief and unsatisfactory outline of this most excellent paper, as its length and our lack of space forbids more extended notice. Dr. Hartwell contended that the medical supervision of all elementary and secondary schools, both as regards their organization and management, is at once a public duty and a pedagogical necessity. Our public schools are public institutions, and it is a weak mistake and suicidal policy

to allow public institutions of any sort to constitute a menace to public health. Conditions that tend to cripple the energies and to shorten the lives of the children should not only not be allowed, but any system of education that does not positively and obviously increase the health and strength, as well as the knowledge and intelligence of the rising generation, is so far a failure, and invites criticism and reform. He further maintained that the best interests of the public, the teaching class and the pupil class would be better subserved if the sanitation and hygiene of the schools were taken away from school boards, superintendents and supervising principals and entrusted to responsible and competent experts specially trained in medicine and hygiene. He based his reasons for urging more comprehensive and vigorous measures for promoting and conserving the health of our school population upon a variety of considerations grouped under the following heads:

(1) The conditions requisite for health; (2) the peculiarities of children as growing and developing organisms; (3) urbanization and its effects upon public health in general and the health of the school population in particular; (4) effect of school life on public health, with some particular attention shown to the death-rate of Boston school children and what may be the money losses accruing; (5) the present standing of school hygiene in the United States; (6) European and American experiments in the medical supervision of schools; (7) present needs and outlook.

He quoted Dr. B. W. Richardson's remark that "you might search throughout the British Islands and not find a healthy child." That is a strong statement, for we know we have seen practically healthy children and practically healthy men. Any child, youth or man may be said to be healthy who does his day's work easily so often as his day's work comes round. A good conception of health is the highest energy of each part compatible with the energy of the whole. The general conditions of health for individual classes and communities, he then considered at length, which may thus be summed up: Ventilation, oxygen, nutriment, drainage, rest, exercise at due intervals. When we come to the hygiene of the school child in its different ages and stages, it must be provided with favorable working conditions of light, air, ventilation and cleanliness. Then there are the peculiarities

of the person which must be met by what are called the provisions of personal hygiene.

The fact that the child is not the same during school age, but is continually changing in all sorts of ways, growing in weight, stature, nervous system, muscles, &c., was dwelt upon, and the idea was developed that the child practically undergoes three births before he becomes an adult—first at birth, then at about seven or eight, when he gets his second teeth, and third at about sixteen, when he has about completed his growth in height and weight. The most hopeful and profitable time of school life are the five years from ten to fifteen; they are the most healthful in all life; the most profitable time in the life of the human organism in influencing it for good, for exercising upon it edifying and up-building influences. Therefore, it is the duty of those who manage schools to see that the child gets his full growth without being stunted or other injury done him.

Urbanization was then considered. One-thirtieth of the United States population in 1790 was urban population. In 1890 the urban population had increased to about one-third.

In Massachusetts more than sixty per cent. are in schools in cities of over 10,000 inhabitants—about 383,000, a larger number than all who are engaged in any industrial occupations.

In reference to the fourth item of Dr. Hartwell's outline heading—the effect of school life on public life, &c., he presented at considerable length some very interesting facts and statistics compiled in this country, in England and Berlin, which, while worthy of study, we can only allude to briefly.

He regretted exceedingly that the data on which to base a correct judgment were so exceedingly meagre.

In England the death rate of children from five to fifteen, in 1861–70 was 6.3 per 1,000. It fell in 1871–80 to 5.1. The main part of this fall of 19.05 per cent. was due to diminished mortality from the chief zymotic diseases, whereas the death rate from nervous affections was very slightly increased. In this country the meagre evidence favored the view that the proportion of deaths due to diseases of the nervous system to deaths from all causes at all ages, and during the age period five to fifteen increased in Massachusetts between 1880 and 1890. There is evidence that there is unnecessary loss of life in the Boston schools,

where in round numbers three children are lost to the thousand more than in London, and two to the thousand more than in Berlin very year, when Boston is less densely populated by far than either London or Berlin. Had Boston's death rate been as low as that of Berlin, 130 children's lives would have been saved, and, according to Dr. Farr's table, entitled the "Money Value of a Man" (in "Vital Statistics," London, 1885), Boston's loss in 1885, in the death of her public school children between five and fifteen years, was \$181,795. Dr. Hartwell argued that it had not been shown that school life itself causes enhancement of the death rate, but that sanitary and hygienic measures need to be much more thoroughgoing.

As to the present standing of school hygiene in the United States, he briefly put it that it has no standing among the arts and sciences. It is not taught in any college, medical school, institute or normal school, as a separate and vital branch for practical purposes.

Dr. Durgan, of the Boston Health Board, has organized an inspection service of fifty physicians, for the seventy thousand school children of that city; the main object is to limit or prevent the spread of infectious diseases. This movement would hardly have been secured but for an unusually severe epidemic of diphtheria during the past two or three months.

Since 1879 Paris has developed a fine system of medical inspection of schools, and now there are 136 physicians charged with the periodical inspection as to ventilation, heat, light, cleanliness of rooms, furniture, and of the children. New pupils are examined on entering and preventive medicine is used. Advance is also noted in Antwerp, Brussels and Hungary. Dr. Hartwell then dwelt upon the needs, the greatest of which were agitation and enlightenment of the public mind, so that advice shall be heeded; departments in which physicians may learn school hygiene—the technique of hygiene in all its forms—after their medical course. He hoped and believed that the time will come when the teacher shall be relieved of sanitary police duty, and of all other police duty, and the sanitation and hygiene of school children, in public, provisional and personal aspects, will be guarded by expert physicians specially trained for the purpose.

Superintendent Randall Spaulding, of Montclair, was then introduced and opened the discussion.

He said that the necessity for such supervision as had been suggested, lies in the comparative ignorance of teachers and boards concerning these matters—lack of knowledge in regard to the practical application of the appliances that are to be used in attaining hygienic success. Our teachers have been trained for certain purposes; they have been subject to the education that the community, or State, has provided for them, which has been deficient in this direction. He looked for better things in the near future. It may come in the line of manual training, the training of the eye and the hand. Co-ordinate the powers of the mind so that our teachers will be better able to understand and apply the principles of hygiene in our schools. A great deal of time and money is wasted because we forget that men and women are bundles of habit. Attention to hygienic conditions must be a thing of habit, not a thing of science and knowledge merely. How many teachers allow the seeds of disease to be planted by failure to attend to the common conditions of health—ignoring wet feet and rapid changes in temperature. He spoke of the skepticism abroad—among the ordinary school teachers sometimes—in reference to the dangers of sewer gas, and disease germs. The thing is to make people believe, to make the taxpayers believe it and act upon it. We need an inspector who shall carry the weight of scientific opinion, who shall have the power behind him to enforce his opinions. We have inspectors of streets and sewers, inspectors of food, factories, schools and banks, and why not have inspection of the most important thing to us—those hygienic conditions that secure and preserve health. He would like to see this Association take action in regard to it. The time must come, and ought to come immediately, when we shall have a State Inspector to inspect buildings, with power to approve and condemn; it might possibly be well that there should be a right of appeal to the State Board of Education, or they might appoint a board of experts for a final decision.

Major Z. K. Pangborn, editor of the *Jersey City Journal*, was then introduced, and presented a paper on "The Relation of Modern Journalism to Sanitation." He held that the relation of the public press to public sanitation is not essentially different

from that which the press holds, or should hold, to any other subject which concerns the public welfare.

The sanitary conditions existing in any community are of vital importance to its well being, and therefore come legitimately within the scope of the functions and duty of the public press. Since the modern development of the newspaper, it has become generally recognized as a public educator, and as one of the most active and effective agents, whenever it chooses to be so, in the promotion of whatever tends to benefit the public, or improve the moral, social or material conditions of human life.

In connection with any movement or effort which is made in the interest of public sanitation and conservation of the public health, the press has its legitimate place and work. He called attention to the fact that the function of the press is two-fold in its relation to all matters which concern the general welfare of the community; first, in its character of an educator to procure, impart and disseminate accurate, and, as far as possible, full information in relation to the subject under consideration; second, to give expression to the best current thought of the time in relation to it as well as to its own well-considered and unprejudiced opinions. The facts, and all the facts ascertainable, and the various and perhaps conflicting opinions, which have a bearing on the subject, should be presented, and then the newspaper should honestly and earnestly advocate such action as it believes will best promote the public good. This general statement covers all that the public press ought to be expected to do, or, in fact, can do, in the field of sanitary reform and progress.

After speaking of the vastness of the field, and of public health as affected by various diseases and conditions, he referred to the one great, and perhaps primal, need—the enlightenment of the people in relation to the necessity and beneficence of public sanitation, in which the newspaper can take an important and effective part.

The newspapers of a community should give ample space in their columns to whatever will contribute to the elevation of the public in matters relating to the public health and hygiene, and whenever any specific action is required for the promotion of any sanitary reform, the press should give it intelligent and vigorous support.

He referred to the tenement-house reform in our cities; that there is perhaps nothing which more injuriously affects the public health or more surely increases the death-rate in the densely-populated cities than the condition of the tenement houses, where the greed of the landlords and the poverty and ignorance of the tenants are the primal and chief factors in producing unsanitary conditions. In New York city, there are 230,000 more families than dwellings. The average tenement occupancy there is forty persons to a single dwelling, and for the entire number of dwellings in the city the number of persons per dwelling was in 1890, 18.52 (in 1880 it was 16.37). How few in these tenements are provided with air, sunshine, conveniences for cleanliness, space or privacy, all essentials of healthful living? Yet the landlords insist upon and extort from the poorer classes rents that pay them from ten per cent. to twenty-five per cent., and more rent is charged per square foot for the dirty, crowded tenement quarters than is charged for the fine and luxurious apartments in other parts of the city. He spoke of this as a gigantic obstacle in the path of sanitary reform, which all sanitarians and authorities should deal with, and here the press should render willing and effective service. The newspaper should be the unsparing foe of rapacious landlordism, should urge tenement reform in the interest of the public health and strive to enlighten the ignorant and careless tenants. The press should create, formulate and express a public opinion upon this subject that will ultimately force the needed reform. Major Pangborn then referred to the water-supply, especially of large towns and cities, as being one of the most important items affecting public health, because impure, unwholesome, polluted water used for potable and culinary purposes means a bad condition of public health and an abnormal death-rate, and it engenders and aggravates endemic and epidemic disease. The people need to be aroused to a sense of the danger and to action, and here the public press can powerfully aid the sanitarian.

He also spoke on the need of a more intelligent and careful architecture and construction of public buildings, churches, assembly-rooms, and especially school-rooms, a method of planning and building that will secure efficient ventilation and a supply of pure air where large numbers are congregated; the construction

and arrangement of desks and seats in the school-room; the proper construction of street sewers and drains in dwellings, so that people will not be subjected unconsciously to a process of slow poisoning; the enforcement by municipal authorities of wise public health regulations, and the effective abatement of all nuisances that imperil the public health, and the suppression or banishment from a densely populated neighborhood, of disease-breeding occupations; the timely application and rigid execution of quarantine regulations for the prevention of the spread of contagious disease.

He referred to the efficient service the press can and should render in these and many other departments of the work of public sanitation. "The press can and should be a potent ally in all reformatory and hygienic sanitation, and this association should make a special effort to interest the press in its work, and secure their co-operation and the aid which it is so well able to give. \* \* \* The press itself needs instruction on this subject. It is one with which the majority of newspaper editors and publishers are not very familiar, and to which they have not hitherto given that degree of attention which its importance demands."

Prof. J. M. Watson said he wished to suggest that the paper last read is admirably adapted for publication in the newspapers of this State; it is an article which would be read with interest by all classes, and he moved that an effort be made to secure its publication in the manner indicated. Carried.

Prof. James M. Green, Ph.D., Principal of the State Normal School, Trenton, was then introduced and opened the discussion on Major Pangborn's paper. He said that he wished to express his endorsement of what has been said by Major Pangborn. As to the relation of the press not only to this subject but to all subjects of importance to the State; he felt that it was a most potent factor. He has been surprised at the amount the leading papers, periodicals and daily papers have been able to accomplish in the promotion of all good measures. He wondered how it was possible for a paper to be put upon the market at the price our papers are and get so much good matter. He had noted this, that there is on the part of a great many papers a tendency to rush to press; that he believed was the peculiar term—to get to press—that is to say, there are a great many papers in our commonwealth that are not at all careful as to what they publish.

## SATURDAY MORNING SESSION.

It was deeply regretted that Dr. Charles Lohlback, of Newark, could not be present to present his paper on "Certificates of Vital Facts; How Shall Greater Accuracy Be Obtained in Their Report?"

Dr. E. M. Hartwell, of Boston, Mass., said that he came expecting to hear a very valuable and interesting paper on vital statistics. It seemed to him that reform in vital statistics is very much needed if we are going to understand how much of wear and waste comes upon the school population, and it is in that particular point that he was most interested.

In order to determine as nearly as he could what proportion of children in the Boston schools were dying unnecessarily, and also to have a basis of comparison with the death rates of school children in other cities, he had a good deal of laborious investigation to make of our registration statistics of death, and the impression he came away with from that study was, that there is needed a very decided reform in the keeping of school statistics and of mortality statistics. It is impossible to determine the death rate of school children in Boston or Massachusetts, or in the other States or cities of the Union. The diagrams which he had here, based on numerical tables, show the death rate of children from five to fifteen, which he called the school age, but the actual deaths in the school population of Boston is not registered as deaths of school children. The number of children who sever their connection with schools through death each year is not noted in the registers of the school authorities. The number of teachers who go out of service because they pass beyond the river in any given year, is not noted; so that if we want to know what proportion of our death rate in the schools of Boston or any other city is, from scarlet fever or what not, we cannot find it without laborious search of the records. This instance will show how badly we are off. He had the specific life curve here for three census years, 1875, 1885, 1890. In order to get the number of deaths in each year for the two census years, it was necessary for the clerk to work three weeks in the State Registration office to assort and tally and note those facts. The material exists in a certain way, but our statisticians care nothing for it, so

that it seems a forward move of great importance if you could induce the school authorities to note the fact accurately, as to the number of children who die, and the kind of disease they die of, and then get the city and State Registration offices to give us those facts in duly digested and tabulated forms. We also have no morbidity statistics that are worth speaking of for the same reason.

Another point, as to the amount of time scholars lose owing to epidemic and other diseases. The tardying records are well kept, the absences are all noted, but there is no note or data made to show what proportion of the total absences from school are due to disease in the rough or any disease in particular. He learned with very great interest that the State Board of Education of New Jersey has taken some steps toward requiring or encouraging the making of returns of deaths among school children and hoped that it will go on and that we may induce the registration boards in other parts of the country to take it up. He thought it a matter of really vital importance in this connection.

Dr. Mitchell—Permit me to refer, Mr. Chairman, to some of the inaccuracies which appear in the mortuary and vital returns filed in the office of the Medical Superintendent of Vital Statistics.

From some districts no reports whatever are received concerning deaths, and few—if any—districts in the State report all births which occur.

The explanation for this state of affairs seems to be found in the following facts:

1. Frequently no physician is present when a birth occurs, and under such circumstances reports are rarely made.

2. Some physicians seem to regard the filling out of birth reports as a bother which can be deferred until a leisure moment, and the habit of procrastinating becomes chronic.

Vague and indefinite statements as to the cause of death are also the source of confusion and error in the records. Such terms as dropsy, senility, heart failure, accident, &c., give no idea of the real cause of death, and the classification of such certificates is impossible.

The advantages and benefits of accurate knowledge in regard to vital facts have been clearly and fully set forth by Prof. Hartwell, and I need not dwell upon that point.

To arrange these facts in convenient form, and to study their indications, constitute the fundamental work of the sanitarian. All of his efforts have for their object the promotion of the health and physical well-being of the citizens of the State, and his only reliable guide in conducting operations against unhygienic conditions is found in the birth rate and in the death rate. The efficiency of sanitary administration is measured by the increase of the former and by lessening the latter.

Dr. G. D. Saltonstall, of Jersey City, said he would suggest that notice be sent to the physicians of this State from the office of the State Board of Health, requesting compliance with the requirements concerning the returns of births, marriages and deaths.

Dr. G. J. Van Schott, of Passaic, said he thought the State Board of Health can very readily, by correspondence, compel the physicians all over the State to make proper returns. The highest point of perfection will not be reached until a method is adopted like that which is in use in the old country. There, the father of the child has to report the birth within twenty-four hours, under penalty of ten dollars fine. If the father is not present, then the nearest relative has to do it. After that system is in use for a little while, the births will be given in regularly. He regarded that as practically the only solution of the problem.

James Owen, C. E., of Montclair, said the question of vital statistics is somewhat of a hobby of his, and in the point of the death of children, he would suggest that whilst statistics of that kind are very important—so important that he had been instrumental in having such a record kept—the results, he thought, would hardly be efficacious from the fact that children in schools are, as a rule, healthy; that sick children do not attend the schools, and the death rate is therefore very low. In six years, in an attendance of about six hundred, we could only collate four deaths of children attending that school. Probably the conditions there were very favorable to life. You can readily see that this is far below the presumed death rate in any locality. But, to my mind, we can establish an ideal of school life or school death. If we find one school has a certain ideal low rate of death, schools that are higher in their death rate can be located, and, if possible, the difficulty existing there can be remedied.

There is also another point, and that is the after effects of education on children after they have left school. He remembered particularly in the graduating class of one school, two died within a year, and the presumption is that they died from over-training.

Some years ago he made an examination of the death rates in this State to see whether there could be localized a specific death rate for a specific elevation, and in collating those details he was very well satisfied of the general average correctness of the death returns in this State, and while, of course, he understands Dr. Mitchell to say that the birth returns are imperfect, he is satisfied that the death rates are fairly correct.

Dr. G. D. Saltonstall said that Dr. Mitchell speaks of the improper classification of the diseases which caused the death of this and that person. He was very glad to hear that the Bureau of Vital Statistics does not approve of those statements of causes of death, such as heart failure, and he would like to state how it was stopped in Hudson county. It was done by refusing burial certificates on any such certificate of death. If the certificate comes into the office as from dropsy, heart failure or this or that improper definition, the paper is sent back and the permit for burial is refused.

The great trouble now is that there is no concentration of sanitary authority throughout the State, except in the State Board of Health itself.

Now in regard to the proper way of making birth returns. In Hudson county we do our best to force physicians to send in their birth returns. If we know a doctor who has had previously an average from 10 to 20 births a month, and we do not hear from him in two or three months, he gets a sharp letter; he calls and explains. He goes back then and sends up a stack of them. He knew one gentleman who sent up 120 births under pressure; he had not made a return in six months. He was not punished. Why? Because he was a physician in excellent standing. Now then comes in the trouble. How is the clerk going to enter them in the book in proper rotation?

The President then introduced Roland G. Freeman, M.D., of New York City, who read a paper on

## "THE CAUSATION OF DISEASE BY MILK."

[Abstract of this paper is given on page 361, *et seq.*, of this volume.]

Dr. Henry L. Coit, of Newark, was introduced and presented a paper on

## "MEANS OF PREVENTION OF DISEASE DUE TO IMPURE MILK."

[This paper is printed in full in this volume, page 367, *et seq.*]

Dr. G. D. Saltonstall, of Jersey City, gave something of his experience with dairies, having been the examiner of the dairies in Hudson county for ten years. He agreed with the two gentlemen who had just read very exhaustive papers, that there is doubtless a great deal of unnecessary filth connected with the cow stables, especially where there are many cows in one stable. Where there were only eight or ten, he had been able to regulate it. Where there were 130, or 98, or 75, it was impossible for him to regulate it, because he could not get around to each stable every day, and as soon as his back was turned they would not clean out the stable but once in two days, and the cows' udders become covered with filth because the owners would not supply bedding for the cows. The cows were obliged to lie down in their own filth. The cow is a very delicate animal—more so than the horse; but the horse is taken care of one hundred times better than the cow.

The Committee on Nominations then reported, and the following gentlemen were elected to the various offices of the Association:

*President*—David C. English, M.D., New Brunswick.  
*First Vice-President*—Shippen Wallace, Ph.D., Burlington.  
*Second Vice-President*—James Owen, C.E., Montclair.  
*Recording Secretary*—Daniel Strock, M.D., Camden.  
*Corresponding Secretary*—Prof. J. Madison Watson, Elizabeth.  
*Treasurer*—George W. Howell, C.E., Morristown.

## EXECUTIVE COUNCIL.

(With the above-named officers.)

Prof. Vernon L. Davey, *Chairman*..... East Orange.  
 Isaac Hull Platt, M.D..... Lakewood.  
 Charles B. Brush, C.E..... Hoboken.  
 J. C. Smock, Ph.D., State Geologist..... Trenton.

H. B. Francis, Esq..... Camden.  
 Prof. A. R. Leeds, Ph.D..... Hoboken.  
 William Elmer, M.D..... Trenton.  
 Prof. C. H. Raymond, Ph.D..... Lawrenceville.  
 H. C. Green, Esq..... Arlington.  
 H. R. Baldwin, M.D..... New Brunswick.  
 William Pierson, M.D..... Orange.  
 Prof. H. B. Cornwall, Ph.D..... Princeton.  
 T. R. Chambers, M.D..... Jersey City.  
 James A. Exton, M.D..... Arlington.  
 Judge W. M. Lanning..... Trenton.  
 John L. Leal, M.D..... Paterson.  
 H. B. Baldwin, Chemist..... Newark.  
 Randall Spaulding..... Montclair.  
 G. J. V. Schott, M.D..... Passaic.  
 Parker N. Black, C.E..... Asbury Park.  
 W. H. Hall, M.D..... Lakewood.  
 Edward S. Atwater, Counselor..... Elizabeth.  
 Joseph H. Powell, Esq..... Bridgeton.  
 Prof. C. M. Davis..... Bayonne.  
 David Harvey, Counselor..... Asbury Park.  
 H. M. Herbert, C.E..... Bound Brook.  
 H. B. Willis, Counselor..... New Brunswick.  
 G. W. Rockfellow, Esq..... Plainfield.

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Prof. C. F. Brackett, M.D., LL.D..... Princeton.  
 L. B. Ward, C.E..... Jersey City.  
 McRee Swift, C.E..... New Brunswick.  
 W. K. Newton, M.D..... Paterson.  
 James C. Bayles, C.E..... Orange.  
 F. Gauntt, M.D..... Burlington.  
 Prof. James M. Green, Ph.D..... Trenton.  
 Henry Mitchell, M.D., Secretary State Board of Health..... Trenton.  
 Dowling Benjamin, M.D..... Camden.  
 George P. Olcott, C.E..... East Orange.  
 E. L. B. Godfrey, M.D..... Camden.  
 Carrol Ph. Bassett, C.E., Ph.D..... Newark.  
 A. B. Poland, Ph.D., State Superintendent of Public Instruction..... Trenton.

This closed the twentieth annual meeting of the Association, which was generally regarded as the fullest in attendance, most representative and profitable of the series. An unusually large number of new members were elected. The papers presented were able and practical, and the discussions thereon, though possibly too limited as to the time allotted, were full of interest.

We greatly missed the presence of one of the founders and most earnest and able workers of our Association—Dr. Ezra M. Hunt, late Secretary of the State Board of Health, to whose memory the Association bore deserved and fitting tribute at its opening session. We make thankful record that his successor in this, one of the most important departments of the State for the protection and conservation of her citizens' highest welfare, was chosen from among our most active and influential members, and we bespeak for him the same consideration and assistance of our membership, and of our State authorities and local Health Boards that was accorded to his predecessor, feeling assured that the interests of public health and sanitation could hardly have been placed in abler and safer hands.

## The Causation of Disease by Milk.

ABSTRACT OF PAPER, BY DR. R. G. FREEMAN.

In considering the causation of disease by milk, one is struck by the great extent of the milk traffic. It is estimated that Great Britain uses 250,000,000 gallons a year, while New York City alone uses over 7,000,000 gallons a year. This milk is consumed largely by infants and invalids for whom it is ordered by physicians, because it furnishes albuminoids and fats with sugar and salts in a digestible form. When clean it is an ideal food, but as usually marketed it is very dirty. Milk is contaminated chiefly during milking. This arises from the water bacteria in the pails, from the dust and dirt in the air of the barn and from the belly and udder of the cow, from the hands of the milkman (especially when wet milking is used) and also from the face, head, hat and clothes of the milkman. There is also danger of contamination during cooling from dust and water. These methods allow the introduction also of pathogenic bacteria. Ordinary methods allow these bacteria time to increase, for milk is shipped only once a day, and then on very slow trains, so that in New York milk is 36 or 48 hours old when delivered to the consumer. Milk has some germicidal power when it first leaves the udder. This, however, cannot be relied on, for milk may sour from bacterial growth in 12 hours.

Diseases which have been attributed to milk may be divided into two classes: 1. Originating from the cow, as tuberculosis, anthrax, foot and mouth disease and acute enteritis. 2. Originating elsewhere, as cholera, typhoid fever, scarlatina and diphtheria.

Those originating from the cow may be due to infection of the milk in the udder or from infection during milking from particles of fecal or other matter falling into the milk pail.



Loose fœcal movements of a cow naturally run down the inner surface of the thighs and posterior of the udder.

Tuberculosis is a very common disease both among cattle and in man. From 2 to 25 or 50 per cent. of cattle near different large cities have been thought to be tubercular. At the slaughter-houses of Berlin 4.57 per cent. of the cattle are tubercular, at Munich 2.44 per cent., at Augsburg 2.24 per cent., at Mulhausen 3.4 per cent., in Mexico 34 per cent. From 10 to 25 per cent. of the cattle in Massachusetts are thought to be tubercular, while in Illinois it is thought that 50 per cent. are tubercular. In single herds of cattle 30 to 70 per cent. have been definitely proven to be tubercular. Considering these figures it may seem surprising that tuberculosis produces no more than one-seventh of all deaths in man, especially as there is some reason to believe that the tubercle bacillus may not be destroyed by the gastric juice. The danger of such infection is somewhat lessened by the dilution of the tubercular virus by mixture with other milk, and by the fact that all tubercular cows do not give tubercular milk. Cows having tubercular disease of the udder usually give milk containing a large number of tubercle bacilli, but when there is no disease of the udder, tubercle bacilli are less frequently present. Of 63 cows with general tuberculose and no disease of the udder, Bang found that nine gave milk containing tubercle bacilli; Ernst found that of 36 cows having general tuberculoses, but no disease of the udder, 10 gave milk containing tubercle bacilli. Primary tuberculosis of the gastro-intestinal tract in man does occur, but opinion differs among pathologists as to the frequency of its occurrence. Dr. Sims Woodhead states that he has seen a large number of cases where infection seemed to be from the intestines. Considerable clinical evidence of tubercular infection through milk exists. An institution supplied by milk from a dairy containing three cows with tubercular udders gave a mortality one year of 40 per cent., another year 30 per cent. In a boarding school of 14 girls, 5 contracted tuberculosis from drinking milk from a tubercular cow. At another boarding school where milk from a tubercular cow was used, 13 cases of tuberculosis occurred.

The evidence concerning the causation of anthrax by milk is not sufficient, although we know that the anthrax bacillus may

occur in the milk of animals suffering from anthrax, and that intestinal anthrax does occur in man.

It has been demonstrated that foot and mouth disease may be caused by milk. Hertwig and two friends drank milk from a cow suffering from foot and mouth disease and thus contracted it. This evidence was confirmed by Jacob.

Acute enteritis has seemed to be proven to be transmitted by milk in a case reported by Gaffky. Three men suffered from this disease after drinking milk which was traced to a cow having a similar trouble. No bacteria were found in the milk as it left the udder, but the fœces contained a bacillus similar to that isolated from the three cases. This then was a case of fœcal contamination of the milk from the cow.

Passing now to those diseases in which milk appears to be a carrier of infection through contamination by a person suffering from the disease, we must note that the pathogenic germ causing the disease has rarely been found in the sample submitted for examination. This fact, which may at first seem strange, is not really so since the milk that caused the epidemic is not examined, but a subsequent specimen from the same source.

In typhoid fever there is a large amount of evidence that epidemics have been caused by milk, and this evidence is strengthened by the fact that the bacillus typhosus thrives in milk. In the investigation of so-called milk epidemics certain general features are found in common. It is usually found that no water-supply or sewage system will account for the cases, but that they are associated with a certain milk supply. On further investigation, typhoid fever is in a majority of these epidemics, found to have existed either in the family of the milkman or at the dairy at such time as would account for the cases attributed to the milk. The dairymen and milkmen usually carry on their business more or less in their dwellings, so that the infection of the milk is very likely. The same person often nurses the patient and works in the dairy, sometimes milking the cows. The dairy pails are often cleaned in the kitchen, which may open into the sick-room, and in one case the same towel has even been used for the patient and for cleansing or drying the milk pails. The privy is often near the dairy well.

The modern creamery is a new source of danger, and has given rise to epidemics. They receive milk from neighboring farmers,

separate it and return the skim-milk to the contributors. When the milk of any contributing farmer is infected from disease in his family, all the creamery milk receives its share of the germs. Thus the epidemics of Svarteborg, in 1889, and one reported by Welpey, 1893, were caused.

In studying the relationship of scarlatina to the milk-supply, we find very conclusive evidence of milk infection in many epidemics, but in a minority is the disease discovered in the family of the milkman or at the dairy. This is probably due to the very contagious character of this disease, and to the fact that very mild cases may never be recognized. Thus of nine recent epidemics, in only three were cases of the disease in man found to account for the epidemic. Dr. Klein, of England, who was called in by the government to investigate two milk epidemics of scarlatina, believes that he discovered a disease in cows which was capable of producing a similar disease in other cows and scarlatina in man, and could itself be produced in cows by exposing them to scarlatina in man. These observations have never been confirmed, and have been very strongly condemned as unreliable.

Certain epidemics of diphtheria have been found to exist almost solely among the consumers of a certain milk-supply. Such epidemics are less common than those of typhoid fever or diphtheria. In few of these has diphtheria been detected in the families of those handling the milk.

There is evidence that cholera has been contracted by drinking milk containing the germ of that disease. Evidence of such infection is furnished by Gaffky, and also by Simpson, who reports an epidemic caused by milk. The ptomaine produced by bacteria are another supposed cause of poisoning by milk.

#### *Summary.*

Infection by milk is well established in foot and mouth diseases, tuberculosis, typhoid fever, cholera and acute enteritis; is probable in scarlatina and diphtheria, and may exist in anthrax.

An immense amount of sickness is caused by milk infection which might be limited by a proper inspection of dairies and certain legislation.

A study of these epidemics teaches us that:

1. Milk traffic should not be carried on in dwelling-houses.
2. The dairy building should be at a distance, certainly not less than 100 feet, from either the house, barn or privy, and should be on a higher level than any of these, and should have a pure water-supply of its own.
3. At the dairy building all the dairy work should be done, including the cleansing of the pails.
4. It should be unlawful for anyone who has come in contact with a sick person (unless the sickness is positively known to be non-contagious) to enter the dairy building or handle the milk. All men connected with the milk traffic should be compelled to notify the authorities on the outbreak of any disease in their respective abodes, and to abstain from their work until permission is given them to resume by the authorities notified.

The foregoing should also teach us that all milk should be sterilized before being used, especially in the case of infants and invalids.

## The Causation of Disease by Milk--The Means of Prevention.

BY HENRY L. COIT, M. D.

In the days of the Roman Empire it was the custom to accord to the noble infant civilian, with respect to his food, that which was his birthright: and the fabled and exceptional relation of Romulus and Remus to a lower mammal, was the work of tradition.

Two thousand years later, this order is well nigh reversed; and we sit in quiet complaisance and realize that as a result of the disastrous effect of civilization upon human life, a large and growing proportion of our race must needs be nourished by a domesticated lower mammal of the bovine species.

It is probably true that the steady advance of civilization has been coincident with the failure of the race to nourish its young; and, consequently, physicians, and those charged with the foster care of the child, have been confronted with conditions which make artificial infant feeding an important factor in the life of the race.

The medical profession compelled to face these chemico-dietetic problems, have for years drifted on the unstable waves of diverse opinion, caused by their efforts to harmonize the findings of the food analyst, with the demands of clinical experience.

The failures recorded by physicians of their attempts to adapt to the uniform growth of the infant, foods composed of milk which has been superheated, dried milk, cane sugar, malt sugar, dextrine and unconverted starch, is a humiliating page in medical history.

It is an encouraging sign of progress, that greater uniformity already prevails in the methods employed by the profession, when a substitute for woman's milk is required. This is apparent

in the fact that the best and most advanced thought is now firmly anchored to fresh cow's milk, as the basis for all rational artificial feeding. This progress would be greatly facilitated, if chemists, who now waste their skill upon patent baby foods, would devote their time to the study of human and bovine milks, their normal conditions, their chemical relations, and their physiological variations. Thus, in a more logical way than now, we could devise the proper synthetical mixtures. Such service would be invaluable to pediatric science.

At a recent meeting of the pediatric section of the New York Academy of Medicine, the writer had occasion to formulate the proper medical and dietetic requirements of cow's milk with respect to standards of purity. These included the absence of large numbers of micro-organisms, especially the disease-producing varieties; a resistance in milk to fermentative changes during the first two days after it is drawn, together with a constant and unvarying nutritive value of known composition. To show that these conditions are seldom, if ever, met by the producer of this important natural food, requires no argument. That they are reasonable demands, and could be secured to us by every dairyman in the land by the simple application of honesty and cleanliness, is unquestioned.

From the earliest medical books known we learn that the Hindoos, many centuries before the Christian era, looked well after the animal whose milk is used for food. Included with the directions for the care of a hospital, are laid down specific rules for the dairy. The requirements included a copious yield of milk and a quiet disposition in the animal, all her calves living, well tended with food and drink, and kept in a fold that was properly cleaned. In bold contrast with this, we have in the present state of advanced knowledge and civilized refinement a deplorable neglect of not only the requirements of these ancient Asiatics, but more important conditions affecting the health and life of the people.

It is difficult to understand why a cow, so universally and so completely employed for human food, should receive relatively so little care, while other domestic animals are so cautiously guarded. It is a practice so rare as to be remarkable, for a milch cow to be housed and kept as comfortably or groomed and

cleaned as carefully as the horse. As to feeding, the cow is the only animal supplied with refuse materials from manufactories and waste bi-products. The injurious and fatal consequences of this state of things in the light of the fact that this animal herself is highly susceptible to disease, are too apparent to require comment. The importance of this subject is most accurately measured by those of us who are parents, and who naturally place an incalculable value upon the lives of our children. The pure humanitarian is stirred by the amount of suffering wrought by disease, while with the economist it is a recognition of the enormous mortality among the young of our race which strikes terror to his philosophic heart.

The relation sustained by the milk question to mortuary statistics furnishes a field for investigation which promises a rich harvest; while innumerable facts justify their association and show their correlation. It may be proper to mention a few of these facts; namely:

That it has been claimed that twenty per cent. of all who are born to man in large centers of population, die during the so-called nursing period.

That there is a general lack of robust health in city children, most of whom are fed on milk contaminated with stable filth.

That there is a lack of physical resistance in city children to epidemic disease resulting from a want of suitable food to conserve their highest development.

That ignorance and greed in those engaged in the production of milk prevails; and its delicate nature is disregarded in the commercial expedients for its sale.

That micro-organisms are found in all milk after it is drawn, but never in the healthy udder.

That these bacteria and micrococci are found in such countless numbers that milk which contains 100,000 in a cubic centimeter (15 drops), is considered remarkably clean.

That milk before it spoils contains in the same amount probably five hundred millions of germs which may represent as many as forty different varieties.

That the records of infectious contagious endemics have often shown them to be indigenous to the dairy.

That so-called cholera infantum and the summer diarrhœas

among children are now regarded by authorities to be wholly due to milk infection.

That nearly thirty per cent. of all deaths in many large cities, from all causes and in all periods of life are infants of the first year.

That it has been claimed that sixty per cent. of hand-fed babies perish before they are five years of age.

That the mortality from nutritional disorders, directly or indirectly, during the first year comprises nearly ninety per cent. of the whole.

That one or more cases of bovine tuberculosis (oftener more), could probably be found in one third of the dairy herds in the United States, and the suggestive fact that one sixth of the race have transmitted to them by constitutional inheritance a suitable soil for the tubercle bacillus to grow in.

The merest tyro in preventive medicine may deduce from these premises the logical sequence that a very large part of the mortality in cities is traceable to cows' milk as a cause. Before these conclusions, the slaughter of the Innocents by Herod, or the sacrifice of weak specimens of humanity by the ancient Greeks and Romans grows insignificant. Well might the unscrupulous dairymen, the venders of brewery waste and the dealers in diseased dairy stock, who together number millions of our countrymen, with befitting grace and reverential awe, bow before the grim monster and repeat:

"Oh! death, we salute thee."

The number of diseases known to be transmitted by milk have multiplied with our increasing knowledge of pathology. Aside from such specific affections as tuberculosis, diphtheria, typhoid fever and scarlatina, we have heretofore used such terms as intestinal catarrh, summer complaint, cholera infantum, teething, and a host of other vague designations; now we speak of acute and sub-acute milk infection, referring by these terms to the effects of the numerous poisonous products of the bacteria found in milk.

The diseases caused or conveyed by milk may be classified as follows:

*First.* The bacterial diseases. This class includes the affections induced by a specific pathogenic germ, and attacks the individual by a localized infection or contagion. It may be represented by diphtheria.

*Second.* The diseases due to toxic bacterial products, which affect the individual through the primary action of bacteria upon the milk itself; the acute diarrhœas and tyrotoxicon poisoning are examples of this class.

*Third.* The affections resulting from malnutrition, which are consequent upon impoverished or adulterated milk, or milk which has been improperly modified. Notable examples of this class are inanition and so-called marasmus.

The means of prevention which may be applied to the evils of milk may be grouped under three heads, namely:

Those applied to its production;

Those applied to its preservation;

And those applied to the protection of the individual.

At this point we would emphasize the importance of a principle which should, we think, characterize all attempts to prevent the conveyance of disease by milk. We have never seen it referred to except in electrical science. It is Insulation, in contradistinction to Isolation and Disinfection; these latter having hitherto been regarded as the *sumum bonum* of preventive measures, for in this field isolation is often impracticable, and disinfection is at best a subterfuge.

The measures which may be applied to the *production* of milk will be best illustrated by a brief outline of the purposes of a Medical Commission recently organized and now engaged in active work in Essex county of this State, with what measure of success remains to be seen. This commission proceeds on the supposition that a purely commercial institution never gains the ear nor secures the support of the scientific world. Their purpose is chiefly to influence the production and proper handling of milk intended for clinical uses, which they seek to accomplish by a rigid legal supervision of methods imposed by them upon a reliable dairyman. The code of requirements is stringent and binding. It includes ample sureties for its fulfillment; necessary forfeiture clauses; a territorial limit for the sale of the product; provision for the compensation of experts employed by the com-

mission, namely, a chemist, a bacteriologist and veterinary surgeons. It controls the character of the land used for pasturage and the cultivation of fodder; determines the construction, location, ventilation and drainage of buildings; provides for abundant and pure water-supply, and prevents the use of water from wells or springs holding surface drainage. It requires in the stable cleanliness and order, and disallows the keeping of any other live stock except the cow within three hundred yards of the dairy buildings. It regulates the health, the consanguinity and breed of the animals; excludes any that are judged by a competent observer to be tuberculous, or found in a state of ill-health prejudicial to the herd. It forbids the use of phenomenal milkers until glandular diseases have first been excluded; provides for proper housing and shelter of the animals, together with their grooming and kind treatment, and the prompt removal of waste products from the stable. It regulates the feeding with reference to the desired result in the product, and restrains the use of all questionable or exhausted materials for food. It governs the collection and handling of the milk by insisting upon a proper regard for cleanliness as viewed by the physician and sanitarian, as it relates to the animal, her surroundings, the milker, the vessels, and the association of persons handling the milk with sources of infection. It controls by minute specified requirements every step in the collection of the milk and its preparation for shipment, and adds to the product every detail of care known to promote its keeping qualities or favor its safe transportation.

The motives of the commission are disinterested, and they forbid to themselves any pecuniary rewards. The experts are employed by the commission and are paid by the dairyman. The bi-monthly report of these officers to the commission are the basis of their approval of the product, which, in the form of a certificate, acquires a commercial value to the dairyman.

Thus far the work has been largely educational in its effect upon the dairyman, and yet it has not been without some measure of practical results, both with respect to the milk and in the opening of a new field for the study of preventive medicine.

The measures which may be applied to the *preservation* of milk, include the care and cleanliness applied at the dairy, together

with the detail necessary to reduce to a minimum the bacteria derived from the dust-droppings in the stable. The microbes are not only responsible for the various fermentations in milk, but these changes are dependent upon the species and the numbers which it contains. It should also be borne in mind that many of these organisms, by multiplying in warm milk, split up its constituents and develop those dreaded bacterial poisons which make such havoc with human life.

The early application of heat is probably the most effectual means of preserving milk; which it accomplishes by destroying the bacterial contaminations. The terms sterilization and pasteurization have been employed to indicate the different degrees of heat used. When thus treated, the milk is insulated in glass bottles. The former procedure, or sterilization at a high temperature, is designed to effect a complete destruction of all bacteria with their spores, while pasteurization is sterilization at the lowest possible temperature, and is designed to render the milk innocuous without injuring its nutritive values by overheating. It is moreover a fortunate circumstance that the thermal death-point of all known disease-producing bacteria is below that which has an injurious effect upon the milk itself.

The measures which may be applied to the *protection of the individual* are also governed by the principle of insulation. To fortify the digestion; to secure a healthy mucous membrane in mouth and throat; to elevate the health line to par, or above it; is to render the child largely immune from disease—it is to raise impregnable guards against the inroads of infection, and the child thus shielded, passes unharmed in the presence of danger.

The recent rational methods of infant feeding by such modification of fresh cow's milk that it approximates that of woman in composition, and is then rendered free from bacteria by heat, is undoubtedly one of the most important steps taken by preventive medical science in recent years. That the mortality among infants has already been materially reduced, is shown by vital statistics. The general adoption of these methods is greatly to be desired.

A plan is now developing whereby a general diffusion of the main facts connected with this subject may be secured to all classes. The Health Officer of Newark proposes that a circular

be issued by the local Board of Health and sent to every house from which a birth is reported, placing before the parent or foster-mother useful information concerning the care and feeding of infants, and the sources of danger; thus attempting to inhibit the ravages of such diseases as are due to milk.

The writer has been requested, and is now preparing such a circular. The following are a few of its statements:

Health and vigor of body are undoubtedly laid during the first year of life by proper feeding.

Proper infant feeding usually makes muscular with nerve force, not always fat ones.

Feeding at night after the third month, is both inconvenient and unnecessary; sleep at night is better than food.

Cow's milk, when properly prepared, furnishes a whole and sufficient diet for an infant and supplies all its needs for robust health.

In conclusion it will be proper to consider for a moment, the duty of the State in the matter before us. The State is here unquestionably represented by the officers charged with the interests of public health; the Board of Agriculture, and those commissioned to guard the food-supply. These have already done good and effective work, but much more needs to be accomplished without delay.

These State officers should, by the aid of physicians and chemists, seek to establish proper standards of purity for cow's milk, in order to avert the serious consequences to human life, which such knowledge could point out. By the aid of experienced dairymen to determine the results of questionable methods of feeding and care; and discover the nature and extent of the practices prejudicial to this food.

By the aid of sanitarians to formulate effectual remedies for current evils; to frame proper legislative enactments and to be the vigilant supervisors of their enforcement.

The legislative bodies must be moulded, as they usually can be, by the stern hand of men in earnest; commercial institutions which stand in the way of reform must be crowded to the wall, while disinterested men champion the cause of public good, and these vital interests of innocent children.

## Restriction and Prevention of Communicable Diseases of Children.

BY JOHN L. LEAL, M. D., HEALTH OFFICER OF THE CITY OF PATERSON.

In the brief paper which I have prepared on the above subject, I shall make no attempt to divide the various measures recommended into restrictive and preventive groups. Practically they are all restrictive, and we shall regard them as belonging to the one class. The communicable diseases of children, in which we, as practical sanitarians, are interested, I consider to be pertussis, rubeola, scarlatina and diphtheria; the other diseases of this class are either not endemic in this region, or are of too little importance to require active measures at our hands. Pertussis and rubeola, however, I consider important enough to require mild restrictive measures, such as the requiring cases to be reported, the isolation of patients and the non-attendance at schools and at public places of persons exposed. In cases of rubeola, I also believe that clothing and premises should be thoroughly disinfected. The remaining diseases of this group, scarlatina and diphtheria, are among the most serious with which we have to deal; not only are they most grave and fatal diseases, but our methods of restriction and prevention have been most inadequate. I feel confident that I shall voice the opinion of every practical sanitarian in this State, when I say that our experience as regards these diseases has been utterly unsatisfactory. We have failed not only in prevention, but even in restriction within reasonable bounds. A case of small-pox, of cholera, or of typhus fever occurs, we, backed by authority, by public opinion and by all the resources of our community, suppress it at once. There is no hesitation, no delay; we know what we can do; we know what the public expects us to do and we do it. Now the death rate from small-pox in Paterson for the last six years has been

6 per cent.; that of scarlatina, 17.62 per cent.; that of diphtheria, 32.7 per cent.; nevertheless, scarlet fever and diphtheria are always with us, and their presence and their ravages are taken as a matter of course. Yet death, most cruel, follows ever on their trail, year by year bearing away our dearest and best, and leaving but the little grave and the breaking heart. The public stands by and with bowed heads and hands clinched with the despair of fatalism, mutters through white lips, "what is to be, will be;" or, with folded hands and uplifted eyes bright with religious enthusiasm, cries "Thy will be done." The sanitarian stands apart; his neither the despair of the fatalist nor the exultation of the enthusiast; his rather the bitterness of one who sorrows for what need not have been except for human ignorance and neglect; he knows that armed with the weapons given him by science, he is as able to cope with these diseases as he has shown himself to be with small-pox, typhus fever and cholera; grant him but one thing more, the support of an aroused and intelligent public opinion, and he is prepared to enter the arena against them, ready and willing to accept the battle cry, *Vae Victis*. How then is this support of public opinion to be obtained? I know of no better way in this State than by the means of this Sanitary Association. If we now are willing to earnestly begin a campaign of education, much can be accomplished in a comparatively short time. The press, that great engine of education, stands ready to aid us. The public would soon understand the gravity of these diseases; they would learn that their own familiarity had bred contempt; they would be told that the Mexican regards typhus and small-pox, the Hindoo cholera, in about the same light that they do scarlet fever and diphtheria. They would soon ask why all this fuss about the former when the latter, far more dangerous to us, is always at our door. Then finally, they will learn that science gives us the means to prevent and restrict one as well as another; that as earnest a battle waged against scarlet fever and diphtheria as against small-pox, typhus and cholera will give us practically the same results. When that time comes, aroused public opinion will demand that those means be used and used to the best advantage and without regard to cost. Then, and not until then, will victory be in sight.

To be sure, the battle will be long and severe, we will be obliged to fight the accumulated infection of years, but the

result will be our reward. Year by year the mass of infection will grow less and at last will be under our control. Now, with our present light what are the practical means at our disposal with which we are to obtain this great result; in the first place, general sanitation must receive strict attention; every community must have clean streets and good sewers; all garbage and waste must be removed and treated in a sanitary manner; the water-supply must be pure and carefully kept so; milk and food supplies must be inspected; premises must be placed and kept in a sanitary condition as to construction of buildings, plumbing and drainage and general cleanliness. This is the broad foundation upon which the other special means will rest. In the second place, every community must have a hospital for contagious diseases. This institution must be regarded as of as much importance to the public good as is the alms-house or the jail; it should be a hospital in every sense of the word and not a pest-house; fortunately for humanity the day of the pest-house is passed. This hospital should be so located as to be no menace to the public health, and so constructed as to secure the necessary isolation of the various forms of communicable disease; every detail of its construction and management should be according to the most recent scientific methods; its location and construction should also be studied for its moral effect upon its patients and upon the community. In the third place, there should be a proper quarantine building or buildings; these should be located near the hospital and run in connection with it, the necessary precaution being observed. In the fourth place, and very essential is a disinfecting station. This should also be located near the hospital and quarantine buildings; thither should be transported all the infected material possible and thoroughly sterilized. In the fifth place, as to general routine work, physicians should be compelled to report cases. Premises on which cases are reported should be visited by competent inspectors, and placarded. In cases of diphtheria, specimens for bacteriological examination should be taken; patients and those in attendance thoroughly isolated, and all persons exposed quarantined or put under satisfactory observation. If possible, the source of disease should be found and the necessary measures taken. School, church and public library authorities should be notified of the existence of contagious



disease on premises and compelled to adopt the necessary precautions. All books on premises from these sources should be destroyed or satisfactorily disinfected before they are returned. Unless considered unnecessary for the public good, patients should be removed to the contagious disease hospital, and those exposed, to a quarantine station. On removal or recovery of patient all infected articles possible should be removed to disinfecting station and there thoroughly sterilized. Buildings, out-houses, yards, &c., should be cleaned and disinfected with sulphurous acid gas or with chlorine gas and with the bi-chloride of mercury spray. All persons exposed should be either kept in quarantine or under observation until the period of incubation has expired. The above measures carried out with thoroughness and with due attention to detail will in my opinion yield us the most satisfactory results. This opinion is based not upon theory alone, but upon an experience of about nine years in dealing with these diseases as a public Health Official. If my conclusions meet with approval, and interest is awakened in the use of the most stringent measures of restriction and prevention of the communicable diseases of children, I shall feel that sanitary science in our State has taken another long step in advance.

## Circulars and Laws.

Circulars have been issued by this board at short intervals during the past seventeen years, and the more important questions in hygiene have been by this means presented to the local Boards of Health and to the citizens of the State.

Following is a list of circulars now in print and ready for distribution :

- Circular 7.—Protection to Bathers.
- Circular 27.—Sanitary Instruction in Schools (1).
- Circular 28.—School and Health (2).
- Circular 29.—Charitable and Penal Institutions.
- Circular 30.—Sanitary Survey and Topography.
- Circular 37.—School and Health (3).
- Circular 39.—To Local Boards of Health, Their Duties.
- Circular 40.—Health Counsels for Working People. Industrial Circular No. 1.
- Circular 41.—Health Counsels for Working People. Industrial Circular No. 2.
- Circular 42.—Kerosene Oil.
- Circular 44.—How to Prevent the Spread of Small-pox, Scarlet Fever, Diphtheria and all other Communicable Diseases.
- Circular 45.—Cholera.
- Circular 47.—Prevention of Injury to the Mind, the Eyes and the Ears.
- Circular 50.—Contagious Diseases of Animals.
- Circular 52.—Suggestions for House Inspection.
- Circular 53.—Pure Drinking Water, How to Secure it.
- Circular 54.—Sanitary Inquiry Concerning Schools.
- Circular 57.—To the Physicians of the State.
- Circular 59.—Laws and Regulations Concerning Adulteration of Food and Drugs.
- Circular 60.—Public Health Laws.
- Circular 61.—Care of Household Wastes.
- Circular 62.—Drainage for Health.
- Circular 63.—Farmer's Houses and Their Peril.
- Circular 64.—Disinfectants, and How to Use Them.
- Circular 65.—Plumbing Drainage and Ventilation of Buildings.
- Circular 66.—Marriage, Birth and Death Returns.
- Circular 67.—Care and Burial of the Dead.
- Circular 68.—To Local Boards of Health (Spring Circular).
- Circular 69.—Meat, Poultry, Game and Fish as Foods. How to Judge Quality.

- Circular 70—Occasional Bulletin (No. 1).  
 Circular 71—Sanitary Inspections in Resorts.  
 Circular 72—Vital Statistics.  
 Circular 73—Cities.  
 Circular 74.—To Local Boards of Health (Fall Circular).  
 Circular 75.—Health Inspectors' Guide.  
 Circular 76.—Protection of Schools from Communicable Diseases (No. 4).  
 Circular 77.—Diphtheria.  
 Circular 78—Institutional Sanitary Inquiry.  
 Circular 79.—Laws Concerning Marriage.  
 Circular 80.—House Drainage, Traps and Vents.  
 Circular 81.—Occasional Bulletin (No. 2).  
 Circular 82.—Isolation Hospitals.  
 Circular 83.—Tuberculosis.

Any of these circulars can be obtained by local Boards of Health singly or in quantity, or if lists of names and post office addresses are given, the circulars which are desired will be sent by mail from this office direct to individuals.

### CIRCULAR 83.

NEW JERSEY STATE BOARD OF HEALTH.

TUBERCULOSIS:

ITS COMMUNICABILITY AND PREVENTION.

This disease is more prevalent and more fatal than any other which affects human beings.

In New Jersey consumption, which is but one of the many forms of tuberculosis, caused the death of more than thirty thousand persons during the past ten years, or about one-seventh of all who died in the State during that period.

#### CAUSE AND COMMUNICABILITY.

Tuberculosis is a communicable and preventable disease, affecting man, and also readily contracted by the lower animals. No animal is known to be exempt from it.

It is conveyed by a germ called the bacillus tuberculosis, a microscopic parasite which has great vitality, resisting heat, cold and dryness.

In consumption the tubercle bacilli are discharged from the lungs in vast numbers, and if the expectoration is allowed to become dry, it is blown about with the dust in streets and dwellings, and is capable of reproducing the disease in any susceptible individual when inhaled into the lungs.

This disease may also be spread by contact between tubercular discharges and any of the mucus membranes, or with any wound or abrasion of the skin. Kissing, especially kissing upon the lips, may transmit the disease.

#### CONDITIONS WHICH AID IN CAUSING THE SPREAD OF TUBERCULOSIS.

*Defective Houses.*—Dwellings, factories and shops which are located upon damp or undrained sites, or which are so constructed, or surrounded, or managed that pure air and sunlight do not enter in abundance, or which are supplied with impure water or with imperfect drainages, or which are overcrowded or filthy, will diminish the strength and vigor of the inmates and assist in rendering them unable to repel this disease.

*Unwholesome and insufficient food.*—Persons whose energy is impaired by indulgence in indigestible or unwholesome foods, and those who are insufficiently fed, or who choose foods which do not contain all of the necessary elements of nutrition, and those who yield to habits of intemperance in alcoholic drinks, or to any dissipation, become liable to contract tuberculosis.

#### PREVENTION.

All tuberculous discharges should be destroyed before they become dry.

*Sputa* should be received upon pieces of cloth and burned, or they should be discharged into cups containing a little of a saturated (five per cent.) solution of carbolic acid. In the street and when traveling in public conveyances, a pocket-cup should be carried to receive the expectorated material.

No such receptacles should be emptied until boiling water has first been poured upon its contents. The water should be allowed to cool in the cup.

The consumptive patient may reinfect himself by swallowing some of the tuberculous matter from his lungs, and thus cause the disease to attack one of the abdominal organs, or by failing to destroy the sputum he may permit the infection of the dust of his apartment, and, by inhaling the germs, plant the disease anew in some previously healthy portion of his lungs.

*Meat and milk* known to be from diseased animals should be rejected. Milk from a doubtful source may be sterilized by boiling.

*Carpets* cannot be kept clean, and they are almost certain to become lodging places for the tubercle bacilli in houses occupied by a consumptive patient. Rugs which are not permanently fastened are preferable to carpets. They should be frequently carried out of doors and exposed all day to air and light. Carpets, rugs and floors which are believed to be infected should not be swept when dry. Dust should be removed from furniture by wiping with a damp cloth, and the cloth should be burned at once.

No healthy person should sleep in a room occupied by a consumptive. Rooms vacated by persons having consumption should be disinfected by the application of a solution of corrosive sublimate (1 to 1,000) to the side walls, doors, and all woodwork, including floors and furniture. *This solution is poisonous.* All woodwork should then be washed with soap and water.

All other infected articles should be subjected to a temperature not less than 212° F. for thirty minutes, or they should be destroyed. Dishes, knives, forks and spoons used by a consumptive should be scalded after use.

[Copies of this and other circulars may be obtained by addressing State Board of Health, Trenton, N. J.]

## Health Laws of 1894.

### STATE BOARD OF HEALTH.

#### CHAPTER CCCXXX.

A SUPPLEMENT to an act entitled "An act to establish in this state, boards of health and a bureau of vital statistics, and to define their respective duties," approved March thirty-first, one thousand eight hundred and eighty-seven.

1. BE IT ENACTED by the Senate and General Assembly of the State of New Jersey, That whenever any nuisance or source of foulness within the limits of the territorial jurisdiction of any local board of health of this state is of such a nature that, in the opinion of the state board of health, it is hazardous to the health of persons residing within the limits of the jurisdiction of such local board, it shall be lawful for the state board of health to cause a notice in writing, signed by the secretary of said board, to be sent to such local board, requiring it to cause such nuisance or source of foulness to be abated within such time as said state board by said notice may specify, and if no action for the abatement therefor shall be taken by such local board within the time specified in such notice, or if in the opinion of the state board the action the local board shall not be such as the necessities of the case seem to the state board to require, then it shall be lawful for such state board to file a bill in the court of chancery in the name of the state on the relation of such board, for an injunction to prohibit the continuance of such nuisance or source of foulness.

2. *And be it enacted,* That whenever any nuisance or foul odors, injurious to the public health within the territorial jurisdiction of any local board of health, shall have a source or origin outside of the limits of such territorial jurisdiction, it shall be lawful for the state board of health to file a bill in the court of chancery, in the name of the state, on the relation of such board, for an injunction to prohibit the continuance of such nuisance or source of foulness or ill health.

3. *And be it enacted,* That actions instituted under the authority of either of the two proceeding sections shall proceed in the court of chancery according to the rules and practice in such cases on the relation of individuals, and cases of emergency shall have precedence over other litigation pending at the time in said court, and may have final hearing within such time and on such notice as the chancellor may direct.

4. *And be it enacted,* That in every such action in which it shall be ascertained by the court of chancery that such nuisance or source of foulness or ill health

existed at the time of the filing of the bill substantially as therein set forth, the court shall have power to abate the same by an injunction or otherwise, according to the practice of the court, and may charge the costs of such action upon the property whereon such nuisance or source of foulness or ill health is found, and enforce the payment of the same by sale of said property or any part thereof by writ of fieri facias, or the said court may order the person or corporation which caused such nuisance or source of foulness or ill health, or allowed the same to continue, to pay such costs, and may enforce obedience to such order.

5. *And be it enacted*, That in case no such nuisance shall be found to exist, costs shall not be awarded as of course against the state board of health, but only in case it shall appear to the chancellor that no probable cause existed for bringing such suit.

6. *And be it enacted*, That all acts and parts of acts inconsistent with this act are hereby repealed.

7. *And be it enacted*, That this act shall take effect immediately.

Passed May 24, 1894.

## RE-ORGANIZING BOARDS OF HEALTH IN CITIES OF THE FIRST CLASS.

### CHAPTER CCXXVI.

AN ACT to re-organize boards of health in cities of the first class in this state.

1. BE IT ENACTED by the Senate and General Assembly of the State of New Jersey, That where in any city of the first class in this state the members of the boards of health of such city are now or hereafter may be appointed by the mayor of such city, such board of health shall consist of ten legal voters of such city to be appointed by the mayor of such city within five days after the passage of this act, and on the second Monday of May in each second succeeding year hereafter, five of which said commissioners shall be selected and appointed from the political party which, at the last preceding election for mayor of said city, cast the largest number of votes for mayor, and five from the political party at said election casting the next largest number of votes; the commissioners so appointed shall serve for the term of two years and until their successors shall be appointed and qualified.

2. *And be it enacted*, That the members of the board of health in such cities appointed prior to the passage of this act shall continue in office until the appointment of their successors hereunder, at which time their respective offices shall become vacant, notwithstanding they may have been elected or appointed for a longer term.

3. *And be it enacted*, That any vacancy which shall happen in the office of member of the board of health in such city shall be filled by the mayor of said city for the unexpired term only, and that the member so appointed to fill such vacancy shall be selected by the mayor from the same party as the member for whose expiring term he is appointed.

4. *And be it enacted*, That the terms of office of all officers and employes appointed by boards of health in any such city shall cease on the first day of June, one thousand eight hundred and ninety-four, notwithstanding such officers or employes may have been appointed for a longer term, and that such officers and employes shall receive and be paid as salary or compensation for services rendered up to said date, that part of the salary or compensation proportioned to the actual time served by them in said office or employment.

5. *And be it enacted*, That the boards of health provided for by this act shall perform all the duties and possess all the powers, and be subject to all the liabilities now or hereafter conferred upon boards of health in such cities by the laws of this state.

6. *And be it enacted*, That all acts and parts of acts inconsistent with the provisions of this act be and the same are hereby repealed, and this act shall take effect immediately.

Approved May 15, 1894.

### CHAPTER CCCXVII.

A SUPPLEMENT to an act entitled "An act concerning contagious and infectious diseases among animals and to repeal certain acts relating thereto," approved May fourth, one thousand eight hundred and eighty-six.

WHEREAS, It is said that tuberculosis in cattle prevails in some sections of this state, whereby the health of our citizens is imperiled; therefore,

1. BE IT ENACTED by the Senate and General Assembly of the State of New Jersey, That the president of the state board of agriculture shall appoint five persons, citizens and taxpayers of this state, who, together with himself and the secretary of the state board of agriculture, shall constitute a commission who shall, at the request of two members of the state board of health or the state dairy commissioner or any owner of suspected animals, investigate the existence of tuberculosis, or cause the same to be investigated, and if any such disease is found to exist, to enforce such regulations in relation to the same as the said commission may adopt.

2. *And be it enacted*, That when any animal or animals shall be slaughtered by direction of said commission, the value of the same shall be ascertained and appraised by three disinterested freeholders, resident in this state, who shall make and sign certificates thereof in the presence of a witness who shall attest the same; such appraisement shall be made on the basis of the market value of the animal or animals slaughtered, just prior to the time when they became so diseased, and shall be limited to the sum of one hundred dollars for registered animals and to forty dollars for all others; one-half of the valuation so ascertained shall be paid by the state on the presentation of such certificate, with the approval of the said commission indorsed thereon, to the owner or owners.

3. *And be it enacted*, That it shall be the duty of said commission to keep a full and complete record of all their proceedings under this act, and report the same annually to the state board of agriculture, and such a report shall be printed in and form a part of the annual report of the state board of agriculture.

4. *And be it enacted*, That the sum of five thousand dollars is hereby annually appropriated to said commission to defray its expenses and the value of the cattle to be slaughtered by its direction; *provided*, that no other compensation shall be allowed said commission than the expenses actually incurred in the execution of the duties hereby imposed.

5. *And be it enacted*, That all bills for money expended under this act shall be audited by the comptroller of this state and then submitted to the governor for his approval, and after being thus audited and approved by the governor shall be paid by the state treasurer upon the warrant of the comptroller.

6. *And be it enacted*, That this act shall be deemed a public act and shall take effect immediately.

Approved May 22, 1894.

## SEWERAGE IN TOWNSHIPS.

### CHAPTER CLXVII.

AN ACT to provide for sewerage or drainage, or both, in townships.

1. BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey*, That it shall be lawful for the township committee of any township in this state to cause surveys and plans to be made for a system of sewerage or drainage, or both, for the township, or for any town or village therein, and to obtain estimates of the cost of constructing the same, and to pay for such surveys and plans and the cost of obtaining such estimates out of any funds under their control subject to be used in paying incidental expenses.

2. *And be it enacted*, That it shall be lawful for such committee, either by contract or otherwise, to cause a system of sewerage or drainage, or both, for their township, or for any town or village therein to be constructed, and to make provision for disposing of sewerage in any manner not prohibited by law, and to take any and all proceedings necessary and proper for supervision and performance of the work; *provided, however*, that no contract shall be made for the actual construction of any sewer or drainage system, or money expended or obligation created for that purpose other than for the procuring of surveys, plans and estimates until the assent thereto shall be given in writing by the owners of at least one-half in value of the real estate in such township subject to taxation by the township officers in the year then next preceding, according to the tax duplicate of such year.

3. *And be it enacted*, That it shall be lawful for the township committee to acquire by purchase in the corporate name of the township any real estate situate in such township or elsewhere that may be necessary for the purpose of constructing, maintaining or operating such system of sewerage or drainage, or both, and in case the owner of any such real estate and said committee cannot agree upon the price or terms for sale of said property, it shall be lawful for the circuit court of the county in which said lands and real estate are situate, on application in writing made by or on behalf of such committee, and on such notice to the owner of such lands or real estate, as the court may prescribe

to appoint three disinterested persons as commissioners, who shall make an estimate and assessment of the damages that any such owner will sustain by the taking of said lands and real estate, with the appurtenances, for the purpose aforesaid, and said court shall appoint proper persons to fill vacancies in case it shall be necessary to do so; the said commissioners shall proceed under oath to make an impartial estimate and assessment of such damage, and they, or any two of them, shall make and present a report thereof to said court as soon as practicable; upon the filing of said report either said committee or any party interested in said lands and real estate shall give notice of an application to confirm the same, and at the time fixed for hearing said application the said court shall consider said report and any objections that may be made thereto in a summary manner, and confirm the same or refer it back to the said commissioners or other commissioners to be appointed by the court for revision or alteration, and in case the same shall be referred back for revision another report shall be made and considered on notice as aforesaid, and such proceedings continued until a report shall be made that said court shall be willing to confirm, and said report when confirmed by said court, or a copy thereof duly certified by the clerk of the county, shall be plenary evidence of the right of the township committee to enter upon, take and use the said lands or real estate, with the appurtenances, provided said committee shall first tender to the owner thereof, if residing in this state, the amount so awarded, and if any owner is not a resident of this state, or on due inquiry cannot be found herein, or is a lunatic or idiot, or under age, or is for any cause incapacitated to receive the amount awarded, or will not receive the same and sign a voucher or receipt therefor when tendered, an affidavit shall be made of the facts and filed in the office of the clerk of said court, and the amount so awarded shall be deposited with the said clerk, to be disposed of as said court shall direct, and thereupon said township committee shall have the right to take and use said lands and real estate for the purposes aforesaid; *provided*, that the township committee, or any party interested in said lands, feeling aggrieved by the decision of the commissioners, may appeal to the next circuit court of the county wherein said lands are situate; and every such appeal shall be made in writing in the form of a petition to said court and filed with the clerk thereof, and notice of appeal shall be given to the opposite party or parties within ten days thereafter, and said court shall thereupon have full power to hear and determine the same, and to direct a proper issue for the trial thereof, and to order a jury to be struck and a view of the premises to be had; said issue shall be tried at the next term of said court, or at any subsequent term to which the same may be adjourned, upon like notice and in the same manner as other issues in said court are tried, and the costs of said appeal shall be taxed and paid as said court may direct.

4. *And be it enacted*, That it shall be lawful for such township committee to issue promissory notes or certificates of indebtedness of the township in order to raise money to pay for any land or other property acquired for the construction of such sewer system and to pay the cost of constructing the same; *provided*, that no such note or certificate of indebtedness shall bear interest at a higher rate than six per centum per annum, nor be disposed of for less than its par or face value, and all such notes or certificates of indebtedness shall be made payable within two years from and after the beginning of the work;

that at the maturity of said notes or certificates of indebtedness, said township committee shall issue either registered or coupon bonds of the township for so much of the cost of such sewer or drainage system as shall not at that time have been collected by means of assessments for special benefits; such bonds shall be authenticated by the corporate seal of the township, and the signature of the chairman of the township committee, and the coupons thereto annexed, if any, shall be authenticated by the autograph or engraved signature in fac simile of the treasurer of the township committee; said bonds shall be made payable within thirty years from their date, but part of the issue may be made payable at different times; and no bond shall be sold for less than par, and shall not bear interest at a higher rate than six per centum per annum.

5. *And be it enacted*, That as soon as said sewer system shall be constructed the township committee shall cause public notice to be given in one or more newspapers of the county circulating in the township where such system is located, and by posting notices in five of the most public places in said township of an application to be made on a certain day and place therein named, at least ten days subsequent to the publication and the posting of said notice, to said circuit court for the appointment of three discreet and disinterested freeholders as commissioners to make an assessment of the cost and expense of such improvement, and such circuit court, on due proof that such notice has been given, shall appoint three commissioners as aforesaid, by order entered in the minutes thereof, and may appoint one or more persons to fill a vacancy or vacancies in case of necessity upon like notice, and the commissioners so appointed shall, before entering upon the duties of their office, take, subscribe, and file in the office of the clerk of the county an oath faithfully to discharge their duties as such commissioners, and shall thereupon give ten days' notice, by publication in one or more newspapers published or circulating in the township, and by notices posted in at least five of the most public places therein, that they will meet at a convenient time and place in said township, named in said notice for the purpose of discharging their duties, and at the time and place so appointed the said commissioners shall meet and proceed to examine the matters referred to them, and may adjourn from time to time, and shall give a hearing to all parties interested and an opportunity to produce evidence before them in support of objections, and any of said commissioners may administer oaths and take depositions of witnesses who shall be offered to give testimony in regard to the matter; and thereupon they shall forthwith proceed to ascertain the total cost and expenses incurred by the construction of such sewer system, including also all interest or discounts paid on any notes, certificates or obligations issued on account thereof, and after ascertaining the total amount of such costs and expenses, they shall proceed to make a just and equitable assessment thereof, or of part thereof, on the lands and real estate especially benefited by such improvement, in proportion to the special benefits actually conferred thereby; *provided*, that in no case shall the assessment upon any lands exceed the special benefit conferred by such improvement to the land so assessed, and in case the said commissioners shall determine that the lands especially benefited by said improvement have not been so benefited to the full extent of the costs and expenses thereof, the surplus of such cost and expenses shall be paid by taxation.

6. *And be it enacted*, That the commissioners, upon completing their assessments, shall cause a map to be made showing the lots so assessed, and shall designate the same by numbers and the names of the owners as far as they may be known to the commissioners; and they shall make a certificate showing the whole amount of said assessments, with the amount assessed against each, of said lots by reference to the numbers thereof on said map, with the names of the owners set opposite thereto, as far as they may be known to said commissioners, and within thirty days thereafter they shall make a report of their proceedings and assessments to the circuit court, or within such further time as said court may grant, and upon the coming in of said report signed by said commissioners, or any two of them, said court shall direct notice to be given in the manner prescribed in the fifth section of this act of the time and place of hearing any objections that may be made to such assessments, and after hearing any matter that may be alleged against the same the said court shall either confirm the said report or refer it to the same or other commissioners, to be appointed by the court, to consider the subject-matter thereof; the said commissioners to whom the said report shall be so referred shall return the same report, corrected and revised, or a new report to be by them made in the premises, to the said court within such time as the said court shall by order direct, and the same, on being so returned, shall be confirmed or again referred by said court in manner aforesaid, as right and justice shall require, and so from time to time until a report shall be made or returned in the premises which the said court shall confirm; and such report when so confirmed shall be final and conclusive, as well upon the said township as upon the owner of any land and real estate affected thereby; which said map and report when finally confirmed by said court, shall be filed in the office of the clerk of the county wherein said improvement is situate, and a copy certified by the said clerk shall be given to the collector of the township, and such report, map and copy shall at all reasonable and proper times be subject to the examination and inspection of all parties interested in the same; and from and after the filing of said map and report in the office of said clerk, said assessments shall be and remain a first and paramount lien upon the lots so assessed for the amounts thereof, respectively, with interest at six per centum from the time of such filing, and all costs and fees thereon, until the same shall be paid and satisfied, notwithstanding any devise, descent or alienation thereof, or any judgment, mortgage or encumbrance thereon, and notwithstanding any mistake in the name or names of the owners, or omission to name the owner or owners thereof, and any assessment in which such mistake or omission occurs, shall nevertheless, be a valid and effectual lien upon the lands assessed.

7. *And be it enacted*, That the assessments so imposed shall be collected by the same officer or officers, and at the same time and in the same manner that taxes are or may be collected in the township where such improvement is made; *provided*, that the owner of any lot or tract of land so assessed may pay the assessment thereon, with interest, in equal yearly payments, not exceeding ten, as the township committee may determine, in case such owner shall file with the clerk of the township an agreement in writing, to be approved by the township committee, stating the number of installments by which he will pay the same, and each installment shall be collected at the same time and in

the same manner and by the same officer or officers that taxes are or may be collected in the township, but any person may pay the whole of such assessment, with interest, at one time; all moneys collected for or on account of such assessments, and interest thereon, shall be set apart and used exclusively for the payment and purchase of notes, certificates or obligations that may have been made, issued or incurred by the township committee to raise money to pay the cost of said improvement.

8. *And be it enacted*, That in any proceeding under this act necessary or proper to be had or taken by any township committee, it shall be lawful for such committee to act or proceed by resolution, and said committee may fix and prescribe the terms and manner by which connections with said sewer system may be made, and shall maintain said system in good order, and may make extensions thereof from time to time when necessary; *provided*, that in case any extensions are made commissioners shall be appointed to make assessments of the cost, or part of the cost, thereof in the manner herein provided, and any such assessments shall be collected in the manner herein provided; the compensation of all commissioners appointed in pursuance of this act shall be fixed by the court in which they shall be appointed and paid by the township committee.

9. *And be it enacted*, That two or more townships, by their committees, may enter into a contract to obtain plans, surveys and estimates of the cost of, and to construct, an outlet or trunk sewer, or to provide a plant or works for collecting and disposing of sewage for their respective townships, or for any towns or villages therein, and any township or townships may in the same manner acquire the right to use any outlet or trunk sewer or sewer system that may be or may have been constructed in any municipality on such terms as may be agreed upon; *provided*, the assent in writing to the making of any such contract shall be given by the owners of at least one-third in value of the real estate in each of such townships subject to taxation by township officers in the year then next preceding, according to the tax duplicates of such year, and in case any such outlet or trunk sewer or sewer system shall be constructed jointly by two or more townships, the part of the cost thereof that shall be paid by each township or by assessments on lands in each township shall be determined in a manner to be provided in such contract, or if not so provided, then by the commissioners appointed to make assessments of the cost thereof, and any proceeding necessary to be taken to acquire property or to construct such sewer or sewer system shall be taken by the township committees of each township acting in joint meeting, and in the corporate names of the townships represented by them; but all obligations for money borrowed to construct such sewer or system shall be made by the township committees of the respective townships, parties to such contract, and all proceedings to raise money and to impose and collect assessments for the cost of such sewer or system, or parts thereof, in the respective townships; shall be taken as if each township had constructed the part of the sewer or system therein under this act as an independent sewer or system.

10. *And be it enacted*, That this act shall take effect immediately.

Approved May 9, 1894.

## Reference to Laws of 1894 Having Relation to the Public Health.

Chapter LIV.—An Act to further define the duties of “factory and workshop inspector,” and to include in the same the inspection of mines and the making and enforcement of regulations in respect to the operation of the same with increased safety to those employed therein.

Chapter LXXXV.—An Act to amend an act entitled “A supplement to an act entitled ‘An act to authorize the incorporation of rural cemetery associations and regulate cemeteries,’” approved March twenty-third, one thousand eight hundred and eighty-three.

Chapter XC.—An Act conferring certain powers of government on boards of trustees, boards of directors or managers of any camp meeting association or any other corporation heretofore or hereafter incorporated under the laws of this state for the purpose of providing religious bodies or societies with a permanent camp meeting ground or place for religious service.

Chapter CXIX.—An Act to amend an act entitled “An act to provide for drainage and sewerage in cities of this state,” approved April seventh, one thousand eight hundred and ninety.

Chapter CXXXII.—An Act authorizing township committees of townships in which there may be a water-supply furnished by public or private water works, to raise and pay moneys for the preparation of surveys, plans and estimates for sewerage and drainage.

Chapter CXXXVII.—Supplement to an act entitled “An act relative to morgues and morgue-keepers,” approved March fourth, one thousand eight hundred and seventy-nine.

Chapter CLIII.—An Act to incorporate colleges of pharmacy.

Chapter CLXVII.—An act to provide for sewerage or drainage or both in townships.

Chapter CLXXI.—A Supplement to an act entitled “A further supplement to an act entitled ‘An act to provide additional accommodations for the insane of this state,’ approved March thirty-first, anno domini one thousand eight hundred and seventy-one,” which said supplemental act was approved March third, anno domini one thousand eight hundred and eighty.

Chapter CLXXXIII.—An Act to amend an act entitled “An act to amend an act entitled ‘An act in relation to the temporary custody of dangerous luna-

tics,' approved March twenty-third, one thousand eight hundred and eighty-eight," which amendatory act was approved March ninth, one thousand eight hundred and ninety-one.

Chapter CCVI.—An Act concerning nurses, attendants and other employes in any charitable or penal institution of any township, county or other municipality in this state.

Chapter CCXIV.—An Act to regulate and prevent the erection of frame or wooden buildings in cities of the first class.

Chapter CCXVI.—An Act providing a fund in certain cities of the state for the care of the indigent sick.

Chapter CCXLVI.—A Supplement to an act entitled "An act for the better regulation of poor-houses in this state," approved May sixth, one thousand eight hundred and eighty-nine.

Chapter CCLI.—An Act to authorize townships and other municipal bodies in counties of the third class in this state to vote moneys for the support of public patients in hospitals situated in said counties.

Chapter CCLXXII.—An Act to amend an act entitled "A supplement to an act entitled 'An act to provide for sewerage and drainage in incorporated townships in which there is a public water-supply,' approved April fourteenth, one thousand eight hundred and ninety," which supplement was approved March twenty-fifth, one thousand eight hundred and ninety-one.

Chapter CCLXXXV.—An Act concerning city hospitals, and providing for their enlargement, reconstruction and repair.

Chapter CCLXXXVI.—An Act authorizing township committees in the state to provide by ordinance for the appointment of a building inspector, and to define his duties and powers.

Chapter CCXCIV.—An Act to enable cities of the second class in this state having a population of less than fifty thousand inhabitants to issue bonds for street and sewer improvements and to provide for the apportionment and payment thereof.

Chapter CCCVI.—An Act to regulate the practice of medicine and surgery, to license physicians and surgeons, and to punish persons violating the provisions thereof.

Chapter CCCXXVIII.—An Act to enable cities to construct sewers through ancient unnavigable creeks or water courses.

NOTE.—The State Board of Health has directed the publication of a complete compilation of all statutes now operative in New Jersey, and which have relation to the public health. The volume will have a copious index, and also marginal references. It will be ready for distribution in the course of a few months.

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REPORT  
OF THE  
**Bureau of Vital Statistics**  
OF THE  
STATE OF NEW JERSEY  
FOR THE  
Statistical Year from July 1st, 1893, to July 1st, 1894.

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# Report on Vital Statistics.

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## INTRODUCTION.

The statesman, Sir Francis D'Invernois, justly observed long ago: "If the various States kept and published annually an exact account of their population, noting carefully in a second column the exact age at which its citizens die, this second column would show the relative merits of the governments and the comparative happiness of their subjects."

The collection and study of statistics has become so essential a part of the information upon which governments and individuals rely for evidence and for indications as to modes of procedure, that we no longer need to spend time in their vindication.

Governments in many ways now take census of industries not less than of people, and, under the guidance of facts derived from figures, study the greatest questions of national development and material resource.

Vital statistics, though early appreciated and to some degree collected by a few students of sociology, did not take their place as great factors in guiding the study of the causes and courses of disease until hygiene or sanitation came to be regarded as a subject for special laws and as a necessary part of the public policy of governments. It was in 1665 that the Royal Society published the first work dealing with these subjects, when they issued the third edition of the celebrated treatise, "Natural and Political Observations upon the Bills of Mortality," by John Graunt, one of their first members—a work which has, on the autocratic but somewhat inaccurate authority of Macaulay, been widely credited to Sir William Petty. In 1693 Edmund Halley, Secretary of the Royal Society, and later Astronomer-Royal—but for whom it is more than possible that Newton's "Principia" would never have seen the light—by compiling the "Breslau Table of Mortality" originated the science of life statistics, as

we now understand it. These tables of mortality showed for the first time how to measure the probability of death for each year of human age, and represent the practical beginning of all the duties now undertaken by our statisticians and actuaries. Science was not yet equipped for continuous and profitable study of such data, and so these records had only historical importance.

More than fifty years ago some of the northern countries of Europe, as Sweden, Denmark and Switzerland, had seen something of their bearing, and France and Great Britain had entered upon plans of registration. Our own country, although later in its conception of their importance, has now fully accepted the prevalent foreign view as to their necessity, and especially, in connection with the eleventh census, has sought to direct studies and enactments as to population, sanitation, epidemics and all that relates to national vitality.

Dr. Ramsey, in a recent able article in the work of Stevenson and Murphy, "Treatise on Hygiene, Vol. II," thus speaks of them:

"Vital statistics are the foundation of sanitary effort, and the basis of the work of medical officers of health.

It is desirable, therefore, that all persons interested in sanitary science should know what data are at their disposal, and how to use safely the various statistics placed before them.

Most of these figures are of interest mainly as tests of the sanitary condition of the populations to which they refer. They should relate, first, to their numbers; second, to the marriages, births, and deaths that take place amongst them; third, to their diseases, fatal or not fatal; fourth, the duration of their lives; fifth, their average size and strength; sixth, their social and mental condition.

It is further desirable, that these statistics should relate both to the past and to the present time, in order that correct comparisons may be drawn between them.

In former reports and in Circular 79 of this Board, we have quite fully presented the importance of the facts as to marriage, natality and morality and illustrated the value and method of these studies.

There is one additional view which it may be well to consider.

Vital statistics are worthy of study and valuation from what may be called the ethical or moral side of human society and life.

They sustain the view that right living has its rewards even in this life, that virtue is more enduring than vice, and that *nations, which have an existence longer than human life*, must primarily depend for progress and perpetuity upon those high moral principles which make it necessary to regard the laws of the physical life as a part of that duty which we owe to God, to ourselves, to our country, to mankind in general. It is a civic no less than a personal concern.

As we look at the single individual, we may be surprised at what physical ill may befall him apparently outside of any law of correct existence. As we look at the family, the same may be true. Even a cursory view of a city, or of a nation, when pestilence is scourging it, or when violence in some form is prostrating it, may lead us to think that there are no stable laws as to life and health, or as to disease.

On the other hand, when we take in large areas of population and long periods of time and comparisons from different standpoints, we begin to see that confusion is giving place to order, that there are laws of life, that there are laws of disease, laws of progress and laws of decadence, and that our only safety is in so *studying causes and results from numerical data* as to eliminate sources of error and secure information which will lead us to avail ourselves of those influences which appreciate and fortify human life, and to abate such as depreciate and destroy it.

Thus only can we correct opinions derived from our own prejudices, or from our own comparatively narrow sphere of observation and lead governments to act on the basis of the facts secured.

The medical statistician traces say 10,000 lives from birth to death, and finds a reason why the race of correct habits and morals lives and why those who disturb and debase the physical life have shortened lives. Nay more he finds the laws of heredity so active as well as the laws of self-life, that he sees immorality has limits to its existence, while morality and character tend to abide. There is in the grand law of life, the assurance that the right will outlive the wrong, that character will triumph over worthlessness, that virtue will over-run and over-top vice. The churchman outlives the publican not only because he is better in the christian sense but because he is more law-abiding as to the laws of life. For the same reason his country lives.

Hence ethics, economics, sociology, nationality, patriotism and such like words have statistical foundations because they accord with the records of law and of habits founded thereupon. The generations that last are the generations of law, order and rightness, before which all others must succumb.

The pestilence that walketh in darkness or the destruction that wasteth at noon-day is the record that God makes of broken laws and that man makes of either general or personal infringement on Divine and human rights.

The student of demography, or statistics of population, ever and anon finds himself lighting upon the outlines and details of what was an art long before it came to be known as a science.

He sees the perpetuity of goodness and the limitations of badness even as to human existence. The confidence of faith and hope light up his countenance. He knows by figures, and by sanitary administration and work founded thereupon, that life is worth living, that it has a physical basis which has in it power and potency derived from the Creator and his laws, and feels the joy of strength as a man, as a citizen, as a patriot, because in living a true life and helping others so to do he is not only living for the future, beyond the grave, but for all that is noble, just and true, for his posterity and his nationality. Although we know, so far as our State is concerned, that we have done comparatively little in this line, yet there is moral courage in the work and results for good which will last as long as men are found to study on, and labor on, for human health and welfare.

It has not been found practicable with the period of time which has elapsed and the appropriation at command to construct many tables or to make many inferences from the marriage statistics. We have these in such orderly and accurate shape that at any time, by various combinations, many facts may be brought out therefrom, some of them curious and others of essential value as guides as to social life.

In the seventh report, 1883, we gave some tables from these as to occupation, since with the varying choices of American life the occupation at the time of marriage is more reliable than that derived from natality or mortality records.

This year we furnish similar tables for the decennial period ending June 30th, 1893.

The marriage tables of each year are well worthy of study and comparison as between localities, city and county, periods of time, ages, etc. While we expected many calls for them as records under the free provision for pension applicants, we are surprised to find such an increasing demand for them as legal and family records. The value of the entire record as *vital* statistics will more and more appear with each decade and with their skillful and practical use either by the State or the general government.

The study of the divorce record as furnished each five years is important.

The incidental record of the marriage of persons outside of the State, as caused by the very mild license law of Pennsylvania, is also a social study that may well attract attention.

For similar reasons there has been but little combination of tables as to births and still-births. It must also be admitted that as to completeness of returns there is here, as in many States and many cities, imperfection in numbers. This we can in part substitute through the returns of the decennial census and through calculations founded upon the number living and the number who have died under the first year of age. With the increase in these returns, with the modes of estimating neglect of returns and with some slight changes of method and law, we hope year by year to render these more complete.

#### MORTUARY RETURNS.

The returns as to deaths are so much more important and more direct in their bearing on the public health that, in common with all statisticians, and especially in the first decades of record, we have given chief attention to these. Those who study these, as furnished from year to year, and the three quinquennial records, as given in the reports of 1883, 1888 and 1893, will find extensive material for use. Also in the various former reports. Besides the remarks by way of introduction, the following articles are valuable for reference:

(a) "A Review of English Statistical Reports," 5th Report, 1881, pp. 255-275; (b) "A Study of Consumption as a Preventable Disease," 5th Report, 1881, pp. 245-254; (c) "The Passaic

River as Related to Water-Supply and Death-Rates," 11th Report, 1887.\*

The first record generally made is that of the local weekly record of number of deaths with their causes.

This is important as giving an idea of the general health, and as pointing to any sudden or special outbreak of disease.

A local Health Board will be on the alert to find out cases of sickness as well as death, to note any groups of cases in any one house or neighborhood, to inquire into the origin of first cases and to see that everything possible is done to prevent the prevalence or spread of disease. It will be on the alert to find out whether a sudden increase in any direction, like that of bowel affections for instance, has been owing to water supply, food or milk supply, sudden changes of weather, or to any strictly local cause. There will also be comparisons with previous weeks or months of this or other years.

Hence it is seen that these weekly reports carefully collected and stated are of much value. We much desire uniformity as to them, so that one city or district can be compared with another, or that parts of the same city can be compared with each other.

In the 13th Report, page 473, will be found a schedule.

The local Health Officer, however, must always bear in mind that these weekly returns have a very limited value. They do not furnish information as to the number of population at different ages. For permanent record and study we need, for instance, not only to know how many children have died under five years of age, but also approximately how many children there were living of children under that age, and so with regard to other ages. We need to study monthly and yearly facts alongside of large number of facts over greater periods of time, and as affecting greater numbers of people.

The superficial student of statistics is sure to reach very plausible conclusions which are greatly modified, if not nullified, when

\* See especially pages 317-321 and 353-358; also special comparison of death-rates between city and country districts, 11th Report, 1887, pages 375-385.

"Perils of Population," 12th Report, 1888, pages 397-408. This article tells the duty of Vital Statistical Boards.

"How to Reckon as to the Real or Comparative Healthfulness of Communities," 12th Report, 409-413.

he comes to a broad survey of the whole field of information, and deals with all his facts in accord with well-settled laws as to the study of such statistics.

One perfect study of comparison would be to have, say 50,000 persons born during the same week and to be able to trace the life of each one of them to its close, and to record the probable or actual causes which had determined the limit of their existence. In the absence of this we get at many facts by studying communities and families as we generally find them, by giving due consideration to localities, to groups of ages, and to various modifying circumstances which are uniform enough to be stated with a good degree of certainty.

We do not need here to repeat the methods that are given, but only to call attention to the need there is of a careful study of facts and a not too rapid assertion of inferences.

We have, for instance, in the general statements often found in the daily press, as to the expectation of life, misleading generalizations drawn from the fact that for certain ages the expectation of life has increased, the inference being made that this is uniform and has resulted in an increase of longevity. As an example showing the limitation of this, Dr. Billings, in his lecture on "Vital and Medical Statistics," in 1889, says that, "although the expectation of life is greater, yet this is only true of the earlier ages. After a man reaches twenty his expectation of life is less than it was fifty years ago, for the reason that more persons of feeble constitution are now nursed to manhood. The decrease in the general mortality is due to better care of infants, and the prevention of contagious diseases. So far as statistics show, there does not appear that there is any difference in the mortality-rate of most infectious diseases from what it used to be. Or if there is any difference, it is one which may be attributed to the special care of the epidemic, or the age and constitution of the people."

Dr. A. Newsholme, in an article in *Public Health*, August, 1893, on "The Non-Participation of the Higher Ages in the Improved Expectation of Life in England," says: "The question why the expectation of life has not improved for ages beyond twenty in males, and forty-five in females, according to the experience of England and Wales (1871-80), an experience

which appears to be shared to a certain extent by Brighton in the decennium, 1881-90, is an interesting and important one, and deserves careful consideration."

For this various explanations are given, such as that "owing to the saving of life in the earlier years of life, there have been a larger number of weakly survivors; the increased strain and stress of modern life; the fact that we have not yet seen the full profit of sanitary improvements, which began within the last quarter of a century, and also it is claimed that the greater accuracy of data may mislead us."

It is well to remember that many causes tend to shorten life, and that while we remove one class of evils, civilization and society are busy introducing others; thus the change in agricultural life, and the crowding of people in cities, has had a marked effect on the longevity of population. We are to measure our success not merely by diminution of death rate, for we cannot reckon how much the evils we have abated, added to new causes of devitalization, would have increased it.

## The Statement of Death Rates in Summer Resorts.

The difficulties which attend a clear statement of the death rates of summer resorts have not yet been overcome. The exact number of the transient population cannot be ascertained, and estimates differ very widely. Under these circumstances it appears impossible to prepare tables based upon the total number of both resident and non-resident population, which will represent the local death rate with any degree of uniformity for the purpose of comparison with other resorts.

The most reasonable and the fairest plan thus far proposed seems to be to state the death rate of these communities as follows:

1. Show number of deaths among permanent population.
2. Show number of deaths among non-resident population.
3. Show total number of deaths.
4. Show number of resident population by last census.
5. Show estimated number of resident population, based on ratio of increase during period between the two last census years.
6. Show death rate among resident population.
7. Show death rate among non-resident population.
8. Show death rate if whole number of deaths is charged to resident population.
9. Show number of deaths caused by the ten chief preventable diseases, viz., tuberculosis, diarrhoeal diseases of children, erysipelas, diphtheria and croup, whooping-cough, measles, scarlet fever, small-pox, typhoid fever, malarial fever.

In the tables prepared by the Bureau of Vital Statistics it will be impracticable to use estimates as to the number of the non-resident population, for there would be no agreement as to the correctness of the estimates which might be used, and the only course left open is to base the death rate uniformly, in all localities, upon the population as stated by the last preceding census. Hereafter the death rate of health and pleasure resorts will be published as a part of the report of the local Health Board

when it is forwarded for that purpose with the regular October Annual Report.

In the statement made by Local Boards in such reports, an opportunity will exist for such analyses and explanations as may be desirable to fully show the reasons for any apparent excess of mortality.

## Comments on Selected Diseases.

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### CANCER.

For a few years past increased attention has been given to cancerous diseases, not only because of fatality arising therefrom, but because some facts which seem to point to it as a disease of parasitic origin, and as identified with certain minute particles known as protozoa, probably coccidia. It is claimed that these are found in all cancerous tumors. This view has not been fully sustained, but is still eliciting close study on the part of biologists.

Another reason is that cancer is claimed to be upon the increase. We have noticed this in our own returns for this State. Sometimes it seems to be especially so with certain practitioners, who perhaps are too much inclined to regard most tumors as cancerous, or who use the terms "internal cancer" in too general a way. The same subject has attracted much attention abroad. An elaborate paper by Mr. King and Dr. Newsholme (see vol. 54, Proceedings of the Royal Society), has fully discussed this question under the title "Has there been any increase in the Mortality from Cancer During the last Thirty Years." (See London Lancet February 3d, 1894).

Mr. King and Dr. Newsholme, after careful statement of the facts in evidence, arrive at the general conclusion that "the supposed increase is only apparent and is due to improvement in diagnosis and more careful certification of the causes of death."

The chief point of interest recently has been that in case of operation the surgery is more radical and great care is taken to examine lymphatic glands in the neighborhood of the tumor and to remove such as show the least irritation or enlargement.

## DIARRHOEAL DISEASES.

Disorders of the intestinal canal in one form or other, make up so large a part of the ailments of mankind that their study greatly concerns the physician and the sanitarian. Not only are they so numerous as to give special name to various kinds of discharge, but as symptoms they often constitute the gravity of diseases which, like typhoid fever, are known by some other name.

Beside the general form to which the name diarrhoea is indiscriminately attached, dysentery long ago attracted attention as an epidemic disease, now and then taking on a most malignant type, decimating armies, invading cities, following the marshy banks of rivers and spreading terror and death among the people.

It was not however until cholera separated itself from the common and ordinary forms of diarrhoea, that we came to realize that diarrhoeal diseases could not all be associated as of one type but that there were natural or acquired distinctions which made it almost as indefinite to speak of a disease under this general name as it would be to assign pain as a disease without stating something of its character and its cause.

He who studies closely the character of cholera in its primal home, in its earliest occurrence, can by the light of successive epidemics and endemics find that it seems to have had its origin in intensified fluxes amid most unsanitary surroundings and on persons who by foul water, imperfect foods, or the squalid conditions incident to masses of traveling pilgrims replaced a common by a specific disease. It then acquired a fixity of type and ever and anon amid favoring conditions of humidity and temperature became a marauding epidemic.

This experience has not been confined to Asiatic cholera, but other forms of intestinal disorders came to be distinguished as cholera-morbus, sporadic cholera, English cholera, endemic cholera, summer complaint, cholera infantum, etc. We are thus face to face with the study of diarrhoea, not as a disease entitled to so general a name, but as including a group of diseases the etiology of which must be isolated and defined. This means that each of these special forms must have record, as to symptoms, causes and results.

This is all the more important because it is sometimes very rapid, at other times slow and wasting, because it enters as a

typical symptom in so many diseases and because it occasions so much sickness and suffering which does not find its record in death or the ordinary nomenclature of disease.

Our only effort at present is to notice a few such outbreaks in order to draw attention to the need of this study of specificity, and also to lead to the more careful differential or diagnostic study of those forms with which we are most familiar, and of those outbreaks which seem to show special localized severity. Also to draw attention to the possible or probable *communicability* of these diarrhoeal diseases as well as the specific character of some of them.

The most valuable contribution to the literature and evidence upon this subject, is that furnished by the Local Government Board of Great Britain. Owing to the great prevalence of diarrhoea in the city of Leicester, the Board ordered an inquiry under the able direction of Dr. Ballard.

This inquiry soon developed the fact that any thorough investigation would require much time, and an extension of inquiries to other towns and districts. Hence only preliminary and brief reports were made at first, and it was not until 1888 that the very valuable report of Dr. Ballard, together with appended reports by other medical officers of the department, was furnished. He had before this read, in 1883, a notable paper on "The Etiology of Summer Diarrhoea," before the British Medical Association.

It is entitled "Report and Papers on Diarrhoea," submitted by the Medical Officer of the Local Government Board 1888.

The inquiry was prosecuted from time to time from 1880 until the time of this report. In the earlier years of the inquiry, Dr. Ballard was assisted by Mr. Power.

We only very briefly and inadequately summarize these, referring for particulars to the detailed reports as found in our State Health Library.

The main subject was "the cause of the diarrhoeal mortality in children under five, and especially in infants under one year of age.

## A.—General Conditions.

1. *Atmospheric Temperature.*—That a high atmospheric temperature conduces to a high diarrhoeal mortality, and a low

atmospheric temperature to a low diarrhœal mortality, is an established fact which no one can dispute. But my inquiry shows that the influence thus exerted is *not a direct influence*, except in so far as it affects also infant mortality from all causes. It is not the main cause of the diarrhœal mortality. Its influence is very great, *but is exerted indirectly*.

2. *Temperature of the Earth*.—This is a far more important condition. I have made for London and many other towns in the Kingdom a large number of charts, showing week by week for many years the earth temperature at a depth of 1 foot from the surface and at a depth of 4 feet from the surface, each chart showing also the diarrhœal mortality of the corresponding weeks. The general result shown by these charts is as follows:

a. The summer rise of diarrhœal mortality does not commence until the mean temperature recorded by the 4-foot earth thermometer has attained somewhere about 56° Fabr., no matter what may have been the temperature previously attained by the atmosphere or recorded by the 1-foot earth thermometer.

b. The maximum diarrhœal mortality of the year is usually observed in the week in which the temperature recorded by the 4-foot earth thermometer attains its mean weekly maximum.

c. The decline of the diarrhœal mortality is in this connection not less instructive, perhaps more so, than its rise. It coincides with the decline of the temperature recorded by the 4-foot earth thermometer, which temperature *declines* very much more slowly than the atmospheric temperature, or than that recorded by the 1-foot earth thermometer; so that the epidemic mortality may continue (although declining) long after the last-mentioned temperatures have fallen greatly, and may extend some way into the fourth quarter of the year.

d. I do not wish it to be inferred that the atmospheric temperature, and the temperature of the more superficial layers of the earth, exert no influence on diarrhœa. Their influence, however, is little, if at all, apparent until the temperature recorded by the 4-foot earth thermometer has risen as stated above. Then their influence is apparent, but it is a subsidiary one.

3. *Rainfall* exerts an influence on diarrhœa, but (so far as is apparent at present) not equally in all periods of the diarrhœal season. The diarrhœal mortality is greater in comparatively dry

seasons and less in wet seasons, especially if the drought on the one hand, and the rainfall on the other, be remarkably protracted and excessive. But here again the tendency of the inquiry has been to show that the influence exerted is not direct (*e.g.* by a washing of the atmosphere, so to speak), but indirect, namely, by its effect mainly in preventing the rise and (probably to a less extent) in hastening the fall of the temperature of the earth.

4. *Air Movement*.—*Wind and comparative calm* affect the diarrhœal mortality. Other things being equal, calm in the diarrhœal season promotes it, and high winds tend to lessen it.

5. *Elevation above Sea Level*.—This has apparently an influence on diarrhœal mortality, but not a very remarkable or powerful one. \* \* \*

6. *Soil*.—a. Where the dwelling-houses of a place have as their foundation *solid rock*, with little or no superincumbent loose material, the diarrhœal mortality is, notwithstanding many other unfavorable conditions and surroundings, low, and, indeed, may be almost altogether unnoticeable. Deep and wide and frequent fissuring of the rock in a town, or superficial alternations of rock with looser material, modify this immunity.

b. On the other hand, a *loose soil*, permeable more or less freely by water and by air, is a soil on which diarrhœal mortality is apt to be high. So far as I can see at present, of all natural soils, *sand is the most diarrhœal*, other things being equal, unless I class with it surface mould to a considerable depth. \* \* \*

c. The presence of much *organic matter* in any soil renders it distinctly more favorable to high diarrhœal mortality than it otherwise would be. Such organic matter (organic fouling), however, need not be specially of a fœcal or excremental nature to exert this influence. Hence diarrhœal mortality is apt to be high where dwellings are built upon made ground, the refuse of towns, or upon the site of market gardens, or where the earth beneath and about dwellings is polluted by neighboring collections of liquid filth in cesspits, or where sewage has soaked into it from imperfect drains and sewers, or from the surface of the ground. It is the opportunities for the collection of organic filth in the fissures of certain kinds of rock that seem to impart to these rocks, where towns are built upon them, a diarrhœal character.



*d. Moisture or dryness of a soil.*—Excessive wetness and complete dryness of soil appear to be both unfavorable to diarrhœa.

The Report also names and briefly comments on (7) Density of Population, (8) Density of Buildings, (9) Restriction of and Impediments to the free circulation of air about, or within dwellings; also domestic dirtiness and general dirtiness of dwellings; sewer or cesspool emanations, especially in a concentrated form and suddenly let loose; filthy accumulations of domestic refuse; undefined solutions of drinking water.

These last are named as serious and general causes of diarrhœa, but not so special as the former.

Dr. Ballard holds "that the essential cause of diarrhœa resides originally in the superficial layers of the earth, where it is intimately associated with the life processes of some micro-organisms not yet detected, captured or isolated."

The power of these organisms to act, or to produce contagion depends much on surroundings, personal habits and the use of food bought in a decomposed state, or stored in filthy localities.

To this Report there is an appendix, being "An account of some instances of communicable diarrhœa at Helmsley, Yorkshire, by Dr. Bruce Low, pages 127-132. He also cited cases at Hawndy, a few miles distant, and at Pockley. The details of all these are minutely given and will repay careful study.

He seems to prove that they are types of diarrhœal disease of a distinctly infective, or communicable character.

In July, 1866, an outbreak of diarrhœa at Southampton was attributed to sewage which was being pumped up and poured into an open channel, and which caused intense effluvia.

Notices of other outbreaks that have occurred from time to time, are chiefly to be found in the medical journals.

In the winter of 1886-87, there was a remarkable outbreak in London which, although having a small death record, caused a great amount of sickness. The house physician of the West London Hospital speaks of it as a "severe form of diarrhœa," with bloody stools in a few cases, and a rising temperature and duration of illness from three to eight days. The districts affected are named, and he concluded that the water was the only common factor. There was no epidemic in the district of St. Pau-

cras, London, in which the water supply was from the New river and not from the Thames. In the same winter and early spring, however, cases were reported from Kingston on the Thames, from Cheshire and a few other points. Facts as to these and a few other outbreaks are well summarized by Norman Walker, M.D., of Toronto, Canada, in an article on "Outbreaks of Specific Diarrhœa," contained in the Annual Report, 1893, of the Executive Health Officers of Ontario. The immediate occasion for this article was an epidemic of diarrhœa which occurred in Toronto, beginning late in December, 1892, and extending till the end of March. An inquiry over part of the time showed 1,300 cases, and it was believed that not less than 5,000 persons were attacked. It was generally attributed to the blocking of the lake end of the water-pipe with decaying vegetable matter. Three deaths were reported.

In the case of Kingston-on-Hull, in 1887, there were no fatal cases, although it was reckoned that 18,000 persons were attacked. We have before noticed how often outbreaks of diarrhœa which are transient escape notice, because of the low mortality, yet the sickness and the record which these cases find in the lowering of vitality and in giving opportunity for the deadly work of other diseases is not to be lost sight of.

From time to time the various medical journals contain accounts of what seem to be outbreaks of endemic diarrhœa. It is chiefly, however, because of peculiar forms of summer diarrhœa, which are not uncommon, and because of contrasts in the prevalence of "summer complaints," or intestinal fluxes that we wish to draw special attention to this line of inquiry.

Common summer diarrhœa prevails much more in some places than in others. Cholera infantum has a distinct type of its own, which greatly needs study as to its specificity and communicability. Cholera morbus is often quite different from other similar forms of flux. Cholera and cholera nostras still lack definite identity. Dysentery is still a puzzler as to its malarial, local and infective qualities. The somewhat recent investigations of it at Johns Hopkins Hospital, and the association with it of the *amœbæ coli*, has attracted much attention. (See Circular 81.)

Our only design in this brief notice is to urge upon physicians close clinical study and numerical tabulation of this class of

diseases which make up so large a portion, especially of infantile diseases, and to urge that, both as to their infectivity and the conditions under which they mostly occur, and the needs of isolation and cleanliness, they shall receive the most exact attention.

#### SMALL-POX, VACCINATION AND RE-VACCINATION.

Amid the various changing doctrines as to diseases and their causes small-pox still holds its place as the one great specialty. Facts as to it have not responded to prevalent medical doctrines. Now, that biology has asserted its mastery and attempted to correlate all communicable diseases under the micro-organism theory, it still refuses to be classified. "Bacteriology is still unable to solve the mystery of its *contagium vivum*."

With some incidental variations, it stands quite alone in the completeness of evidence as to its identity. We know that the leprosy of to-day is not the leprosy described in the Bible; that the consumption of early Jewish reference was not the modern tuberculosis; that the sweating sickness is still a mystery; that the plague has no survival; that diphtheria in its modern phases cannot be proven as identical with the throat distempers of the Greek, or Roman, or Medieval periods; that Asiatic cholera was a flux unknown; that typhus and typhoid fever were undescribed and unseparated; that a number of the exanthemata, such as measles and scarlet fever, were called by the one name measles, meaning skin diseases (*miselli* diminution of *miseri*), and that yellow fever had no existence. Scurvy had no record until 1498, and is now no longer regarded as having its origin in salt meats. It has even occurred in badly-nourished babies, and vegetable juices and the starches, as well as lemon juice, avail for its use.

In all these periods and through all these ages small-pox had its distinct identity, having allusion in Hindu writings, its clear identity in the siege of Mecca among the Abyssinian troops A.D. 570, well known to Arab writers, and asserting its specific and unchanged individuality whenever and wherever it occurred.

When there came to be known a way by which it could be given by inoculation instead of caught through breath or secre-

tions, it was made more benign, but its various diagnostic signs not in the least disturbed.

Yet it was a great event when Lady Mary Wortley Montagu, in the seventeenth century, introduced the Turkish method of inoculation into Europe. It cannot be denied that this greatly modified the severity of the disease and reduced its mortality. Had modern methods of isolation and disinfection fully prevailed, it could not have been asserted that its systematic adoption increased the risk of more widespread prevalence of the disease.

We sometimes forget how very effective it was as a remedy. A single case in the bounds of my own early country practice is illustrative. Surgeon Melancthon Freeman, an able practitioner of Middlesex county, N. J., for forty years and about to 1806, had always been in the habit of adopting it in some isolated building provided. Late in his practice he one day said to a lady past fifty who had but one child, "Why have you never had John inoculated?" She replied, "He is my only child, and what if he should die?" He replied, "Such a case has never happened to me in all these years." He was inoculated and died. The case was so remarkable that it survived as a tradition through all the section, where we often met those who had been protected by the operation.

It is worthy of note that it was not until 1840 that inoculation was prohibited in England, and only on the ground of more effective and feasible methods.

When vaccination came to be known as a preventive of small-pox, it was a progress in discovery that, because of its immediate bearing upon small-pox and upon the possibilities of attenuation revealed by modern hopes and anticipation, formed an era in the history of human life and diseases. It was the first great step in modern sanitation, and the potency and promise of wonderful achievements in preventing disease and in battling with its phenomena.

The history of its progress and its success and of the various oppositions it has encountered, seems strange in view of the results which have been attained. At one time, the perversity of human nature in the opposition to it seems to have a special revelation. At another, we find those of high order of intellect and morals pleading against compulsory vaccination. At the

present, we believe that its practical value is fully maintained, and yet from various causes neglects of this protection are too universal. It seems to require the urgency of an epidemic to secure any general resort to it in most of our States. The recent epidemic at Reading, Pa., proved to be a serious example of this. In this city of an estimated population of 65,000 inhabitants, there seems to have been a prejudice against its use and a general neglect. When severely threatened with small-pox in March, 1893, "free vaccination was offered the citizens, and for that purpose fifteen physicians (one for each ward) were appointed. Only 1,558 were vaccinated, and the physicians were discharged from duty in July." But small-pox still remained on duty. In September, vaccination was made compulsory and was then carried on vigorously until 4,538 persons had been vaccinated. The disease still went on until about March, 1894. Tardiness and neglect had their fruit in about 1,000 cases of small-pox. Yet the local Board and the State Board seem to have congratulated each other upon the vigorous and successful way in which the disease was finally subdued.

The report for the year gives no information of the number of cases as between small-pox and varioloid, of the number of marks, or the frequency of re-vaccination. It does bring out the important fact that, of the 18 that died up to November 21st, 1893, 15 had never been vaccinated, that one aged 10 days was vaccinated when one day old, and that there was no statement as to one aged six weeks and of another aged two years. It is evident that unless vaccination can be more fully enforced by public sentiment, by prohibition from school attendance of those not vaccinated, or by compulsory law, we shall still continue to nurse and propagate this great pest. From the monthly bulletin of the Iowa State Board of Health, Dr. J. F. Kennedy, Secretary, February, 1894, we extract as follows:

"A few months ago a family of anti-vaccinationists lived in a county in this State. One member of the family, consisting of father, mother and four children, was vaccinated—the others not. They lived happily and apparently safely so far as small-pox was concerned on their quiet Iowa farm.

"A nephew from Germany came into the family, coming from the fatherland to find a home in this great land. On the vessel on which he was a passenger small-pox broke out and he was exposed. He had been vaccinated and escaped the disease. His uncle's family into which he went with his in-

fecting clothing, with the exception of the mother, were destitute of the protective influence of vaccination. Within twelve or fourteen days after the advent of this nephew and cousin small-pox in a malignant form broke out, and father and four children were smitten down with the dread disease, and four out of the five, including the father, died, the mother and the young man alone escaping, and they simply because they had been fortunate enough, sensible enough, to be vaccinated. And yet the anti-vaccination howlers would ignore all such lessons and see nothing in them except a coincidence.

"From this same ship on which this young man came to America, a person went to Reading, Pa., and as a result nearly one thousand cases occurred."

## NUMBER OF MARKS.

It is more and more evident that in studying the subject of re-vaccination we need to have regard to the character and degree of the first vaccination. This has been fully discussed by various authorities, notably Dr. McVail. See Stevenson and Murphy, Vol. 2. See also 17th N. J. State Board of Health Report, 1893, page 499. We quote also the following record from the U. S. Consul at Bradford, England. (See abstract Marine Hospital Service, March 9th, 1894):

U. S. CONSULATE,  
BRADFORD, February 6th, 1894. }

Since the report of December 22d, 1893, upon "The long fight against small-pox in Bradford," I have been in receipt of inquiries from the United States asking further particulars. One particular inquiry is concerning the percentage of mortality in vaccinated and unvaccinated cases. Upon application to the Health Officer of Bradford, he furnished the following statistics, to which he appended his signature:

	Cases.	Deaths.	Death rate * Per cent.
Unvaccinated.....	195	55	28.2
Vaccinated.....	702	36	5.1
One mark.....	144	17	11.8
Two marks.....	285	16	5.6
Three marks.....	194	3	1.3
Four marks.....	79	0	0.0

It appears from this that not only does vaccination decrease the death rate, but that the number of marks at each vaccination enters largely into the case. It is shown that amongst those contracting the disease none died that had received the virus in four abrasions at the same time. The percentage was small in those who received three marks, was larger in those that received two, and quite large in those that received but one. It seems to be the custom in Bradford for those enthusiastic in behalf of vaccination to receive the virus in four incisions in the arm or leg. A great many have three, and the majority two incisions.

\*Cases during 1893.

As to the age at which children are to be vaccinated or revaccinated, a valuable article is to be found in the Ohio Monthly Sanitary Record for February, 1894, translated from "Le Progres Medical." The conclusion is that there are a few that re-vaccinate much oftener than is supposed and that the number of marks is significant.

#### SCARLATINA OR SCARLET FEVER.

The public needs to be impressed that what is called scarlatina is scarlet fever. Instead of being a name for mild cases it should replace the name scarlet fever, since the disease is not specifically a fever any more than measles, smallpox, etc.

The origin of this contagion is not known. One theory is that it arises from changes which the blood undergoes after the death of an animal or after its removal from the body. To substantiate this cases have been adduced to show that epidemics of it have frequently begun in the vicinity of slaughter-houses. Many years since, the Secretary reported a case of a farmer-boy who had not been from his home for a month and who lived distant from neighbors. He had every symptom of the disease. He had worked in the blood from some hams he was preparing to pickle and had a slight abrasion on the hand. After his attack of fever had subsided he had an abscess in the axilla of the same side.

Messrs. Power and Kline (1889) claimed that it is a disease occurring formerly in cows and so is conveyed to mankind (see also 21st Report, 1892). Professors Crookshank and Brown disputed the correctness of their conclusions. The literature of the subject as found in the Reports of the Local Government Boards and of the English Veterinary Service are important.

It is claimed by many to depend upon a bacillus or some of the protozoa, but the proof has not as yet been adduced.

In its start, before there is eruption or loose scarf skin, it is contracted only from the breath and is thought not to be communicable in ordinary rooms for a distance of over five feet. Cases have been found in hospitals and if isolated so soon as the eruption appeared, other cases have not followed. In its more advanced stages it is actively communicable probably from the breath, the saliva, the skin and the intestinal secretions. All

these need to be cared for in every communicable disease. The use of antiseptic gargles, the inunction of the skin from the first, the care of the sputa, the disinfection of the secretions and isolation are the means of preventing its spread.

Before oils can be used, solutions of borax or soda or other form of alkali as applied to the whole body probably diminish the risk of contagion.

Great attention must be given to the airing and washing of clothing, to the condition of the hair, and that no article of dress is packed away without full exposure outside of the house. After sickness from scarlet fever, beds and carpets should be removed to the open air and the room most thoroughly cleansed. It is well if possible not to carry beds, carpets, garments, etc., through the house but remove them from the windows.

Many physicians now insist upon inunction with oil or with lard and tallow mixed as of value in treatment to diminish fevers and irritation and if continued during convalescence of great service in diminishing risk of contagion. Circular 76 of this Board presents tables as to the length of continuance and exposure in most of the communicable diseases.

#### RUBEOLA.

*Measles.*—This, next to small-pox, is probably the most communicable of all the ordinary diseases of this class. It has great stability of type. Infection seems to be first and chiefly by the breath and afterward by emanation from the body. An instance like that of the Fiji Islands, where it had never occurred until brought by a ship—where it seized the whole population and caused great mortality, shows how serious a disease it may become. In Great Britain it is more serious as a rule than in the United States, but here, too, there are outbreaks of great virulence. When in charge of Calvert Street Hospital, Baltimore, I had at one time a ward full of most serious cases. It always renders the pulmonary, and sometimes the intestinal mucous membrane for a time susceptible to congestion and inflammation. The microphyte of this disease has, from time to time, been claimed to have been discovered, but the evidence has not been

established. Climate conditions have a very marked relation to the spread and severity of measles, and are always to be considered both in its management and treatment.

The frequency with which pthisis and bronchitis have been found to follow an attack of measles is a precautionary signal of the highest import. There are few diseases in which a pure atmosphere and a well-regulated temperature are more fully indicated.

## Synopsis of Vital and Mortuary Statistics.

The following outline presents the comparative number of marriages, births and deaths, as follows :

Average for five years ending June 30th, 1883 :

Marriages.....	8,539
Births.....	24,281
Deaths.....	21,981

Average for five years ending June 30th, 1888 :

Marriages.....	10,067
Births.....	26,050
Deaths.....	23,952

Average for five years ending June 30th, 1893 :

Marriages.....	12,069
Births.....	30,199
Deaths.....	29,439

Average for ten years, 1878 to 1888 :

Marriages.....	9,303
Births.....	25,165
Deaths.....	22,966

Average for fifteen years, 1878 to 1893 :

Marriages.....	10,225
Births.....	26,843
Deaths.....	25,111

Total number non-resident marriages since 1886 to 1893.....	30,661
Number of non-resident marriages 1893 to 1894.....	3,881
Average number per year of non-resident marriages, 1886 to 1894.....	4,330

Number of marriages, births and deaths, July 1st, 1893, to July 1st, 1894 :

Marriages.....	16,245
Births.....	33,662
Deaths.....	30,004

## REPORT OF VITAL STATISTICS.

DEATHS FROM VARIOUS CAUSES FROM JULY 1st, 1892, TO JULY 1st, 1893.

Remittent Fever.....	148
Enteric or Typhoid Fever.....	506
Small-pox.....	43
Scarlatina.....	445
Measles.....	73
Whooping-Cough.....	237
Diphtheria and Croup.....	1,677
Erysipelas.....	74
Diarrhoeal Diseases of Children.....	3,981
Consumption.....	3,429
Acute Lung.....	3,974
Brain and Nervous Diseases of Children.....	2,073
Diseases of Heart and Circulation.....	2,179
Renal and Cystic Diseases.....	1,441
Adult Brain and Spinal Diseases.....	2,611
Adult Digestive and Intestinal Diseases.....	1,753
Cancer.....	73
Acute Rheumatism.....	101
Puerperal.....	24

DEATHS FROM VARIOUS CAUSES FROM JULY 1st, 1893, TO JULY 1st, 1894

Remittent Fever.....	163
Enteric or Typhoid Fever.....	445
Small-pox.....	11
Scarlet Fever.....	273
Measles.....	257
Whooping-Cough.....	326
Diphtheria and Croup.....	1,394
Erysipelas.....	97
Diarrhoeal Diseases of Children.....	3,898
Consumption.....	3,433
Acute Lung.....	4,183
Brain and Nervous Diseases of Children.....	2,083
Diseases of Heart and Circulation.....	2,113
Renal and Cystic Diseases.....	1,447
Adult Brain and Spinal Diseases.....	2,413
Adult Digestive and Intestinal Diseases.....	1,565
Cancer.....	731
Acute Rheumatism.....	91
Puerperal.....	303

## Number of Marriages, Births and Deaths.

BY COUNTIES, CITIES AND TOWNSHIPS, AND TOTALS FOR THE STATE,  
FOR THE YEAR ENDING JUNE 30th, 1894.

## ATLANTIC COUNTY.

	M.	B.	D.
Absecon.....	4	11	8
Atlantic City.....	177	963	315
Buena Vista.....	4	24	13
Egg Harbor City.....	21	47	27
Egg Harbor Township.....	35	68	61
Galloway.....	8	48	33
Hamilton.....	13	38	37
Hammononton.....	59	80	72
Mullica.....	10	8	14
Weymouth.....	1	10	5
	302	697	585

## BERGEN COUNTY.

	M.	B.	D.
Bergen.....	20	114	60
Boiling Spring.....	3	23	10
Englewood.....	35	94	83
Franklin.....	29	49	32
Hackensack.....	69	131	100
Harrington.....	16	65	60
Hohokus.....	20	48	34
Lodi.....	9	85	40
Midland.....	12	44	48
Orvil.....	9	30	37
Palisade.....	14	62	52
Ridgefield.....	30	105	135
Ridgewood.....	13	54	45
Saddle River.....	13	82	47
Union.....	22	97	78
Washington.....	25	75	50
	339	1158	911

## BURLINGTON COUNTY.

	M.	B.	D.
Bass River.....	8	20	14
Beverly.....	24	30	64
Bordentown.....	37	84	76
Burlington.....	81	141	185
Chester.....	38	100	60
Chesterfield.....	8	23	20
Cinnaminson.....	34	107	55
Delran.....	17	84	35
Eastampton.....	3	4	10
Evesham.....	4	13	33
Florence.....	9	55	27
Lumberton.....	4	13	26
Mansfield.....	5	85	15
Medford.....	15	37	26
Mount Laurel.....	4	28	16
New Hanover.....	25	9	41
Northampton.....	55	128	96
Pemberton.....	19	3	31
Randolph.....	5	2	6
Shamong.....	8	16	16
Southampton.....	3	9	23
Springfield.....	6	18	7
Washington.....	3	3	8
Westampton.....	3	8	2
Willingboro.....	3	9	2
Woodland.....	3	3	2
	413	975	894

## CAMDEN COUNTY.

	M.	B.	D.
Camden City.....	*4,328	1,357	1,468
Centre.....	4	41	21
Delaware.....	1	30	21
Delaware City.....	42	118	146
Glocester.....	18	79	101
Haddon.....	24	97	82
Haddonfield.....	6	38	50
Pensauken.....	57	116	141
Stockton.....	22	49	44
Waterford.....	5	28	28
Winslow.....	5	28	28
	4,508	1,944	2,117

\*Marriages of non residents, 3,499.

## CAPE MAY COUNTY.

	M.	B.	D.
Cape May City.....	13	51	54
Dennis.....	23	67	35
Lower.....	10	42	31
Middle.....	16	47	46
Upper.....	15	30	21
	77	237	187

## CUMBERLAND COUNTY.

	M.	B.	D.
Bridgeton.....	130	337	205
Commercial.....	15	32	20
Deerfield.....	11	43	32
Dowse.....	18	21	13
Fairfield.....	12	30	28
Greenwich.....	8	19	27
Hopewell.....	14	11	23
Landis.....	57	189	182
Lawrence.....	11	30	20
Maurice River.....	11	38	27
Milville.....	77	225	151
Stow Creek.....	1	6	14
	863	1,021	741

## ESSEX COUNTY.

	M.	B.	D.
Belleville.....	14	74	64
Bloomfield.....	48	188	123
Caldwell.....	49	15	48
Clinton.....	18	80	66
East Orange.....	82	242	178
Franklin.....	18	57	30
Livingston.....	16	16	6
Milburn.....	11	55	24
Montclair.....	80	277	200
Newark.....	1,552	5,336	4,700
Orange.....	164	322	451
South Orange.....	28	110	70
Verona.....	11	23	18
West Orange.....	15	104	68
	2,080	7,150	6,105

## GLOUCESTER COUNTY.

	M.	B.	D.
Clayton.....	14	30	37
Deptford.....	5	52	46
East Greenwich.....	9	21	20
Elk.....	1	12	8
Franklin.....	6	46	29
Glassboro.....	28	67	37
Greenwich.....	10	37	38
Harrison.....	16	27	19
Logan.....	5	22	20
Mantua.....	11	35	35
Monroe.....	24	35	31
South Harrison.....	10	15	6
Washington.....	1	21	17
West Deptford.....	4	35	31
Woodbury.....	65	97	62
Woodwick.....	25	51	25
	234	602	466

## HUDSON COUNTY.

	M.	B.	D.
Bayonne.....	126	719	469
Guttenberg.....	10	106	70
Harrison.....	22	199	212
Hoboken.....	641	1,992	1,192
Jersey City.....	1,367	4,120	4,320
Kearny.....	36	187	255
North Bergen.....	26	135	268
Town of Union.....	168	319	236
Union.....	13	107	86
Weehawken.....	2	56	61
West Hoboken.....	115	478	250
	2,626	8,370	7,419

## HUNTERDON COUNTY.

	M.	B.	D.
Alexandria.....	5	16	19
Bethlehem.....	13	32	37
Clinton.....	23	64	32
Delaware.....	17	54	38
East Amwell.....	15	17	14
Franklin.....	11	17	7
Frenchtown.....	18	16	7
High Bridge.....	16	32	19
Holland.....	30	49	10
Kingswood.....	19	4	23
Lamberville.....	61	84	85
Lebanon.....	19	42	22
Raritan.....	28	64	48
Readington.....	19	60	37
Tewksbury.....	16	22	13
Union.....	5	7	11
West Amwell.....	6		8
	300	661	430

## MERCER COUNTY.

	M.	B.	D.
East Windsor.....	27	18	43
Ewing.....	7	8	101
Hamilton.....	21	27	105
Hopewell.....	32	85	41
Lawrence.....	4	11	21
Princeton.....	29	80	81
Trenton.....	*900	*775	1,987
Washington.....	10	10	23
West Windsor.....	10	24	14
	731	1,018	1,494

\*Marriage of non-residents 88.

## MIDDLESEX COUNTY.

	M.	B.	D.
Cranbury.....	7	25	32
East Brunswick.....	21	17	24
Madison.....	1	17	56
Monroe.....	10	20	49
New Brunswick.....	165	34	338
North Brunswick.....	8	27	12
Parth Amboy.....	130	297	223
Piscataway.....	12	55	58
Raritan.....	31	58	51
Sayreville.....	10	89	13
South Amboy.....	17	85	102
South Brunswick.....	23	43	40
Woodbridge.....		126	92
	444	1,141	1,092

## MONMOUTH COUNTY.

	M.	B.	D.
Atlantic.....	7	18	20
Eatontown.....	16	20	32
Freehold.....	59	88	82
Holmdel.....	9	20	23
Howell.....	38	46	45
Long Branch.....	79	112	88
Manalapan.....	10	24	25
Marlboro.....	7	20	26
Matawan.....	18	48	58
Middletown.....	53	131	123
Millstone.....	5	28	32
Neptune.....	93	148	182
Ocean.....	15	6	26
Raritan.....	37	116	74
Shrewsbury.....	86	136	163
Upper Freehold.....	19	63	34
Wall.....	45	92	69
	568	1,116	1,102

## MORRIS COUNTY.

	M.	B.	D.
Boonton.....	19	27	53
Chatham.....	27	27	78
Chester.....	10	17	19
Hanover.....	21	46	136
Jefferson.....	3	3	20
Mendham.....	6	9	16
Montville.....	6	3	30
Morristown.....	6	9	30
Mount Olive.....	53	219	172
Passaic.....	15	31	7
Pequanook.....	7	8	25
Randolph.....	19	60	38
Rockaway.....	61	103	77
Roxbury.....	31	74	74
Washington.....	13	74	41
	14	32	18
	303	836	814



## OCEAN COUNTY.

	M.	B.	D.
Berkeley.....	1	11	8
Brick.....	9	43	31
Dover.....	28	61	48
Eagleswood.....	6	8	17
Jackson.....	8	22	24
Lacey.....	7	17	9
Lakewood.....	27	56	45
Little Egg Harbor.....	14	26	25
Manchester.....	4	9	9
Ocean.....	4	8	5
Plumsted.....	11	32	34
Stafford.....	10	21	12
Union.....	10	18	24
	139	332	290

## PASSAIC COUNTY.

	M.	B.	D.
Acquackanonk.....	5	51	32
Little Falls.....	6	67	32
Manchester.....	12	103	61
Passaic.....	161	509	337
Paterson.....	883	2,182	1,836
Pompton.....	25	53	35
Wayne.....	4	26	18
West Milford.....	23	28	29
	1,119	3,019	2,380

## SALEM COUNTY.

	M.	B.	D.
Alloway.....	11	19	16
Elsinboro.....	5	5	5
Lower Alloways Creek.....	7	22	17
Lower Penns Neck.....	9	8	13
Mannington.....	6	14	25
Oldmans.....	12	23	14
Pilesgrove.....	11	53	47
Pittsgrove.....	11	34	22
Quinton.....	5	21	11
Salem.....	48	93	113
Upper Penns Neck.....	32	38	29
Upper Pittsgrove.....	11	11	19
	164	341	331

## SOMERSET COUNTY.

	M.	B.	D.
Bedminster.....			
Bernards.....	7	36	16
Branchburg.....	14	19	28
Bridgewater.....	4	9	15
Franklin.....	32	210	160
Hillsborough.....	17	47	53
Montgomery.....	23	29	41
North Plainfield.....	9	25	21
Warren.....	25	53	59
	3	10	15
	184	442	408

## SUSSEX COUNTY.

	M.	B.	D.
Andover.....			
Byram.....	9	27	13
Frankford.....	6	24	23
Green.....	4	21	26
Hampton.....	11	10	13
Hardyston.....		3	4
Lafayette.....	17	4	19
Montague.....	13	2	7
Newton.....	3	6	6
Sandyton.....	18	51	48
Sparta.....	4	5	14
Stillwater.....	14	8	17
Vernon.....	12	19	17
Walpack.....	6	8	21
Wantage.....	5	4	5
	36	14	39
	157	206	272

## UNION COUNTY.

	M.	B.	D.
Clark.....			
Cranford.....	5	5	6
Elizabeth.....	6	32	19
Fanwood.....	285	1,071	801
Linden.....	4	22	20
New Providence.....	12	21	57
Plainfield.....	4	16	15
Railway.....	98	277	228
Springfield.....	69	92	137
Summit.....	4	27	30
Union.....	21	90	48
Westfield.....	9	25	32
	18	87	54
	530	1,765	1,436



Return of Deaths from all Causes and Certain Specified Diseases, in the Cities of the State of New Jersey of Over 5,000 Population for the Year Ending June 30th, 1894.

REPORT ON VITAL STATISTICS.

CITIES HAVING OVER 5,000 POPULATION.	DEATHS AT ALL AGES.				PRINCIPAL CAUSES OF DEATH.																				
	Under one month.		Between one month and one year.		One to twenty.		Twenty to sixty.		Over sixty.		Undeclared.	Total, including undeclared.		Returned population.		Death-rate per 1,000.		Deaths under 5 in each 100, or comparison of these with total death-rate.		Number of deaths from chief preventable diseases.		Comparative number of deaths in each 100 from chief preventable diseases.			
	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.		Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.
Atlantic City—	181	597	208	101	74	1	815	171,981	18,983	28	14	115	58	50	39	1	115	58	50	39	1	115	58	50	39
Bergen County—	0	11	10	6	42	96	100	74,938	19,700	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Burlington County—	0	2	2	1	1	1	76	6,690	14,91	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Camden City—	4	6	6	34	33	44	156	7,854	22,47	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Cape May—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camden County—	118	866	318	196	401	267	2	14,683	6,387	33	33	45	55	57	34	65	3	38	90	328	47	30	504	127	61
Cherry Hill—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumberland County—	18	42	16	9	20	30	1	300	1,212	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Delaware County—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Essex County—	258	947	368	420	511	366	5	420	14,846	33	33	41	44	34	34	34	34	34	34	34	34	34	34	34	34
Franklin County—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hudson County—	308	111	61	155	56	46	468	5,995	15,71	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Jersey City—	14	34	58	15	15	36	1	512	5,652	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Robtson—	0	0	0	0	0	0	0	1,193	4,888	34	34	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Union City—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trenton City—	18	46	43	15	7	37	2	3,851	13,688	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Union County—	104	817	308	74	93	217	107	10,671	30,74	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Warren County—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Washington County—	18	56	41	12	14	23	3	2,865	11,47	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Perth Amboy—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

\* Probably due to infant brought to the city.

† Not a criterion of health condition.

DEATHS—CURRENT STATISTICAL YEAR.

Return of Deaths from all Causes and Certain Specified Diseases, in the Cities of the State of New Jersey of Over 5,000 Population, for the Year Ending June 30th, 1894—Continued.

CITIES HAVING OVER 5,000 POPULATION.	DEATHS AT ALL AGES.				PRINCIPAL CAUSES OF DEATH.																				
	Under one month.		Between one month and one year.		One to twenty.		Twenty to sixty.		Over sixty.		Undeclared.	Total, including undeclared.		Returned population.		Death-rate per 1,000.		Deaths under 5 in each 100, or comparison of these with total death-rate.		Number of deaths from chief preventable diseases.		Comparative number of deaths in each 100 from chief preventable diseases.			
	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.		Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.	Year.	One to five.	Five to twenty.	Over sixty.
Monmouth County—	8	12	7	26	18	2	88	8,808	9,46	26	29	72	2	282	190	308	579	64	372	128	88	168	1207	376	448
North Branch—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Passaic County—	11	15	14	56	56	172	9,068	19,04	58	58	46	85	16	9	9	9	9	9	9	9	9	9	9	9	9
Paterson—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paterson City—	161	408	286	170	668	271	1,888	9,607	30	30	45	15	707	41	77	83	1	1	1	1	1	1	1	1	1
Paterson City—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Passaic County—	11	9	127	63	1	112	5,616	30	30	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Salmon City—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Union County—	31	129	51	261	140	501	42,820	15,58	44	53	301	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Warren County—	23	37	31	23	46	258	12,181	17	17	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Washington County—	18	30	7	3	36	30	1	1,877	15,76	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Philadelphia—	18	30	7	3	36	30	1	1,877	15,76	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
TOTAL.	1,028	4,089	2,706	12,877	8,778	58	1,773	94,008	20,56	43	35	1,768	57	538	7	224	190	308	579	64	372	128	88	1,609	448







REPORT ON VITAL STATISTICS.

Return of Deaths from all Causes and Certain Specified Diseases, in the Statistical Divisions of the State of New Jersey, for the Year Ending June 30th, 1894.

Table for Essex County showing deaths by age group (Under one month to 75+), principal causes of death (e.g., Small-pox, Measles, Whooping-cough), and vital statistics (Total, Unclaimed, Death-rate per 1,000).

Return of Deaths from all Causes and Certain Specified Diseases, in the Statistical Divisions of the State of New Jersey, for the Year Ending June 30th, 1894.

Table for Gloucester County showing deaths by age group (Under one month to 75+), principal causes of death (e.g., Small-pox, Measles, Whooping-cough), and vital statistics (Total, Unclaimed, Death-rate per 1,000).

*Return of Deaths from all Causes and Certain Specified Diseases, in the Statistical Divisions of the State of New Jersey, for the Year Ending June 30th, 1894.*

HUDSON COUNTY. Statistical Divisions.	DEATHS AT ALL AGES.											PRINCIPAL CAUSES OF DEATH.																											
	Between one month and one year.											Estimated population.											Death-rate per 1,000.																
	Under one month.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.	Between one month and one year.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.	Between one month and one year.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.	Between one month and one year.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.											
Rayonne.....	33	111	81	32	46	3	469	3,197	19.71	7	3	6	13	3	66	20	14	101	53	18	17	87	1	8	1	6	26	14	101	53	18	17	87	1	8	1	6	26	
Antientberg.....	7	18	11	2	34	18	70	324.17	33.17	4	3	4	4	4	31	16	6	11	3	7	8	12	1	3	1	4	4	6	11	3	7	8	12	1	3	1	4	4	
Harrison.....	14	54	29	15	75	26	123	9,663	23.17	4	3	4	4	4	31	16	6	11	3	7	8	12	1	3	1	4	4	6	11	3	7	8	12	1	3	1	4	4	
Hoboken.....	97	857	177	80	484	17	1,034	4,888	24.63	3	17	1	19	17	17	11	59	5	154	93	76	43	65	61	56	4	1	1	50	103	76	43	65	61	56	4	1	1	50
Jersey City.....	310	893	666	339	1,644	697	3,132	17,056	25.32	3	17	1	19	17	17	11	59	5	154	93	76	43	65	61	56	4	1	1	50	103	76	43	65	61	56	4	1	1	50
Kearny.....	18	65	24	12	98	47	265	.....	.....	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
North Bergen.....	16	46	28	10	97	71	268	12,859	18.97	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Town of Union.....	5	16	42	16	79	37	206	.....	.....	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Union.....	10	38	24	6	91	7	86	.....	.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Weehawken.....	5	16	18	7	16	4	61	.....	.....	1	2	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3
West Hoboken.....	35	63	30	23	63	37	201	.....	.....	1	2	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3
Totals.....	588	1,673	1,146	548	2,619	985	8	7419	303,170	34.47	134	3	61	97	46	408	25	1,029	483	846	1,149	618	396	317	445	368	185	283	74	387	445	368	185	283	74	387	445	368	

*Return of Deaths from all Causes and Certain Specified Diseases, in the Statistical Divisions of the State of New Jersey, for the Year Ending June 30th, 1894.*

HUNTERDON COUNTY. Statistical Divisions.	DEATHS AT ALL AGES.											PRINCIPAL CAUSES OF DEATH.																										
	Between one month and one year.											Estimated population.											Death-rate per 1,000.															
	Under one month.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.	Between one month and one year.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.	Between one month and one year.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.	Between one month and one year.	One to five.	Five to twenty.	Twenty to sixty.	Over sixty.	Undefined.	Total, including unclassified.										
Alexandria.....	1	2	3	1	3	13	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bethlehem.....	3	2	3	1	16	13	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Clinton.....	2	1	1	1	8	17	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Delaware.....	2	1	1	1	9	25	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
East Amwell.....	1	1	2	1	3	4	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Franklin.....	2	1	1	1	3	4	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Frenchtown.....	1	2	1	1	4	7	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
High Bridge.....	1	2	1	1	3	3	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Holland.....	1	2	1	1	3	3	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Kingwood.....	1	2	1	1	7	19	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Lambertville.....	4	14	13	8	17	29	85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Lebanon.....	1	2	1	1	4	7	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Raritan.....	1	6	1	5	14	21	48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Readington.....	1	6	3	3	7	18	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Towlebury.....	1	6	3	3	7	18	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Union.....	1	1	1	1	3	7	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
West Amwell.....	1	1	1	1	3	7	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Totals.....	14	44	29	34	116	190	8	480	36,856	12.16	2	4	7	11	26	38	17	47	14	60	18	66	83	10	5	5	5	23	14	60	18	66	83	10	5	5	23	















New Brunswick, 1893.

Mean Temperature.		Total Precipitation.	
Spring, . . . . .	49.6	Spring, . . . . .	12.75
Summer, . . . . .	73.3	Summer, . . . . .	16.29
Autumn, . . . . .	54.2	Autumn, . . . . .	12.55
Winter, . . . . .	28.1	Winter, . . . . .	31.47

Beverly, 1893.

Mean Temperature.		Total Precipitation.	
Spring, . . . . .	59.1	Spring, . . . . .	11.81
Summer, . . . . .	71.4	Summer, . . . . .	19.77
Autumn, . . . . .	54.6	Autumn, . . . . .	12.25
Winter, . . . . .	29.5	Winter, . . . . .	12.39

Philadelphia, 1893.

Mean Temperature.		Total Precipitation.	
Spring, . . . . .	59.3	Spring, . . . . .	11.8
Summer, . . . . .	75.0	Summer, . . . . .	17.54
Autumn, . . . . .	56.0	Autumn, . . . . .	12.3
Winter, . . . . .	39.7	Winter, . . . . .	18.56

Atlantic City, 1893.

Mean Temperature.		Total Precipitation.	
Spring, . . . . .	46.4	Spring, . . . . .	12.65
Summer, . . . . .	70.5	Summer, . . . . .	8.49
Autumn, . . . . .	55.4	Autumn, . . . . .	7.34
Winter, . . . . .	39.8	Winter, . . . . .	8.51

Cape May C. H., 1893

Mean Temperature.		Total Precipitation.	
Spring, . . . . .	49.1	Spring, . . . . .	12.79
Summer, . . . . .	71.8	Summer, . . . . .	8.67
Autumn, . . . . .	55.6	Autumn, . . . . .	9.92
Winter, . . . . .	33.0	Winter, . . . . .	19.71

STATION, PHILADELPHIA, PA.

Latitude, 39° 57' N.; Longitude, 75° 9' W. Height of Barometer Cistern above Sea Level, 117 feet.

OBSERVER, L. M. DEY, U. S. WEATHER BUREAU.

	BAROMETER (Reduced to 32 Degrees) AND SEA LEVEL.			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches).*	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July	30.25	29.68	29.93	94	58	77	64	S. W.	2.04	14	9	9
August	30.22	29.47	29.88	93	58	76	68	N. W.	2.43	10	11	11
September	30.32	29.64	30.05	87	44	66	70	N. W.	3.76	10	11	11
October	30.53	29.31	30.12	80	33	58	73	N. W.	3.22	9	8	8
November	30.66	29.73	30.14	62	24	44	71	S. W.	2.51	13	3	3
December	30.88	29.50	30.16	62	17	36	74	S. W.	3.13	13	3	3
1894.												
January	30.67	29.35	30.18	68	17	37	76	N. W.	1.78	14	16	16
February	30.86	29.43	30.16	56	4	32	73	N. E.	3.07	12	12	12
March	30.63	29.63	30.12	77	21	47	69	N. W.	1.45	10	11	11
April	30.45	29.45	30.05	77	27	52	66	N. W.	2.99	10	10	10
May	30.46	29.62	29.98	87	43	64	74	S. W.	9.46	15	16	16
June	30.31	29.67	30.01	97	48	73	71	S. W.	1.63	9	5	5
For the year	30.88	29.31	30.08	97	4	53.2	70.8	N. W.	27.57	133	123	123

\* Including melted snow.

STATION, ATLANTIC CITY, N. J.

Latitude, 39° 22' N.; Longitude, 74° 25' W. Height of Barometer Cistern above Sea Level, 53 feet.

OBSERVER, E. H. EMERY, U. S. WEATHER BUREAU.

	BAROMETER (Reduced to 32 Degrees) AND SEA LEVEL.			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches).*	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July	30.24	29.71	29.98	93	53	72	81	S. W.	3.23	9	1	1
August	30.21	29.66	29.98	86	63	72	84	S. W.	3.55	10	4	4
September	30.31	29.63	30.05	84	44	65	78	S. W.	3.61	10	6	6
October	30.52	29.38	30.12	75	30	57	79	E.	1.74	9	8	8
November	30.66	29.75	30.13	65	20	45	80	N. W.	2.19	11	15	15
December	30.90	29.51	30.15	59	15	38	83	S. W.	2.44	11	10	10
1894.												
January	30.63	29.35	30.17	54	19	37	86	N. W.	2.07	13	18	18
February	30.84	29.40	30.14	60	5	34	84	N. W.	3.46	12	16	16
March	30.63	29.63	30.12	77	19	44	82	S. W.	1.39	11	13	13
April	30.49	29.31	30.04	68	25	48	82	S. W.	1.71	10	10	10
May	30.46	29.63	29.96	83	46	60	84	E.	5.63	18	15	15
June	30.30	29.70	30.12	90	47	67	83	S. W.	2.91	13	4	4
For the year	30.90	29.32	30.07	93	5	53.4	82	S. W.	33.38	134	120	120

\* Including melted snow.

STATION, NEW YORK CITY.

Latitude, 40° 34' N.; Longitude, 70° 0' W. Height of Barometer Cistern above Sea Level, — feet.

OBSERVER, E. B. DUNN, U. S. WEATHER BUREAU.

	BAROMETER (Reduced to 32 Degrees) AND SEA LEVEL.			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches).*	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July	30.23	29.61	29.9	93	66	75	63	N. W.	1.29		9	8
August	30.22	29.28	29.97	93	52	74	72	S. W.	2.18		11	10
September	30.37	29.65	30.06	84	45	64	53	N. W.	2.27		13	7
October	30.55	29.38	30.13	78	34	58	75	N. W.	5.23		5	7
November	30.87	29.63	30.12	62	26	44	71	S. W.	3.71		9	9
December	30.89	29.44	30.14	52	13	35	74	S. W.	3.42		15	11
1894.												
January	30.67	29.14	30.17	58	17	34	78	N. W.	2.70		17	13
February	30.87	29.43	30.16	52	1	37	75	S. W.	3.18		16	11
March	30.59	29.64	30.11	69	30	44	73	N. W.	1.82		13	10
April	30.49	29.55	30.14	76	25	50	73	N. W.	3.51		10	9
May	30.46	29.60	29.97	83	44	61	74	S. W.	3.30		13	13
June	30.32	29.66	30.00	94	48	71	70	S. W.	3.20		16	13
For the year	30.89	29.14	30.07	94	1	53.3	72.4	N. W.	40.00		141	100

\* Including melted snow.

STATION, NEWTON, N. J.

Latitude, 41° 03' N.; Longitude, 74° 45' W. Height of Barometer Cistern above Sea Level, — feet.

OBSERVER, D. L. FOSTER, STATE WEATHER SERVICE.

	BAROMETER (Reduced to 32 Degrees)			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches).*	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July				97	45	71.4		S. W.	3.96		8	14
August				98	44	70.8		N. W.	5.86		9	12
September				81	36	58.6		N. W.	3.80		9	8
October				79	22	53.1		S. W.	2.89		6	10
November				59	16	38.8		S. W.	2.69		6	17
December				58	5	29.9		S. W.	2.82		6	16
1894.												
January				56	10	30.5		S. W.	2.15		6	13
February				51	-5	24.5		N. W.	6.17		8	9
March				68	15	40.9		S. W.	1.37		10	9
April				80	15	47.4		S. W.	3.06		9	13
May				87	26	60.4		S. W.	5.09		11	11
June				95	43	69.8		S. W.	1.81		11	5
For the year				98	-6	49.7		S. W.	39.84		97	137

\* Including melted snow.

STATION, PATERSON, N. J.

Latitude, 40° 55' N.; Longitude, 74° 10' W. Height of Barometer Cistern above Sea Level, — feet.

OBSERVER, J. T. PROBERT, STATE WEATHER SERVICE.

	BAROMETER (Reduced to 32 Degrees)			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches).*	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July				99	53	74.6		S. W.	1.71		9	16
August				95	43	73.8		S. W.	7.45		9	10
September						63.0		S. W.	2.96		9	11
October				81	26	56.6		S. W.	5.26		5	8
November				68	20	43.9		N. W.	3.95		8	8
December				62	12	35.4		N. W.	4.51		13	10
1894.												
January				60	14	33.3		N. W.	3.78		13	13
February				55	1	29.4		N. W.	4.73		11	9
March				74	20	45.0		S. E.	1.65		11	10
April				82	22	50.8		S. W.	3.52		10	10
May				93	43	63.0		S. E.	3.76		13	13
June				97	45	73.0		S. W.	1.94		7	5
For the year				99	1	53.4		S. W.	43.75		116	10

\* Including melted snow.

STATION, BEVERLY, N. J.

Latitude, 40° 31' N.; Longitude, 74° 59' W. Height of Barometer Cistern above Sea Level, — feet.

OBSERVER, C. F. RICHARDSON, STATE WEATHER SERVICE.

	BAROMETER (Reduced to 32 Degrees)			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches).*	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July				100	51	76.0		S. W.	2.93		13	5
August				96	52	75.0		S. W.	5.49		9	5
September				88	41	64.8		N. W.	4.34		9	5
October				84	26	56.6		N. E.	4.20		10	8
November				67	19	42.4		N. E.	3.71		10	8
December				63	13	35.1		W.	5.10		13	8
1894.												
January				59	12	35.2		N. E.	2.77		14	11
February				55	1	31.1		S. W.	4.54		14	10
March				81	19	46.8		N. W.	1.92		12	7
April				89	21	51.1		W.	3.34		11	8
May				99	40	63.1		S. W.	10.47		14	11
June				100	44	71.9		W.	2.29		8	3
For the year				100	1	54.1		W.	49.69		128	59

\* Including melted snow.



STATION, NEW BRUNSWICK, N. J.

Latitude, 49° 29' N.; Longitude, 74° 10' W. Height of Barometer Cistern above Sea Level, — feet.

OBSERVER, CHARLES V. MYERS, STATE WEATHER SERVICE.

	BAROMETER. (Reduced to 32 Degrees)			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches) *.	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July.....				98	53	75.1		N. W.	2.31		8	1
August.....				94	50	73.5		N. W.	10.70		10	6
September.....				84	38	63.8		N. W.	3.31		9	9
October.....				80	34	56.4		N. W.	3.51		10	8
November.....				65	21	43.4		N. W.	3.91		10	14
December.....				63	10	34.0		N. W.	3.13		14	11
1894.												
January.....				56	11	33.4		N. W.	3.08		11	13
February.....				55	3	19.1		N. W.	3.53		15	9
March.....				76	14	43.0		N. W.	1.53		12	11
April.....				73	19	50.2		N. W.	3.41		12	5
May.....				84	43	61.6		S. W.	3.57		14	9
June.....				87	43	70.8		S. W.	3.25		13	3
For the year.....				94	-2	52.9		N. W.	44.44		173	101

\* Including melted snow.

STATION, NEWARK, N. J.

Latitude, 40° 29' N.; Longitude, 74° 27' W. Height of Barometer Cistern above Sea Level, — feet.

OBSERVER, F. W. RICORD, STATE WEATHER SERVICE.

	BAROMETER. (Reduced to 32 Degrees)			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches) *.	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July.....				93	54	73.6		N. W.	1.78		6	6
August.....				89	34	73.8		N. W.	6.56		9	10
September.....				82	41	62.0		N. W.	2.30		8	8
October.....				78	26	54.8		N. W.	5.99		8	11
November.....				60	22	41.0		N. W.	3.65		8	12
December.....				59	12	33.6		S. W.	3.80		14	14
1894.												
January.....				57	15	32.6		N. W.	3.19		12	13
February.....				50	Zero	27.8		N. W.	4.71		10	11
March.....				69	19	43.0		S. W.	1.89		10	6
April.....				76	23	48.6		S. W.	3.23		11	10
May.....				83	43	60.3		N. W.	3.57		13	11
June.....				93	46	70.0		N. W.	1.32		8	5
For the year.....				93	Zero.	51.7		S. W., N. W.	29.94		118	113

\* Including melted snow.

STATION, CAPE MAY COURT HOUSE, N. J.

Latitude, 38° 56' N.; Longitude, 74° 58' W. Height of Barometer System above Sea Level, — feet.

	BAROMETER. (Reduced to 32 Degrees)			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches) *.	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July.....				96	41	73.9		S. S.	1.26		8	4
August.....				89	55	72.6		S. S.	4.89		5	6
September.....				85	41	65.6		S. S.	5.14		5	10
October.....				79	26	56.3		N. W.	3.04		6	8
November.....				67	22	45.2		N. W.	2.74		7	12
December.....				67	12	40.4		N. W.	3.15		10	9
1894.												
January.....				57	23	38.8		N. W.	2.53		8	9
February.....				62	5	35.2		S. S.	4.33		10	5
March.....				81	22	46.9		S. S.	1.19		6	8
April.....				80	23	50.1		S. S.	2.64		8	7
May.....				85	46	62.2		N. W.	7.73		15	13
June.....				93	46	70.0		S. W.	2.44		6	16
For the year.....				96	5	54.7		S. S.	40.12		97	107

\* Including melted snow.

STATION, BELVIDERE, N. J.

Latitude, 40° 49' N.; Longitude, 75° 04' W. Height of Barometer Cistern above Sea Level, — feet.

OBSERVER, SAMUEL J. HIXSON, STATE WEATHER SERVICE.

	BAROMETER. (Reduced to 32 Degrees)			THERMOMETER.			Mean humidity.	Prevailing wind.	Rain (inches) *.	Snow (days of).	Days when precipitation equaled 0.01.	Cloudy days.
	Max.	Min.	Mean.	Max.	Min.	Mean.						
1893.												
July.....				92	46	73.4		S. S.	11.94		7	3
August.....				87	37	62.5		S. S.	3.67		9	8
September.....				81	21	55.0		S. S.	2.24		5	6
October.....				64	18	40.4		S. S.	3.71		5	5
November.....				58	5	30.6		S. S.	3.01		5	5
December.....												
1894.												
January.....				56	7	32.3		S. S.	2.40		6	7
February.....				54	-4	26.3		S. S.	4.66		9	5
March.....				72	15	42.2		S. S.	1.17		4	4
April.....				80	16	49.4		S. S.	2.73		7	5
May.....				88	37	61.7		S. S.	6.65		11	7
June.....				96	40	70.4		S. S.	3.57		8	1
For the year.....				98	-4	49.4		S. S.	45.65		74	58

\* Including melted snow. † Mean of eleven months only.

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