

ELEVENTH
BIENNIAL REPORT

—OF THE—

State Board of Health,

—OF—

MARYLAND.

—FOR THE—

Two Years Ending December 31st, 1895.



ANNAPOLIS:
KING BROS., STATE PRINTERS,
1896.

MARYLAND STATE BOARD OF HEALTH,
SECRETARY'S OFFICE,

JANUARY, 1896.

*To His Excellency the Governor,
and the General Assembly of Maryland:*

I have the honor to present herewith, "through the Board," the Eleventh Biennial Report of the State Board of Health, in accordance with the provisions of the Acts of the Assembly of 1874 and 1880, Chapters 200 and 438, respectively, which require that the Secretary of said Board "shall, at each regular session of the Legislature, submit, through the Board, a full report of his investigations, with such suggestions and recommendations as he may deem proper."

Respectfully,

JAMES A. STEUART, A. M., M. D.,

Secretary and Executive Officer.

MEMBERS OF THE BOARD.

(IN CHRONOLOGICAL ORDER.)

J. CRAWFORD NEILSON, C. E.....Harford County, Md.
J. M. H. BATEMAN, M. D.....Easton, Talbot County, Md.
JOHN MORRIS, M. D.....Baltimore, Md.
JAMES F. MOSSHANE, M. D.....Baltimore, Md.
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Attorney-General of Maryland (Ex-officio).
JAMES A. STEUART, A. M., M. D.....Baltimore, Md.
JOHN H. JAMAR, M. D.....Elkton, Cecil Co., Md.

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J. M. H. BATEMAN, M. D.....*President.*
JAMES A. STEUART, A. M., M. D., *Secretary & Executive Officer.*

ELEVENTH BIENNIAL REPORT

—OF THE—

State Board of Health of Maryland,

—BY—

JAMES A. STEUART. A. M., M. D., Secretary and Executive Officer.

1895.

*To His Excellency the Governor,
and the General Assembly of Maryland:*

GENTLEMEN: In presenting the Eleventh Biennial Report of the State Board of Health, to His Excellency the Governor, and the General Assembly of Maryland, I beg leave to recall the general scheme which was outlined at the beginning of my assuming the duties of Secretary and Executive Officer, May 1st, 1893, and which was fully explained in the Tenth Biennial Report of the State Board, presented to the Governor and the General Assembly, in January, 1894. My conception of the chief duties of the Board, as imposed by the Act of Assembly creating the State Board of Health, is embodied in the 4th section of the Act, title, "Board of Health," (Rev. Code 1888, art. 43; 1874, chap. 200; 1880, chap. 438, sec. 2), which says, after defining other duties, "they shall organize as far as practicable, in every city, village and legislative district in this State, local Boards or advisory committees, to serve without pay, to assist the Board in the proper performance of their duties and to make a report quarterly to the Board, of the sanitary condition of their respective cities, villages or districts." This seemed to me to be of primary importance, and your Secretary has bent all his efforts in carrying out this object.

The plan thus inaugurated in May, 1893, of regular and pre-arranged visitations to every part of the State has been strictly carried out and with the happiest results.

During the past two years, the Secretary, as the executive officer of the Board, has visited in the Spring, Summer and Autumn, several times each year, twenty-one of the twenty-three

counties of the State, giving special attention to the "cities, towns and villages" of the counties visited. The county seats of Calvert, Somerset and Prince George's counties were the only ones not visited, for the reason that the Secretary was unable to obtain an appointment for his reception by the County Commissioners of those counties.

In the counties of Harford, Caroline, Montgomery, Cecil, Kent, Howard, Talbot, Carroll, St. Mary's, Frederick, Garrett, Anne Arundel, Washington, Allegany, Queen Anne, Baltimore, Dorchester, Worcester and Charles, County Boards of Health were organized according to law, and the most cordial relations established with the State Board.

The reports of the County Health Officers appended to this report, attest the zeal with which they have taken hold of the work, and demonstrates the advantage gained through co-operative action, emanating from the central Board. In only one county of the State, (Wicomico,) the Secretary failed to impress the minds of the County Commissioners with a due sense of the importance of organizing a County Board of Health. They were polite, but refused on the ground that, although the law is mandatory, there being no penalty attached for refusal, they would not obey. It is sincerely to be hoped that a more enlightened spirit will in the coming year permeate the minds of the worthy Commissioners of Wicomico County, and that they may be induced to recognize in the future their obligation under the State law.

The Secretary has everywhere met with a cordial reception, and upon each repeated visit he has had the satisfaction to find that the lessons in sanitation inculcated on former occasions had taken deep root and were everywhere bringing forth good fruit. It can not be denied that education in sanitary matters is the most certain method of restricting the progress of all the preventable diseases. This of course, includes an understanding of the causes of such diseases, what are preventable diseases and how they may be restricted or prevented. This propaganda of education has been in the past the constant aim of the Secretary, and shall continue to be in the future. The three great essentials to the maintenance of health are pure air, pure water and pure food. The first can only be secured by sanitary habits, including proper ventilation and cleanliness. The second, only by care and watchfulness, including a knowledge of the dangers to which water is sometimes exposed as well as the dangers arising from the use of impure water, what pure water is, and how it may be obtained. And the third, by the same vigilance over the food supplies of families as well as communities.

The germ theory of disease, now almost universally accepted by physicians and scientists, has its bearing on every one of these

three cardinal points. The air is known to contain certain atmospheric germs in greater or less proportion, according to the surroundings and movement of the air of any room, house or place. The germs of disease multiply in proportion to the favorable conditions afforded for such multiplication, and stagnant air, like stagnant water, affords this fruitful media; and the danger of sickness is increased or diminished according as these germs are concentrated and undergo the putriferative changes which their life history involves. These teachings have been elaborated over and over again, and I am always surprised at the increased interest as well as knowledge manifested by even the most ignorant, in some of the places visited by me. This plan of personal influence and personal instructions has been largely supplemented by the general distribution of leaflets in regard to each and all of the preventable diseases; such as small-pox, diphtheria, scarlet and typhoid fevers, &c., &c. The leaflet in regard to small-pox, containing an extract from the law requiring vaccine certificates of all children seeking to enter the public schools, has been eminently successful. In many of the counties this law had been almost entirely neglected and lost sight of. For instance, in the district in Charles county where the short endemic of small-pox occurred last April, I was amazed to find that not more than five per cent. of the inhabitants of all ages had *ever* been vaccinated, and that *no* certificates were required before entrance of pupils into the public schools. Hence the rapid spread of this loathsome and fatal disease even in this isolated community. *Every one of those* who came in contact with the disease, with *one* exception, took the disease, and she (a woman) *had been vaccinated* when a child. Of the thirty-seven cases, seven proved fatal. I have the satisfaction now to be able to state—from information received through the County Health Officers—that the vaccine law is at present almost universally obeyed in every part of the State. This is also the case in regard to the isolation of other contagious diseases, and hence no epidemics have occurred of any serious proportions, except that in Charles county, spoken of above, during the past two years.

Whilst this is true in general, there occurred in this State one such lamentable failure, that it must be related as an object lesson, emphasizing the importance not only of isolation in cases of contagious disease, but of honesty on the part of attending physicians in calling things by their right names and not attempting to diminish the gravity of a danger by a false diagnosis. The child of a family residing in one of the towns of Maryland was taken sick, the family doctor was sent for, and, although he recognized at once that the child had scarlet fever (though in a very mild form), he concluded not to call it so, for fear of alarm-

ing the mother, who, up to that time, had reposed implicit confidence in him. Just across the street resided another family in which there were several little children. The mothers were intimate and devoted friends, and in complete ignorance of the nature of the disease, the children of the neighbor's family were allowed to visit their little sick friend daily. They all took scarlet fever and one died. The first time the grief-stricken mother met the physician of the first case she upbraided him with "doctor, you killed my child." He attempted to excuse himself, but to the mother-heart, mourning in bitter agony over the needless sacrifice of her child, that might have been so easily prevented, there could be no excuse. "Doctor," she repeated, "you killed my child. If you had told my friend that her child had scarlet fever, she would never have permitted my children to enter her house." How these words must pierce his conscience, if he have any, and how the sight of that mother, or the mention of her name, must torture him with vain regret!

One thing that has proved a stumbling block in the path of sanitary improvements, has been, and is, the devotion of the residents of the smaller towns and villages to their pig pens and the raising of hogs for family use. Some argue squarely that they are *not* offensive, and therefore, not dangerous to health; others, that they keep *theirs* in such good order that all offence and danger is removed; and still others, that the poor *must* have their meat, and therefore, all offensiveness and menace to the health of their neighbors and themselves must be endured. In vain do suffering neighbors complain and remonstrate, appealing to the Local Health Officer and to the State Board. Through their orders, things are sometimes improved for a while, but soon fall back into the old state of nuisance, as before. Take Hagerstown, for instance, a flourishing and healthfully located city of 15,000 inhabitants, clings to her pig pens [some in the heart of the city], as tenaciously as to her household gods. In vain has the Health Officer of Washington county protested, and even prepared an ordinance banishing the pig pens from the city, only to have it vetoed by the Mayor. The pig pen is certainly and necessarily a dangerous, as well as a disgusting nuisance, and in too close proximity to dwellings a frequent source of disease, such as typhoid fever, diphtheria, scarlet fever, &c. Whilst Hagerstown is mentioned, it is by no means an exception, as the same state of things exists in all the smaller towns and villages in the State. They should be banished to the farms, where a larger area reduces to the minimum this baleful influence.

A word must be said in reference to typhoid fever, and the sources from whence this disease emanates. The doctrine is now almost universally accepted by physicians and scientists

that this disease is caused by the presence in the human system of a specific germ or bacillus, and which is taken into the body through the mouth, by water, air or food. The first may be represented by 95 in the chances as against 5 of the other two possible sources. This concentrates our attention upon the water we drink and calls for a careful examination of the sources from whence it may be derived. All suspected water should be analysed, and if found to contain the evidences of sewage impurities, be at once suspended from use or condemned entirely, and the sources and causes of contamination be sought for and corrected, if possible. The report upon the origin, location and extent of the typhoid fever epidemic of 1895, in Washington, D. C., made by the Health Department of that city, is one of the most comprehensive and exhaustive ever made upon this subject, and should be read by everyone. One of the most difficult problems the sanitarian has to solve is how to protect the sources of our drinking water. In the case of large cities, where the supply comes from one or more larger streams or rivers, the possible sources of contamination exist throughout its entire extent, and are numerous in character and kind. The tributary small streams must necessarily run through an agricultural country, and receive the washings from fertilized fields, barn-yards, farm houses, &c., &c. The water power of the more considerable streams is the attraction for the location of factories and mills of various kinds, the waste from which it is difficult, if not impossible, to keep out of the out-flowing race, as long as they are permitted to exist and operate. Such factories must exist somewhere, and even be encouraged, and a great water power is too valuable to be wasted. How then is a city's water supply to be protected and kept pure enough to be wholesome and potable.

One way is to buy up all the property on both sides of the stream for many miles above the lakes and dams, which flow into the city pipes direct. But this is expensive and few communities will submit to such an outlay of public funds for such a purpose. Another way is to employ a sufficient force of trained inspectors to patrol constantly the whole water shed of the river or stream, and to enforce the State law, title "Pollution of sources of Water Supply." Rev. Code, art. 27, 1886, ch. 6, sec. 277." This law covers the ground well, and only needs to be enforced to secure for the cities interested, potable water and protection from the diseases that are derived from the use of impure water.

A third plan is that of filtration before it reaches the consumer. This plan is in use in London and many other cities, some of the largest size. The river Thames, which furnishes the chief supply of water for London, with over 6,000,000 of

people, is polluted throughout its entire course, and yet the article furnished the Londoners is a fairly wholesome water as proved by analysis and by the extraordinarily low death rate, exhibited in their weekly mortuary reports. My second proposition is probably the cheapest and easiest to obtain, and can be put in operation as soon as an appropriation be made for that purpose.

The table which is presented with this report might be characterized as "a beggarly account of empty benches," and yet after two years', constant effort, this is all that the Secretary has been able to get from the physicians of the State. The plan was adopted of sending to each and every one of the 930 registered physicians in the State, these prepared postal cards, (a copy of which is reproduced,) accompanied with this circular letter.

OFFICE STATE BOARD OF HEALTH.

BALTIMORE, *October 14, 1895.*

DEAR DOCTOR—I take the liberty of inclosing to you these prepared Postal Cards, with the earnest request that you will carry them in your pocket, and from time to time fill up the blank spaces, as cases of the diseases named thereon may occur in your practice, or of deaths from any of the same causes. The law requires the compilation of the vital statistics of the State by the Secretary of the State Board of Health, and it is obviously impossible for the Secretary to fulfill this important duty without the co-operation of the Practitioners of Medicine, throughout the State. Do not fear that in compiling these cases in the general report to the Legislature, that your name will appear (unless you specially request it).

It is of the highest importance that the prevalence of any disease, in any special locality, should be at once made known to the Secretary of the State Board of Health, in order that prompt steps be taken to ascertain the cause and prevent the spread of the disease beyond the narrowest possible limits. Once a week, or once a month, when you go to your Post Office, drop in a card and it will be most cordially appreciated by,

Yours respectfully,

JAMES A. STEUART, M. D.

Secretary and Executive Officer.

DR. JAMES A. STEUART,

Secretary and Executive Officer,

STATE BOARD OF HEALTH,

Baltimore, Md.

Report of Diseases, Deaths, Births and Vaccinations
in.....
for the Month of.....189

CASES.	DISEASES.	DEATHS.
.....	Small-Pox.....	.....
.....	Measles.....	.....
.....	Scarlet Fever or Scarletina.....	.....
.....	Cerebro-Spinal Meningitis.....	.....
.....	Diphtheria.....	.....
.....	Whooping Cough.....	.....
.....	Erysipelas.....	.....
.....	Typhoid Fever.....	.....
.....	Malarial Fever.....	.....
.....	Dysentery.....	.....
.....	Diarrhœal Diseases.....	.....
.....	Consumption or Pthisis.....	.....
.....	Acute Lung Diseases.....	.....
.....	Other Zymotic Diseases.....	.....

Births,
Vaccinations,

REMARKS.

General Health:

.....M. D.

Address.....

As stated in my last quarterly report to the State Board, over 3,000 cards were sent out, and up to January 1st, 1896, only 260 have been returned.

It is respectfully suggested, that in addition to the present scheme, a law be enacted, making it the duty of the undertaker to obtain from the *attending physician*, of the person who has deceased, a certificate setting forth the name, age, sex, social condition, (married or single,) duration of last illness, and *cause of death*. These certificates to be returned quarterly to the County Board of Health, whose Secretary shall transmit the same, immediately, to the Secretary of the State Board of Health. In order to secure attention to this proposed "Act," a fee of say twenty-five cents should be paid by the County Board of Health

for each certificate so returned; and further, that a fine, say of five dollars, be imposed in each case of neglect or refusal to comply with said law.

The table presented herewith, be it distinctly understood, is given simply to show how small a part of the State's vital statistics is represented therein. It must be observed also, that the reports from the counties of Allegany and Cecil should by no means create the impression that either a greater number of cases of sickness or deaths have occurred in these counties than in the other counties of the State, from the figures on the table shown. It only shows that greater zeal has been manifested by the physicians of these, than in the other counties of the State. It will be observed also, that from some counties very few physicians have reported, and from one county (Kent) none whatever.

It is absurd to suppose that so small an amount of sickness, or number of births or deaths reported, represents anything worth considering, and yet these reports have the strongest bearing upon the prosperity of the State. Maryland has never been fairly represented in this respect to the outside world. Long ago the impression went abroad that Maryland was an unhealthy State, and consequently emigration has for a century, passed us by for less healthful but more lauded States and Territories.

The time has now arrived when these false impressions should be removed, and the only way this can be done authoritatively, is through the collection, tabulation and publication of the vital statistics of the State. I am convinced that Maryland can show as low, if not a lower, death rate than any other State in the Union, and that certain sections of this State can offer a climate equal, if not superior to, the boasted sanitarium of some of our sister States.

In conclusion, permit me to call attention to the tables herewith appended, showing the *weekly* analysis made by Prof. W. B. D. Penniman, Chemist of the State Board of Health, of the drinking water of Baltimore city.

The State Board has always been deeply solicitous in regard to the wholesomeness of the city's water supply, and the dangers of pollution to which it is exposed.

The health of five hundred thousand people, one-half of the population of the State, certainly calls for the utmost watchfulness, and no amount of trouble or expense should be spared to protect so important a necessity of life as the water supply of a great city.

As previously stated in this report, the Act of Assembly, entitled, "Pollution of sources of water supply," confers all the powers necessary upon the State Board of Health, for the protection of the sources of the water supply of the city of Balti-

more and all other cities, towns and villages in the State. But to quote an old French receipt for cooking a hare, the first item is, "first catch your hare." The law is ample, but the State Board of Health is powerless to enforce it without the means to employ such agents as would make the work efficient. Two active and intelligent inspectors, properly compensated for their services, patrolling the banks of every tributary stream flowing into either Jones Falls or the Gunpowder river above the dams, would enable the State Board to enforce the law, wherever found to be violated. Add to this, constant chemical analysis, and when deemed necessary bacteriological examinations, and the protection from pollution would be secured.

I will only add that at the present time there is no occasion for the alarm which exaggerated newspaper articles and sensational interviews and letter writers are calculated to produce in the public mind. The chief city of the State is far better off in regard to both quality and quantity of her water supply than even the best of the other large cities of this country or even in Europe, at the present time. This is shown by the analysis appended, covering each week of the entire year 1895, yet notwithstanding, we must not be satisfied with the present fairly good water report, but must recognize that there is danger ahead, and that if we do not take measures now to secure, as far as possible, absolute protection of our drinking water, it may be too late when suddenly overtaken by an epidemic of enteric fever, to avert the consequences of our present neglect.

I beg leave also to call attention to the numerous analytical reports, herewith appended, of water from all over the State. Wherever typhoid fever was reported, the Chemist of the State Board was ordered to secure samples of water used in the immediate locality, and to make a careful analysis of the same. By this means the spread of typhoid fever has everywhere been checked and confined to the limits of a few cases in each locality.

Finally, the State Board asks nothing of the Legislature beyond the means to carry out the excellent laws now on the statute books of the State.

JAMES A. STEUART, A. M., M. D.,
Secretary and Executive Officer.

QUARTERLY REPORTS.

First Quarterly Report of the Secretary of the State Board of Health for the Year 1894, April 1st.

The Members of the State Board of Health.

GENTLEMEN: The past three months have not developed anything in the way of unusual sickness in any of the counties of the State, and with the exception of some three or four cases of

fatal diphtheria in Caroline county, at Denton and at Ridgely, nothing has been reported to your Secretary for the information of the Board. The fact that, notwithstanding the prevalence of small-pox in many localities, some distant, but others touching the borders of our own State, not a case has been reported in Maryland up to this time, is not only highly satisfactory, but somewhat surprising. Whether this be due to good fortune, or to the more general protection afforded by vaccination, your Secretary is unable to say, but it is fair to presume that the insistence upon this point during the fall and winter months by your Secretary in his communications with every part of the State has had its good results.

Copies of the Biennial Report, together with leaflets upon the subjects of vaccination, the management of diphtheria, scarlet fever and other contagious diseases, have been sent to every Health Officer and Board of County Commissioners throughout the State; also to every prominent physician in the counties whose name and address could be obtained. Also to every Board of Health, State and municipal, in other States that has heretofore favored this Board with their reports. Altogether about 250 copies of the Report have been distributed. In several instances applications have been received from distant points asking for extra copies for both public and private use. In accordance with the resolution passed at the last quarterly meeting of this Board, your Secretary has caused to be made a seal for the use of the State Board of Health, and which is herewith presented for examination and approval.

Your Secretary has deemed the water supply of Baltimore city of so much importance that a weekly analysis was some time ago ordered, and the reports thereon are herewith presented. The reports from the Food Inspectors, fish and meat, are as follows: (See reports elsewhere.)

Your Secretary has been called upon so often by County Health Officers of this State, as well as health officers of other States, for copies of the Health Laws of Maryland, and finding that the edition compiled and published some years ago by my predecessor in this office, had been exhausted, and finding that there are several important laws, passed since this publication, are wanting in it, and also that much immaterial matter is included in the present edition; it is, therefore, earnestly recommended to the Board that a new edition be authorized by the Board, and that the Secretary be instructed to compile, or have compiled, the Laws of Health of Maryland, and printed in the same form as the last edition, and that 250 copies be the limit of the said edition.

Second Quarterly Report of the Year 1894—Presented to the Board July 6th, 1894.

The Quarterly Report of the Secretary State Board of Health for quarter ending June 30th, 1894.

With the exception of the occurrence of some fifteen or sixteen cases of small-pox during the past three months, the State of Maryland has enjoyed the usual good health which prevails in this State. The total number of cases of varioloid have been fifteen or sixteen. I give the two figures because I do not know whether the last, a slight case of varioloid occurring in an infant 7 months old, is included. The history of this case is worth recording. A man by the name of Shultz, was engaged from an employment office in this city by a farmer named Horn, living in Baltimore county, ten miles north of the city, to work as a farm-hand. In a few days he developed small-pox and was forthwith shipped to Baltimore to be sent to a hospital. Immediately upon hearing these facts, Dr. J. C. Monmonier, Health Officer for Baltimore county, was sent to the place to vaccinate all who had been in contact with the man, as well as to take all other precautions called for under the circumstances. In this family he found a seven-months old infant that had never been vaccinated. The Doctor fortunately having some fresh virus, immediately vaccinated the child with special care. There was no result for ten days, when the vaccination developed in regular order and simultaneously about one dozen variolous pustules appeared upon the child, accompanied with moderate fever and slight depression of the system. Both vaccinia and varioloid progressed simultaneously, and the child made a good recovery with but few marks upon face or body. Here vaccination clearly moderated the small-pox poison and doubtless saved the life of the child. In fact such vigorous measures had been taken throughout the State, long before the disease crossed our borders, that it was a comparatively easy task to stop its progress and stamp it out wherever it appeared. The origin of every case has been ascertained and every step of its progress followed. This experience furnishes a most valuable object lesson to the public, and has very forceably demonstrated the value to the State of the services of the State and County Boards of Health.

JAMES A. STEUART, M. D.,

Secretary and Executive Officer.

Third Quarterly Report of the Secretary of the State Board of Health, for three months ending October 30th, 1894.

GENTLEMEN—The reports from all parts of the State, continue to show the average good health of Maryland.

As a co-operative body, the State Board of Health is desirous of hearing the views of every County Health Officer, who should feel that he is an important factor in the machinery of the Health Board of the State, and if any part of this machinery is missing or inoperative, the strength of the whole structure is diminished. The propaganda of sanitary knowledge is one of the foundation stones without which no such structure can be reared, and the zeal of the propagandist is essential to success in all sanitary educational work. If we meet with indifference and lack of knowledge in the select men who constitute the various Boards of County Commissioners, and who are ex-officio by law a County Board of Health, how much less likely are we to find zeal and knowledge in the plain farmer or villager. I have sent to every County Health Officer whose name I could obtain, and to every County Board of Health, a copy of the Health Laws of the State, and which contains all the health laws in force to June 1, 1894. A careful study of these State laws will, I am sure, go far towards the removal of doubts and difficulties in the way of the abatement of nuisances and the preservation of the health of the communities who look to us for counsel and protection.

I have from time to time sent out postal cards to the County Health Officers, with a view to the collection of vital statistics, and I am sorry to say that but few responses have been received at the office of the Secretary of the State Board of Health. A part of the duty of every physician in the State is to report all deaths occurring in his practice, and it is most desirable that births, diseases and vaccinations should also be reported. The card proposed by the Secretary is so arranged as to give the least possible trouble to the busy practitioner, and should certainly claim a brief part of his time. The value of reports upon vital statistics must necessarily depend upon their generality and completeness. I shall be happy to furnish every practitioner of medicine in the State with cards if I can but obtain their names and addresses. As far as I have been able to learn, typhoid fever seems to have been prevalent all over the State, and in fact in some of the adjoining States during the past year. The cause in some cases has been traced directly to the drinking water, derived in most instances from pump wells that have been contaminated by privy pits, barn-yards, pig-pens, or defective surface drainage. In other cases the origin of the disease has been an unsolved problem. Every modern educated physician will, I am sure, hold that, although the cause cannot be directly traced and verified, it is the same well-recognized and identified germ or bacillus pointed out by modern pathologists as the undoubted cause of typhoid fever. This important fact should, therefore, never be lost sight of, and every precaution adopted to prevent the possibility of such causes being permitted to exist.

The State Board has cheerfully undertaken to analyze all samples of suspected water that have been sent for that purpose, and will continue to do so.

The first and fundamental purpose of the State Board of Health, as well as of the County Boards of Health, is to seek for and, if possible, remove the cause of sickness wherever it may occur, and through the promulgation of such sanitary regulations and instructions prevent the occurrence and spread of disease, especially those of a contagious character.

To assume that because a certain locality has heretofore been exempt from disease, and on account of its healthful situation and surroundings, and because it has the reputation of being an exceptionally healthy place, is often a fatal mistake. Negligence and a disregard of the laws of health has often humbled the pride of those who have regarded themselves as above and beyond all possibilities of sickness. Those who live in healthy localities need the watchful care of the Health Officer to preserve that priceless inheritance as much as those who, being less fortunate, may have to call upon sanitary science to remove the causes of disease and stay the hand of death.

Respectfully submitted,

JAMES A. STEUART, M. D.,

Nov. 6th, 1894.

Secretary, &c.

*Quarterly Report of the Secretary State Board of Health,
Ending December 31st, 1894—Presented to
the Board January 6th, 1895.*

GENTLEMEN OF THE STATE BOARD OF HEALTH: This being the first quarterly meeting of the new year, the report presented by your Secretary should include not only the events of the past quarter, but of the year just terminated. At each of the preceding quarterly meetings of 1894, (April 1st, July 1st, and October 1st), as well as at the present, your Secretary has had, and now has, the pleasure to report as favorably in regard to the general health of the State, as he had the satisfaction of doing in regard to the preceding year, 1893. The policy inaugurated at the beginning of my incumbency of this office, namely, of trying to establish and maintain close personal relations between the State Board and the County Boards of Health, has been continued throughout the past year with marked good effect in all but three of the twenty-three counties of the State. They are Wicomico county, Calvert county and Somerset county. These three counties have never, as far as I am aware, organized, as required by law to do, their County Boards of Health, nor even

responded to the letters written to them by your Secretary urging the performance of their duty in this regard. St. Mary's county, I am informed, has had an organization and a Health Officer for some time, but they have failed to correspond. Some months ago I ascertained that the Health Officer, Dr. J. F. Spalding, had died, and that Dr. Charles Combs had been appointed to fill his place. I wrote at once to Dr. Combs, but after three months have received no reply.

In the early part of December last, I sent the following letter to each of the County Health Officers, whose names are on my list as having been appointed by the County Boards of Health:

BALTIMORE, *December 10th, 1894.*

DEAR DOCTOR: The annual meeting of the State Board of Health will be held on or about the eighth day of January, 1895, and it is very desirable that reports from every part of the State should be presented to the Board at that meeting. As no reports were sent in to the last meeting of the Board by the County Health Officers, I would respectfully suggest that your report include the twelve months of 1894. Please include number of deaths occurring in your practice, number of births, and as nearly as possible, number of zymotic diseases, with results. Also character of general health of county. Please add also the number of vaccinations made by *you*, and under the authority of the County Commissioners, made by others.

Very respectfully,

JAMES A. STEUART, M. D.,

Secretary, &c.

I have received only six responses from the following gentlemen: Dr. John H. Jamar, Health Officer of Cecil County, including a full report of vital statistics from sixteen physicians of Cecil County, namely, Dr. George S. Rittenhouse, North East, Dr. Thos. A. Worrall, North East, Dr. George S. Dare, Rising Sun, Dr. S. G. Fisher, Port Deposit, Dr. A. C. Crothers, Port Deposit, Dr. Saml. T. Roman, Conowingo, Dr. J. B. Slicer, Farmington, Dr. D. H. Richardson, Calvert, Cecil county, Dr. D. L. Gifford, Zion, Dr. W. C. Karsner, Chesapeake City, Dr. Ed. N. Crawford, Cecilton, Dr. J. H. Hardecastle, Cecilton, Dr. J. J. Wright, Warwick, Dr. J. T. Wallace, Chesapeake City, Dr. J. H. Jamar, Elkton and Dr. R. E. Brownell, Port Deposit. All honor to Dr. Jamar and the gentlemen who have responded to his postal cards. If this could only be done in every county in the State, what a difference it would make in the value of vital statistics, as well as facilitating the work of the State Board.

The others reporting are Dr. T. W. Simmons, of Washington county, Dr. J. C. Clark of Caroline, Dr. J. C. Monmonier of Baltimore county, Dr. Chas. Cockey of Queen Anne's county, and Dr. J. M. Worthington, Anne Arundel county. I present herewith these reports: Dr. Thos. H. Owen's, of La Plata, Charles county, letter, is all I have. This received today.

During the past year I have sent out some hundreds of this postal card, with the request that they be filled up and mailed. It will be seen that all trouble and expense to the medical practitioners of the State has been avoided, and yet, I am sorry to say, but twenty-three have come back, seven of my own and sixteen of Dr. Jamar's. I am, of course, pleased to get reports from or through any channel, and if the practitioners can be gotten to report to the County Health Officers, it will be that much gain, as the County Health Officers will, of course, transmit at proper periods to the Secretary of the State Board. I will gladly receive any suggestion from the members of the Board by which a better state of things can be brought about. The vital statistics which I herewith present are almost worthless owing to their irregularity, and covering so small a part of the State.

It is my intention to visit, if possible, every county seat of every county in the State during the coming spring and summer, and I should be glad to have the company of any member or members of the Board who could make it convenient to accompany me. This is amply provided for by the State law, as well as the appropriation for traveling expenses, &c.

It was omitted at the last quarterly meeting of the Board to mention the publication by the Secretary, under the authority of the State Board, of the Laws of Health of Maryland, which you have all seen, but which is herewith submitted. The Secretary would be pleased to have an expression of opinion from the Board in regard thereto.

The work of the Secretary during the past quarter has been largely confined to seeking the causes of the prevailing typhoid fever. Many samples of water from all parts of the State have been analyzed and reported upon. In most cases the drinking water used by those suffering from typhoid fever has been condemned by the Chemist as bad and unfit for drinking purposes. And where this evident source of the disease was interdicted, or obviated in some other way, the disease has almost invariably disappeared from that family or locality. In order to keep a close watch upon the Baltimore city drinking water, Professor Penniman proposed to me in the early part of this year that he be allowed to make a weekly analysis of the water, both from Lake Roland and Lock Raven. With the understanding with him that this work was to be done within the appropriation,

I consented, and weekly reports have been made and published in the Baltimore *Sun* ever since.

On the 10th December last I had the pleasure of visiting, by appointment, the Harford County Commissioners, sitting as a Board of Health, and making the acquaintance of Dr. Hollingsworth, the County Health Officer. I was very politely received and listened to, and was pleased to learn that Harford county was in a most excellent sanitary condition and good health, and that the State laws in regard to vaccination, &c., &c., were obeyed.

On December 12th your Secretary proceeded to Washington to attend the convocation of representatives from the State Boards of Health of the United States and Canada. There I met Dr. John Morris, the only other member of this Board who was able to attend the meetings. Unfortunately I was subpoenaed as a witness in a case then on trial before the Frederick County Court for the 13th, and was thus deprived of the pleasure and profit to be derived from the debates carried on by some of the ablest sanitarians in this country.

On the 19th I visited, on the invitation of Mr. France and Mr. Frick, State's Attorney for Carroll county, Hood's Mill, on the main branch of the B. & O. R. R. Hood's Mill is a flint grinding mill, and is charged with having injuriously affected the health of a number of men who have been employed from time to time in the mill. Hood's Mill is situated about thirty-six miles from Baltimore, and directly upon the side of the railroad, and opposite the store and postoffice, which constitute the station. The mill at the time of my visit was only in partial operation, and the air was still and cold, but notwithstanding, the air around the outside of the mill was filled with fine flint dust, and the interior was so thick that I could not breathe the air for a moment. I was informed that the men were furnished with respirators designed to keep the dust out of their air passages. These I saw sometimes on, and as often off whilst in the mill. The foreman was pointed out to me as a sample of the injurious effects of the flint dust. This man, about fifty years of age, said he was well and hearty nine months ago, when he became an employee of the mill company, and at this time he is evidently in the last stages of consumption.

I saw enough to convince me that all the charges against this mill were true, and became satisfied that the mill ought to be suppressed. But how is this to be accomplished? I have consulted the Attorney General, who is a member *ex officio* of this Board, and he informs me that the laws, provided and intended evidently to meet just such cases as this, are entirely defective and that a conviction, either under indictment or otherwise, would be difficult if not impossible to obtain.

I have however reached an agreement with the company to the effect that, if after certain improvements which they proposed are completed, I still think a continuance of the business as now carried on is dangerous to the health of the employees, they will shut down and discontinue the business altogether. This business is done elsewhere by what is known as the wet process, and it is claimed to be harmless to those engaged therein. This Flint Mill was shortly after shut down, and since then has been burned to the ground. The case of reported small-pox about which such a tempest in a tea pot was kicked up by some citizens at Jessups, Howard county, a station on the Washington branch of the B. & O. R. R., proved to be vaccinia, a rare disease, and in connection with the small-pox cases at Washington, where this man was employed, was calculated to alarm ignorant people.

As far as I am able to ascertain, there has been about thirty cases of small-pox, all told, in the city and State. Rather more than one-half of these were in the city and the rest in different parts of the State. All were promptly isolated and all necessary disinfection and precaution taken. Vaccination, which had been greatly neglected, has been insisted upon and very generally practised; and whilst there is still room for improvement in this regard, each County Board throughout the State is waking up to the importance of vaccination. The school law, which after all is the strongest lever that can be used to compel compliance with the vaccine law, has and will be kept in sight by teachers and public school commissioners, as well as Local Health Officers and practitioners of medicine generally.

The report of the Food Inspectors is absent for the reason that no work has been done since June last. It was discovered, that owing to the appropriation taking effect on the 6th of April instead of October 1st, (the beginning of the fiscal year of the State,) the sum of \$2,500 had been already overdrawn, and therefore all payments from this fund were stopped by the Comptroller and Treasurer. The Inspectors were thus suspended from duty and only the voluntary work of the analyst has been carried on. The question as to the disposition of this matter I desire to discuss with the Board.

*Report of the Secretary of the State Board of Health for
Quarter Ending April 1st, 1895.*

During the past three months nothing of special interest has transpired throughout the counties of the State. I have been able to obtain but one report including the past quarter, that presented herewith, from Dr. C. P. Jones, of Snow Hill, Worces-

ter county. After the last meeting I received several reports from County Health Officers, which had been requested for the January meeting, but, of course, too late to be presented.

The general health of the counties, as far as my information extends, has been remarkably good. Only one case of varioloid has been reported from the neighborhood of Rockville, Montgomery county, by Dr. W. R. Andrews, acting Health Officer during the illness of Dr. C. J. Maddox, the Health Officer of said county. It is greatly to be regretted that the vital statistics of this State cannot be obtained, as I am satisfied that such a state of general good health would prove the best advertisement for the State of Maryland that could be published.

Maryland is undoubtedly blessed with one of the most salubrious and healthful climates to be found on this continent. It requires very many years to overcome a bad reputation, and that which has been given to all that part of the State bordering on the Chesapeake bay during the past century, in regard to the prevalence of malarial diseases, remains in the minds of thousands of people both within and without the borders of our State, notwithstanding the fact that it has nearly disappeared in that portion of the State where it once prevailed.

Many theories have been advanced to account for this remarkable change, but none in my judgment will bear substantiation as well as its dependence upon the character of the drinking water. The experiments, or rather the extended examination of this subject, instituted in North Carolina by Dr. Lewis, the Health Officer of that State, and published in a long and interesting article in the December, 1894 number of the Sanitarian, clearly demonstrates and upholds this belief. As far as my information extends, and I have taken pains to carry my inquiries in every part of this State that I have visited or corresponded with, the same causes have brought about the same results; namely, the improved character of the drinking water, being followed by a marked diminution in so-called malarial diseases, and consequent good health.

Dr. Lewis's article brings out the fact that, wherever the driven well or cistern have been substituted for the old surface well, a complete change has taken place, and without any other improvement, places that had become almost uninhabitable on account of sickness, were changed to healthy localities. My endeavor has been, and will continue to be, to promulgate this information for the benefit of the people of this State, with the hope and belief that the so-called malarial diseases may be made to disappear entirely from the State. That the prevalence of typhoid fever during the latter part of last summer, and during the autumn months, was due to the prolonged drought and con-

sequent low ground water mark, all sanitarians seem to agree. Typhoid fever prevailed over the whole country during the period named above, as also the same conditions of diminished rainfall during the same period. The prevalence of other diseases, such as diphtheria, scarlet fever, measles and whooping cough, have nowhere become epidemic. And wherever they have occurred the good results of sanitary education among the people have borne good fruit in the prompt check placed upon the spread of these diseases by isolation, disinfection and sanitary surroundings of all kinds.

The extent to which the bulwark of vaccination has been availed of against small-pox which threatened us at one time from every side, is shown in the fact that nowhere did it extend beyond a few cases, and that at present there is not a known case within our State.

It is my intention to begin as early as the weather will permit, my visitations to the counties of the State and to extend my examinations as far as possible into every part of each county of the State.

Respectfully submitted,

JAMES A. STEUART, M. D.,

Secretary State Board of Health.

*Quarterly Report of the Secretary State Board of Health for
three months ending June 30th, 1895.*

GENTLEMEN STATE BOARD OF HEALTH: In presenting this quarterly report, it affords me pleasure to state that the present condition of the health of the State of Maryland is excellent.

The late epidemic of small-pox in Charles county has been successfully extinguished after a battle which lasted through about six weeks from the 5th of April, the date of my first notification of the existence of the disease.

On the sixth I visited the locality, a place called Middleburg, and found the cases all negroes residing within a radius of about four miles of this point; that the disease had existed for at least six or eight weeks just precedent to this time and that the number of cases was reported to be then twenty-three. Here was a situation calling for the most prompt and energetic action. The origin of the disease was ascertained to be a colored woman named Betty Wheeler, a native of Charles county, who had gone there from Washington and developed small-pox (of which she died,) very soon after her advent. Only one out of a population of about one hundred people living within this four mile radius had ever been vaccinated, and all who were exposed, (except this one) took the disease. There has been, all told, thirty-seven

cases, and seven deaths; twenty-eight colored and nine white. As Charles county had not up to this time organized as required by law, their County Board of Health or appointed a County Health Officer, your Secretary was called upon to take charge of the epidemic; which he did at once with the sanction of Governor Brown as to the necessary expenses involved, to be taken out of the \$10,000 contingent fund placed by the Legislature at the disposal of the Governor for just such an emergency as this. In the meantime (figuratively speaking,) this coal of fire upon their backs forced the County Commissioners of Charles county to organize as a Board of Health, and to appoint a County Health Officer. Dr. T. S. Owen of LaPlata was appointed and has done good service in co-operation with your Secretary in carrying out all the details involved. Of course when I reached the locality of the epidemic I found a state of panic prevailing, due to the mistake in the early diagnosis, it being called varicella or chicken-pox until one or two confluent cases developed and three deaths occurred. The first steps taken by your Secretary were to order first, absolute isolation; second, general vaccination, and third, general and thorough disinfection of all infected houses and articles of every kind. It was soon found impossible to isolate these ignorant people in their scattered residences, where ten and twelve individuals of all ages were crowded together in small cabins, and visited at night by neighbors in spite of all remonstrance and command. A good size house was therefore hired (one not yet quite finished and not yet occupied being found near by,) and after fitting it up with furniture sent from Baltimore, small pox nurses ditto, and a supply of disinfecting material procured, together with a skilled disinfectant. Then all the sick were removed to this temporary hospital, and guards placed night and day on the outside, with strict orders to allow no unauthorized person to approach the house under penalty of immediate arrest and imprisonment in the county jail.

This move gave us control of affairs, and all orders being strictly carried out, the disease was happily arrested.

The lessons derived from this severe experience have been several. First, on the part of the County Commissioners, in the folly of this penny-wise and pound foolish policy, in neglecting to comply with the law, by organizing a County Board of Health, and the appointment of a Health Officer, as well as through their utter disregard of the State Law in regard to vaccination, that the expense of the epidemic to the county will amount to, at least \$3,000, and to the State, at least \$4,000. The chief lesson of value to your Secretary has been the renewal of his faith in vaccination, (for as stated above, the only person exposed who did not take the disease had been vaccinated,) and an exalted opinion of the powerful disinfectant used,

bearing the name of Amyl-Kijo. My attention was called to it by the unqualified certificate of Dr. Hammitt, Health Officer of Washington, who states that he had used it in the epidemic of small-pox in Washington, finding it "most efficient" and strongly recommending it to the public.

My experience has confirmed this opinion in all respects, and I now regard it as the most effective disinfectant, and I believe atmospheric germicide, that I have as yet any experience with.

There is one more point of interest in connection with this epidemic, which I must mention. It has been ascertained beyond doubt, that the out-break of small-pox at Staunton, W. Va., where there have been about 75 or 80 cases, and a good many deaths, was caused by a colored man named Henry Johnson, a fisherman by occupation, who had been with the negroes in Charles county just previous to our discovery of the disease, and had been driven from there by the negroes themselves. He crossed the Potomac in his own boat and made his way to Staunton, his old home, where he was soon taken down with the disease; and in ten days, thereafter, several cases developed, and before the authorities were aware of it they had an epidemic of small-pox on their hands, which soon grew to the above-named proportions. The latest reports from there state that it is under control and subsiding. The reasons of course for the spread of the disease in Staunton were the same as in Charles county; namely, an imported case. No health organization and almost no protection by vaccination.

On June 11th, I visited Leonardtown, St. Mary's county, by appointment, to interview the County Commissioners of that county. My visit, I think, was a success in so far as my reception being very cordial on the part of the County Commissioners and citizens generally.

My address was given respectful attention and they promised to comply with the law at once, and to appoint a Health Officer as soon as a suitable person could be found for the office.

About the first of June, I received a complaint from Gaithersburg, of the existence of several nuisances existing there, which they, the local authorities were unable to have abated, and requested the aid of the State Board of Health. I went to Gaithersburg a few days later, and made a thorough inspection of the place, finding all that the complainants stated to be correct. I at once issued notices to all the parties concerned, giving ten days in which to abate. One of the parties wrote me immediately that he would comply, and I believe has done so. The others refused, so one week ago I went to Rockville to see the State's Attorney, and to have the machinery of the law set in motion to compel these recalcitrant parties to obey the law or

take the consequences. I found the usual obstacles in the way, viz, an unwilling State's Attorney, as well as a certain amount of ambiguity in the laws, which gave him an excuse for his reluctance to go into the prosecution of the cases. The trouble is the amount of red-tape that has to be gone through to accomplish a simple matter.

Your Secretary has made a number of inspections of minor importance, in Baltimore county, with various results; generally satisfactory.

The reports of the Inspectors of Food and Drink, as well as the Analyst of the Board, are herewith submitted.

Prof. W. B. D. Penniman has made a weekly analysis of the Baltimore city water, and many other examinations of samples of water from all parts of the State, especially where typhoid fever has occurred. In all cases the correction of the existing evils has been promptly followed by a recedence and final disappearance of this disease. All these are herewith presented.

*Quarterly Report of the Secretary State Board of Health for
Quarter Ending September 30th, 1895—Quarterly
Meeting held October 22d, 1895.*

Since the meeting of July 8th, it has been the good fortune of your Secretary to encounter no serious epidemic of disease in any part of the State. Your Secretary has visited the following named counties, and in every case, has been received with marked politeness and respect. The visitations were made in the following order: July 23d, Annapolis, Anne Arundel county; July 30th, Chestertown, Kent county; August 5th, Westminster, Carroll county; August 6th, Easton, Talbot county; August 7th, Centreville, Queen Anne's county; August 12th, Belair, Harford county; August 13th, Snow Hill, Worcester county; August 20th, Frederick, Frederick county; August 22d, Cambridge, Dorchester county; August 27th, Towson, Baltimore county; Wicomico county, August 24; Washington county, Hagerstown, August 30th. Charles county, St. Mary's county, Montgomery county, were visited in June. A total of sixteen counties visited, having seven yet to visit. The difficulty in arranging dates arose from the fact that nearly all the County Boards meet on the same day, usually the first and third Tuesdays of the month.

One very gratifying feature of my visits this year is to find that my last year's visits have been so well remembered and that I have been greeted everywhere as a returning friend; and further, that the lessons and admonitions I have sought to inculcate, have taken root and born good fruit. Everywhere I have

found that the vaccine law was being well observed, far better than it had ever been in years past. An appreciation of the importance of the isolation of the sick from the well, where diseases of a contagious character occurred, I found to be very general. In some sections of the State, typhoid fever has made its appearance, but generally sporadically. The same with diphtheria and scarlet fever. As to malaria, the testimony of physicians everywhere over the State is, that it has nearly disappeared from their list of diseases. So, upon the whole, the State is to be congratulated upon the general good health that has prevailed during the past quarter. Your Secretary has been making extraordinary efforts to obtain the vital statistics of the State, and has for that purpose obtained from the Clerks of the Circuit Courts of the various counties of the State, a list of the names of the registered physicians in each county. To every one of these your Secretary has sent the following circular with two or three of these proposed postal cards, with the hope that some general interest might be awakened in the round of the general practitioner, and a sufficient amount of returns be procured upon which to base a ratio of mortality for the State of Maryland. Your Secretary has sent to 716 physicians, between 1,500 and 1,600 postal cards. A few have been returned for want of the proper address, by the postal service, and about half a dozen have returned reports of cases and deaths and births. Your Secretary is still hopeful.

At the last quarterly meeting a resolution was adopted, accepting the invitation of the Secretary of the American Public Health Association to attend the meeting of the Association to be held October 1st-4th, in Denver, Colorado, and the President appointed Dr. John H. Jamar and the Secretary, Dr. Steuart, as such delegates. At the request of the Board, the President was induced to add his own name. When the time came, only Drs. Jamar and Steuart were able to attend the meeting at Denver. Although not chairman of the delegation, your Secretary begs leave to report that the meeting proved to be a large representative gathering of the most prominent sanitarians from every part of the U. S., as well as from Canada and Mexico. The papers read and discussed throughout the meeting, were all valuable contributions to our knowledge, as well practically instructive on every branch of sanitary science—in short I am sure my colleague, Dr. Jamar, will join me in saying that we were fully repaid for the time and fatigue of a journey of over 4,000 miles.

Since my return from Denver, I received a request from the Mayor and City Council of Laurel to visit and inspect their town with a view to the correction of some nuisances existing there. I did so on October 16th, and pointed out a number of dangerous

abuses that were due to neglect and want of sanitary knowledge. On my return I wrote the following letter to the Mayor, &c., (read.)

On the 14th I visited, in company with Dr. Thos. B. Owings, Health Officer of Howard County, a station on the main stem of the Baltimore and Ohio Railroad, called Woodbine, to look for the cause of some typhoid fever existing there. There had been during the past three months six or seven cases at and near this place; the cause was, I think, located in the drinking water, which is being analyzed.

*Quarterly Report of the Secretary for the three months
ending December 31st, 1895.*

GENTLEMEN: During the past three months there has been a marked diminution in the sickness and death rate, throughout the State, especially in the last month. I have been called upon, since the last report, to visit Havre de Grace, Towson, Cumberland, Annapolis, West River and Bel Air. At Havre de Grace, there occurred some ten or twelve cases of diphtheria and two deaths. This very unusual amount of sickness in a remarkably healthy town, naturally created anxiety and some little excitement. Upon receipt of a note from Mr. Murray Vandiver, I went at once to investigate, and visited all the infected localities as well as the public schools then in session. I then called a meeting of Mayor and City Council, and the the leading physicians and citizens of the place, and made them an address. I urged the immediate organization of a local Board of Health, and the adoption of a code of Health Ordinances on the lines suggested on similar occasions in other places by the State Board of Health. This was subsequently carried out and I have had the gratification not only to receive a copy of the excellent Health Ordinance adopted by the Mayor and Council of Havre de Grace, but also to learn that all traces of the diphtheria which threatened the lives of their people, especially the children, had been entirely banished, and that Havre de Grace is now rejoicing in better, and indeed, nearly perfect health.

My visit to Towson had in view the abatement of a nuisance complained of by the Health Department of the City of Baltimore, consisting of an overflow of the privy pit of the Towson Jail finding its way into a stream which ultimately emptied into Lake Roland, and thus endangering the drinking water of this city. Two years ago I reported to this Board a similar state of affairs; that I had visited the County Commissioners of Baltimore county at that time and insisted upon certain changes and improvements at the Towson Jail, which resulted in an apparent abatement of the trouble. When I was informed by the Health

Commissioner of Baltimore in November last that the conditions above mentioned again existed, I again demanded in the name of the State Board an immediate correction of the evil. The County Commissioners promptly assured me that an alteration for the better should be made at once. Later I learned that, owing to the political revolution in the State, and the consequent displacement of two of the three Baltimore County Commissioners, the order promised by the old Board had not been carried into effect. My second visit, however, for this purpose after the inauguration of the new Commissioners, was successful, and though the remedy applied is only a temporary one, I propose to insist on some radical changes calculated to remedy the threatened contamination for all time.

My solicitude on this subject, namely, the purity of the water supply of Baltimore city, has been constant, and I have procured a weekly analysis by the Chemist of the State Board, of both the Lake Roland and Lock Raven sources of supply. The reports upon these examinations have been published by the *Baltimore Sun*, and will appear as a part of the Biennial Report now being prepared for presentation to the Legislature.

In the latter part of November, I received this communication from the Circuit Court of Allegany county. (Read, &c., &c.) I at once wrote to the Health Officer of Allegany county, and after waiting a reasonable time, without receiving a reply, I went to Cumberland on December 11th and had a very satisfactory interview with the County Commissioners, sitting as a County Board of Health. The Attorney of the Board, Mr. Richmond, and the State's Attorney, Mr. Pearre, were also present and took part in the consultation as to the legal and best course to be followed in order to improve the situation, if possible. I proposed, as a starting point, to procure samples of water from or near all the places suspected or charged with the pollution of the Cumberland water supply. These samples were duly sent, and the result of the examination is herewith presented. The case now rests with the County Board of Health. Some of the localities complained of lie outside of their jurisdiction, and some, unfortunately, outside of the boundaries of the State of Maryland.

More than a year ago I was called to Cumberland in consequence of the bad state of the water of that city, and then investigated charges made against certain pulp-mills and other places. This investigation not only confirmed the apparent fact that the water supply of Cumberland was impure, but that, instead of the pulp-mills being entirely to blame, the fault was found to be nearer home, and was caused by the foul sewage of the town itself being discharged into the river too close to the

in-take pipe of the city supply, to say nothing of the flourishing condition of a large tannery in the very heart of the city and a short distance *above* the in-take pipes. On my return to Baltimore I wrote a long communication to the Mayor and City Council of Cumberland, setting forth the facts in the case, pointing out the dangers involved and urging immediate steps looking to the improvement of the Cumberland water supply. I ventured to suggest several methods of improvement, but my letter has, up to this time, remained unnoticed. The report of the Cumberland physicians upon the sickness and death rate of Cumberland, fully sustains my apprehensions of danger.

The reports thus far received from the County Health Officers who have thus far reported give a most flattering account of the health of the various sections reported upon. It is deeply to be regretted that a more general practice of reporting cannot be established in order to give value to the reports on vital statistics which the law requires the Secretary to compile and publish biennially. The method I have attempted through the general distribution of prepared postal cards is, I have reason to hope, taking hold and will in time develop into a systematic habit on the part of the medical practitioners throughout the counties of the State. The following County Health Officers have reported :

Dr. J. C. Clark, Caroline county; Dr. J. M. Spear, Allegany county; Dr. T. W. Simmons, Washington county; Dr. W. F. Hines, Kent county; Dr. Thomas B. Owings, Howard county; Dr. James H. Billingslea, Carroll county; Dr. J. M. Worthington, Anne Arundel county; Dr. J. H. Jamar and others, Cecil county; Dr. J. C. Monmonier, Baltimore county; Dr. Charles Cockey, Queen Anne's county; Dr. C. J. Maddox, Montgomery county; Dr. C. P. Jones, Worcester county; Dr. F. F. Greenwell, St. Mary's county; Dr. J. M. H. Bateman, Talbot county; Dr. Thomas S. Owen, Charles county; Dr. George P. Jones, Dorchester county.

Those who have not reported are : Wicomico, Calvert, Garrett, Frederick, Harford, Somerset, Prince George's.

The Report of the Food and Drink Inspectors is also herewith presented.

The system of accounts I have adopted is very simple and comprehensive, and is open to your examination. A voucher for each item is in the hands of the Comptroller and the Secretary of the Board.

The number of cards sent out were over 3,000 to about 900 practitioners of medicine in the State outside City of Baltimore. Number returned, 260.

HAVRE DE GRACE, MD., *October 25th, 1895.*

DR. JAMES A. STEUART,

State Board of Health, Baltimore, Md:

DEAR SIR: I am pleased to inform you that, agreeably to your suggestion when here on Monday last, our City Council has passed an ordinance creating a Board of Health, a copy of which I herewith enclose.

The ordinance was made effective on Wednesday evening, and at the same time the members of the Board were appointed and confirmed. Yesterday we met and organized, and are now in active operation. The Health Officer is Dr. H. S. Weusthoff. The members of the Board are S. J. Seneca, James W. Foster, P. L. Hopper (City Attorney), and your humble servant the Mayor.

We are also greatly pleased to be able to report that the disease has not gained any headway. We have been able to confine it to the same families reported to you when here, and we intend to take all steps necessary to stamp it out.

We would like very much to have a few copies of the pamphlet you sent us in reference to restriction and prevention of diphtheria, say twenty-five or fifty, for general distribution. We would like also to have five copies of the Health Code you sent us, if you can furnish us with same.

Our people seem to be very much gratified at the action we have taken, and we hope soon to be able to report that the diphtheria is entirely cleaned out.

Very respectfully,

R. K. VANNEMAN, *Mayor.*

REPORT ON SANITARY CONDITION OF WATER.

From County Commissioners of Allegany County, Maryland. Drawn by James T. McDonald, December 20th, 1895.

CHEMICAL ANALYSIS.

Figures in Parts per Million.

CONSTITUENTS.	Figures in Parts per Million.							
	1	2	3	4	5	6	7	8
	N. Branch.	Savage River.	N. Branch.	George's Creek.	Potomac River.	City hydrant	Well, Polk St.	Sand Springs.
Color.....	none	none	yellow	yellow	yellow	yellow	none	none
Odor.....	none	none	bad	none	bad	none	none	none
Re-action.....	neutral	neutral	acid	acid	neutral	neutral	neutral	neutral
1. Total Residue at 230° F.....	84	53	1,348	1,374	653	554	315	6
2. Ignited Residue.....	22	23	295	569	308	287	160	1
3. Volatile Residue.....	62	30	1,053	805	344	287	155	5
4. Amount of Chlorine.....	10.6	3.4	61.5	13.3	13.3	20.1	37.8	2.5
5. Amount of Nitrogen as Free Ammonia.....	trace	trace	.102	trace	.09	.08	trace	trace
6. Amount of Nitrogen as Albumenoid Ammonia.....	.05	trace	.07	.35	.11	.15	trace	trace
7. Amount of Nitrogen as Nitrates.....	trace	trace	.....	.4	.....	.....	9.3	trace
8. Amount of Nitrogen as Nitrites.....	.....	.....	.....	.....	.....	.....	.....	.....
9. Amount of Earthy bases calculated.....	.....	.....	.....	.....	.....	.....	.....	.....
10. Amount of Sulphates calculated as SO ₃.....	.....	.....	.....	.....	.....	.....	.....	.....
11. Character of Water.....	bad	good	bad	bad	bad	bad	bad	good

NOTES: 1—Determinations 9 and 10 are only made of water evidently hard.

2—The word "Trace" indicates that the substance is present but in too small a quantity to be estimated.

EXPLANATION OF ANALYSIS.

The chemical examination of water for contamination is based upon the fact that sewage consists largely of nitrogenous matter and common salt (sodium chloride.) Pure natural waters generally contain only very small quantities of these substances. Therefore, when we find compounds of nitrogen and chlorine exceeding the narrow limits given below, we are led to the belief that the water has been contaminated in some period of its history. See under heads 4, 5, 6, 7 and 8.

The amount and nature of the mineral matter in solution is sometimes important, and is taken into consideration under heads 1, 2 and 3, and, when necessary, 9 and 10. It must be understood, however, that the figures given below are not *absolute standards*, and waters are met with from time to time to which they are not applicable; such waters must be left to the judgment of the analyst.

Good drinking water should be clear and colorless, without odor and neutral in re-action.

1. The "Total Residue" should not exceed 500 parts per million.
2. The "Ignited Residue" may constitute the total residue.
3. The smaller the amount of "Volatile Residue" the better.
4. The amount of "Chlorine" should not exceed 6.00 parts per million.
5. The amount of "Nitrogen as Free Ammonia" should not exceed .05 parts per million.
6. The amount of "Nitrogen as Albumenoid Ammonia" should not exceed .15 parts per million.
7. The amount of "Nitrogen as Nitrates" should not exceed 5.00 parts per million.
8. There should be no "Nitrites" present, as they indicate active decomposition of organic matter.
9. The amount of "Earthy Bases" should not exceed 200.00 parts per million.
10. The amount of "Sulphates" should not exceed 100.00 parts per million.

REMARKS.

Confirming our report of August 8th, 1893, (see Tenth Biennial Report State Board of Health, pages 60-64,) these analyses show that the water of Potomac river at the point where Cumberland city draws its supply is entirely unfit for drinking purposes.

The other samples, Savage River and Sand Spring are good.

See our report, Seventh Biennial Report State Board of Health, pages 162-179.

W. B. D. PENNIMAN,
Analyst S. B. of H.

Approved:

JAMES A. STEUART, M. D.,
Secretary S. B. of H.
To the Hon. County Commissioners
for Allegany County, Maryland.

December 30th, 1895.

MARYLAND STATE BOARD OF HEALTH.

Information Concerning Water Sent for Analysis.

Health Officers, or other persons sending samples of water for analysis, are *required* to fill out this blank and forward it with the sample of water to W. B. D. PENNIMAN, Analyst State Board of Health, Baltimore Medical College, Linden avenue and Madison street, Baltimore, Md. As the formation of a correct opinion of the purity of a water is largely dependent upon an accurate knowledge of the source of supply, it is especially requested that the information asked for be obtained so far as possible.

Sample No. 1.

1. Sample from (give owner of property, tenant, town, county Commissioners of Allegany county, Md.) and postoffice). A. North Branch of the Potomac river, (County

2. Sample taken (date). A. December 20th, 1895, by James T. McDonald.

3. Source of supply (well, river, creek, canal, pond, lake, spring), giving proper name, if it has any. A. North Branch, Potomac river.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. A. Slight change in color in fall of year.

5. State if sample presents usual appearance of water. A. Yes.

6. If from well, give diameter (ft.); depth (ft.) State character of soil, sub-soil and water-bearing stratum.

7. State distance of well, or spring, from *all* possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stockyards slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works.

8. If from running stream, pond or lake, state if it is subject to pollution above source of supply (see No. 7), and if so, when and of what character. A. No, except from saw-mills, coal mines and one tannery.

9. Have any contagious diseases occurred among those using the water; if so, of what character and number of cases? Give details under this head. A. Not that we know of.

10. Any other information that will, in your judgment, be of interest and importance.

TAKING THE SAMPLE.

(a) Only *new glass demijohns* of one gallon capacity shall be used. The contents of stone jugs, old bottles or demijohns will not be analyzed.

(b) The demijohn is cleaned by rinsing it at least five (5) times with the water. No soap, soda or other chemical is to be used under any circumstances.

(c) If from pump or spigot, allow the water to run several minutes before filling the vessel. If from creek, river, pond or lake, dip the vessel *below the surface* of the water, being careful not to disturb the sediment at the bottom, or to obtain the floating particles on top. If the spring is small, use a small cup that has been rinsed several times.

(d) Fill the vessel to two (2) inches of the top (*not full*); stopper with a *new cork*. Cut off the top of the cork even with the top of the demijohn; seal with sealing wax.

(e) Label each sample fully, so that it may be readily identified. Forward promptly to the address *given above*, using the enclosed tag.

NOTE.—In all cases express must be prepaid.

Sample No. 2.

1. Sample from (give owner of property, tenant, town, county and post office.) Commissioners of Allegany Co., Md.

2. Sample taken (date.) December 20th, by James T. McDonald.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Savage river.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

8. If from running stream, pond or lake, state if it is subject to pollution above source of supply (see No. 7), and if so, when and of what character. No.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. No.

Sample No. 3.

1. Sample from (give owner of property, tenant, town, county and post office.) Allegany County Commissioners.

2. Sample taken (date.) December 20th, by James T. McDonald.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. North Branch Potomac River.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. Yes. Supposed from paper mill, &c.

5. State if sample presents usual appearance of water. Yes, at this season.

8. If from running stream, pond or lake, state if it is subject to pollution above source of supply (see No. 7), and if so, when and of what character. Yes. Wood, pulp and paper mill about 500 yards above.

Sample No. 4.

1. Sample from (give owner of property, tenant, town, county and post office.) Commissioners of Allegany county.

2. Sample taken (date.) December 20th, 1895, by James T. McDonald.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. George's creek at Westernport.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

8. If from running stream, pond or lake, state if it is subject to pollution above source of supply (see No. 7), and if so, when and of what character. From coal mines and towns.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. Not used by residents along it.

Sample No. 5.

1. Sample from (give owner of property, tenant, town, county and post office.) Commissioners of Allegany county.)

2. Sample taken (date.) December 19th, 1895, by James T. McDonald.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Potomac river, at in-take at Cumberland, Md.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. Slight coloration in Fall of year. This year very much colored all Summer.

5. State if sample presents usual appearance of water. Yes; at this season.

Sample No. 6.

1. Sample from (give owner of property, tenant, town, county and post office.) Allegany County Commissioners.

2. Sample taken (date.) December 20th, 1895, by James T. McDonald.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. City hydrant.

5. State if sample presents usual appearance of water. Yes.

Sample No. 7.

1. Sample from (give owner of property, tenant, town, county and post office.) Allegany County Commissioners.

2. Sample taken (date.) December 20th, 1895, by James T. McDonald.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Well, Polk street, Cumberland, Md.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter, (3 ft.); depth, (30 ft.) State character of soil, sub-soil and water-bearing stratum. Sandy, with clay sub-soil.

7. State distance of well, or spring, from *all* possible sources of contamination, and their nature, such as cess-pools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. There has been cess-pools within thirty feet, and stables within fifty feet. No tanneries or manufactories near.

Sample No. 8.

1. Sample from (give owner of property, tenant, town, county and post office.) Allegany county.

2. Sample taken (date.) December 23d, by Andrew Hoff.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Sand spring.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

8. If from running stream, pond or lake, state if it is subject to pollution above source of supply (see No. 7), and if so, when and of what character. No.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. No.

REPORT OF JOS. M. ANDERSON, INSPECTOR, FOR THE
YEAR 1894.

First Quarterly Report.

January 31.	No. Inspections.....	75	
	Condemned Fish.....		1,470 lbs.
	" Poultry.....		175 "
	" Rabbits.....		56
	" Oranges and Lemons.....		800
February 28.	No. Inspections.....	125	
	Condemned Fish.....		1,275 lbs.
	" Poultry.....		140 "
	" Terrapins.....		14
	" Oranges.....		3,000
	" Apples.....		3 bush.
March 31.	No. Inspections.....	400	
	Total No. inspections, 600.		
	Condemned Fish.....		2,547 lbs.
	" Poultry.....		150 "
	" Oranges.....		4,000
	" Lemons.....		250

There has been a remarkable improvement among dealers in keeping butter and fresher articles on their stalls, and I find that the system of inspection gives more confidence to purchasers of the above articles of food.

JAS. M. ANDERSON, *Inspector.*

Second Quarterly Report.

April 30.	No. Inspections.....	550	
	Condemned Fish.....		1,405 lbs.
	" Poultry.....		175 "
	" Oranges.....		3,800
	" Lemons.....		600
May 31.	No. Inspections.....	375	
	Condemned Fish.....		9,480 lbs.
	" Crabs.....		980 doz.
	" Turtles.....		11
	" Poultry.....		60 lbs.
	" Oranges.....		4,500
	" Lemons.....		400
June 30.	No. Inspections.....	650	
	Condemned Fish.....		6,935 lbs.
	" Crabs.....		1,200 doz.
	" Poultry.....		40 lbs.
	" Pineapples.....		210
	" Oranges.....		2,500
	" Lemons.....		700
	Total No. Inspections, 1,570.		

Third Quarterly Report.

July 31.	No. Inspections.....	500	
	Condemned Fish.....		5,110 lbs.
	" Crabs.....		1,500 doz.
	" Poultry.....		160 lbs.
	" Cantaloupes.....		300
	" Peaches.....		2 bush.
	" Tomatoes.....		10 bush.
	" Lemons.....		1,200
	" Oranges.....		1,500
August 31.	No. Inspections.....	260	
	Condemned Fish.....		1,200 lbs.
	" Crabs.....		900 doz.
	" Oranges.....		400 "
September 30.	No. Inspections.....	250	
	Condemned Fish.....		2,250 lbs.
	Total No. Inspections, 1,010.		

Fourth Quarterly Report.

October 31.	No. Inspections.....	150	
	Condemned Fish.....		600 lbs.
	" Poultry.....		20 "
	" Lemons.....		200
November 30.	No. Inspections.....	150	
	Condemned Fish.....		500 lbs.
	" Poultry.....		150 "
	" Rabbits.....		20
December 31.	No. Inspections.....	150	
	Condemned Fish.....		700 lbs.
	" Poultry.....		200 "
	" Rabbits.....		45
	Total No. Inspections, 450.		

REPORT OF JOS. M. ANDERSON, INSPECTOR, FOR THE
YEAR 1895.

First Quarterly Report.

January 31.	No. Inspections.....	40	
	Condemned Fish.....		875 lbs.
	" Poultry.....		200 "
	" Rabbits.....		40 "
	" Oranges.....		25 doz.
February 28.	No. Inspections.....	30	
	Condemned Fish.....		100 lbs.
March 31.	No. Inspections.....	125	
	Condemned Fish.....		3,650 lbs.
	" Poultry.....		70 "
	" Oranges.....		3,000
	Total No. Inspections, 195.		

Second Quarterly Report.

April 30.	No. Inspections.....	400	
	Condemned Fish.....		5,500 lbs.
	" Poultry.....		275 "
	" Meat.....		300 "
	" Oranges.....		4,000
	" Lemons.....		2,000

May 31.	No. Inspections.....	700	
	Condemned Fish.....		450 lbs.
	" Crabs.....		50 doz.
	" Meat.....		200 lbs.
	" Poultry.....		150 "
	" Oranges.....		300
	" Lemons.....		500
June 30.	No. Inspections.....	500	
	Condemned Fish.....		2,800 lbs.
	" Crabs.....		400 doz.
	" Meat.....		300 lbs.
	" Poultry.....		300 "
	" Oranges.....		3,000
	" Lemons.....		1,000
	Total No. Inspections, 1,600.		

Third Quarterly Report.

July 31.	No. Inspections.....	500	
	Condemned Fish.....		7,500 lbs.
	" Crabs.....		600 doz.
	" Poultry.....		150 lbs.
	" Meat.....		500 lbs.
	" Oranges.....		3,000
	" Lemons.....		1,000
	" Cantaloups.....		200
August 31.	No. Inspections.....	450	
	Condemned Fish.....		8,750 lbs.
	" Crabs.....		400 doz.
	" Poultry.....		300 lbs.
	" Meat.....		75 "
	" Cantaloups.....		120
	" Oranges.....		200
	" Lemons.....		50
September 30.	No. Inspections.....	300	
	Condemned Fish.....		6,700 lbs.
	" Crabs.....		2,500 doz.
	" Meat.....		200 lbs.
	" Poultry.....		200 "
	" Oranges.....		3,000
	" Lemons.....		2,000
	Total No. Inspections 1,250.		

Fourth Quarterly Report.

October 31.	No. Inspections.....	300	
	Condemned Fish.....		6,700 lbs.
	" Poultry.....		200 lbs.
	" Meat.....		175 "
	" Grapes.....		400 "
	" Oranges.....		3,000
	" Lemons.....		1,000
November 30.	No. Inspections.....	450	
	Condemned Fish.....		5,700 lbs.
	" Poultry.....		1,150 "
	" Rabbits.....		170
	" Wild ducks.....		120
	" Grapes.....		275 lbs.
	" Oranges.....		200
	" Lemons.....		500

December 31. No. Inspections.....	350
Condemned Fish	780 lbs.
" Poultry.....	225 "
" Rabbits.....	150
" Wild ducks.....	70
" Oranges.....	250
" Lemons	120
" Terrapins	50
Total number of inspections for 1894 and 1895, 7,775.	

**REPORT OF G. ROBERT GODMAN, INSPECTOR OF MEATS AND
LIVE STOCK FOR 1894.**

January 4, Cattle inspected.....	1,835	
" 4, Sheep	2,345	
" 4, Calves	197	
		<u>4,377</u>
" 11, Cattle	1,894	
" 11, Sheep	3,669	
" 11, Calves	241	
		<u>5,804</u>
" 18, Cattle	1,636	
" 18, Sheep	4,027	
" 18, Calves	248	
		<u>5,911</u>
January 25, Cattle	1,386	
" 25, Sheep	2,225	
" 25, Calves	345	
		<u>3,956</u>
Total.....		20,048

Condemned lump-jawed cattle.....	2
" bruised steer.....	1
" unsound turkeys.....	95
Total.....	98

February 8, Cattle inspected.....	1,184	
" 8, Sheep	1,993	
" 8, Calves	185	
		<u>3,362</u>
" 15, Cattle	771	
" 15, Sheep	2,395	
" 15, Calves	205	
		<u>3,371</u>
" 22, Cattle	1,118	
" 22, Sheep	2,983	
" 22, Calves	195	
		<u>4,396</u>
Total.....		11,129

Condemned tuberculous cow.....	1
“ lump-jawed steer.....	1
“ bruised cows.....	2
“ unsound poultry.....	80 lbs.

Total..... 4

March	1, Cattle inspected.....	939	
“	1, Sheep “.....	4,421	
“	1, Calves “.....	305	
			5,665
“	8, Cattle “.....	1,146	
“	8, Sheep “.....	2,810	
“	8, Calves “.....	285	
			4,241
“	15, Cattle “.....	956	
“	15, Sheep “.....	1,284	
“	15, Calves “.....	254	
			2,494
“	22, Cattle “.....	891	
“	22, Sheep “.....	3,740	
“	22, Calves “.....	322	
			4,953
“	29, Cattle “.....	1,151	
“	29, Sheep “.....	3,686	
“	29, Calves “.....	242	
			5,079
	Total.....		22,432

Condemned lump-jawed steers.....	3
“ diseased cow.....	1
“ tuberculous cow.....	1
Total.....	5

February 29. After giving the market houses and Western meat houses a careful inspection, I find them in very good condition, both as to cleanliness and quality of meats, with very few exceptions, and these have been corrected.

(Signed)

Respectfully, &c.,
G. ROBT. GODMAN, *Inspector*,

UNION STOCK YARDS,
BALTIMORE, *April* 26, 1894.

DR. J. A. STEUART,

DEAR SIR: On Monday, 23d, I made an inspection of Claremont Abattoir according to your instructions. I found two tuberculous cows, which I condemned, and had them destroyed.

The meat reported by City Inspector I found to be perfectly sound and of fair quality, and not subject to condemnation.

Respectfully yours,
G. R. GODMAN, *Inspector*.

RECAPITULATION.

1894.			
January,	Total inspections for month.....	20,048	
February,	" " " "	11,129	
March,	" " " "	22,432	
			53,609
		Suspended for want of funds until	
1895.			
April,	Total inspections for month.....	30,753	
May,	" " " "	31,945	
June,	" " " "	40,365	
July,	" " " "	60,776	
August,	" " " "	91,903	
September,	" " " "	69,846	
October,	" " " "	68,905	
November,	" " " "	41,504	
December,	" " " "	24,451	
			460,448
Total.....			514,057

1894.			
January,	Condemned lump-jawed cattle.....	2	
"	" bruised "	1	
"	" unsound poultry.....	95 lbs.	
February,	" tuberculous cow.....	1	
"	" lump-jawed steer.....	1	
"	" bruised cows.....	2	
"	" unsound poultry.....	80 lbs.	
March,	" lump-jawed steer..	3	
"	" diseased cow.....	1	
"	" tuberculous cow.....	1	
April,	" lump-jawed steer.....	1	
May,	" tuberculous cow.....	1	
June,	" lump-jawed steers.....	3	
"	" tuberculous cow.....	1	
July,	" lump-jawed steers.....	2	
"	" spoiled meat.....	180 lbs.	
"	" " poultry... ..	76 lbs.	
August,	" lump-jawed steers ..	5	
"	" tuberculous cow.....	1	
Sept. & Oct.,	" lump-jawed steers.....	8	
"	" bruised cows.....	2	
November,	" lump-jawed steers.....	2	
"	" tuberculous cow.....	1	
"	" bruised steers.....	2	
December,	" diseased steers.....	2	
Total.....		43	

Baltimore, April 1st, 1895.

DR. JAMES A. STEUART,

Secretary State Board of Health.

Report of Inspections for month of April by G. R. Godman,
Inspector:

April 1- 4.	Cattle	inspected.....	885	
" "	Sheep	"	4,261	
" "	Calves	"	265	
				5,411
" 8-11.	Cattle	"	1,033	
" "	Sheep	"	9,251	
" "	Calves	"	315	
				10,599
" 15-18.	Cattle	"	1,187	
" "	Sheep	"	4,463	
" "	Calves	"	285	
				5,935
" 22-25.	Cattle	"	787	
" "	Sheep	"	5,293	
" "	Calves	"	301	
				6,381
" 29- 2.	Cattle	"	1,096	
" "	Sheep	"	1,096	
" "	Calves	"	245	
				2,437
				30,753
Total.....				

Condemned and destroyed lumpy-jaw steers at
Stock Yard..... 1

Market houses and Western meat houses in good condition.

Respectfully, &c.,

G. R. GODMAN, *Inspector.*

Baltimore, June 1st, 1895.

DR. JAMES A. STEUART,

Secretary State Board of Health.

Report of inspection for month of May, by G. R. Godman,
Inspector:

May 6- 7.	Cattle	inspected.....	853	
" "	Sheep	"	6,647	
" "	Calves	"	314	
				7,814
" 13-16.	Cattle	"	1,249	
" "	Sheep	"	6,579	
" "	Calves	"	260	
				8,088
" 20-23.	Cattle	"	825	
" "	Sheep	"	4,696	
" "	Calves	"	285	
				5,806
" 27-30.	Cattle	"	935	
" "	Sheep	"	9,001	
" "	Calves	"	301	
				10,237
				31,945
Total.....				

Condemned and destroyed tuberculosis cow at
the Claremont Abattoir..... 1

Market houses and Western meat houses in good condition.

Respectfully, &c.,

G. R. GODMAN, *Inspector.*

Baltimore, July 1st, 1895.

DR. J. A. STEUART,

Sec'y State Board of Health.

Report of Inspections made during month of June at Claremont Stock Yards and Abattoirs, of live stocks.

June	3- 7.	Cattle inspected.....	1,009	
"	"	Sheep ".....	7,225	
"	"	Calves ".....	268	
				8,502
"	10-13.	Cattle ".....	1,149	
"	"	Sheep ".....	9,528	
"	"	Calves ".....	348	
				2,449
"	17-20.	Cattle ".....	1,413	
"	"	Sheep ".....	13,171	
"	"	Calves ".....	510	
				15,094
"	24-27.	Cattle ".....	1,489	
"	"	Sheep ".....	16,350	
"	"	Calves ".....	605	
				18,444
		Total.....		44,489

Condemned and destroyed lump-jawed cattle... 3
 " " " tuberculosus cow.... 1

Total..... 4

Respectfully submitted,

G. R. GODMAN, *Inspector.*

Baltimore, September 1st, 1895.

DR. J. A. STEUART.

Report of G. Robert Godman, Inspector. Amount of stock inspected and condemned at Claremont Stock Yards, for months of July and August.

July	1- 4.	Cattle inspected.....	1,145	
"	"	Sheep ".....	13,535	
"	"	Calves ".....	406	
				15,086
"	8-11.	Cattle ".....	2,232	
"	"	Sheep ".....	11,691	
"	"	Calves ".....	1,003	
				14,926
"	15-18.	Cattle ".....	1,731	
"	"	Sheep ".....	11,045	
"	"	Calves ".....	642	
				13,418

July 22-25	Cattle inspected.....	2,060	
" "	Sheep ".....	14,706	
" "	Calves ".....	580	
			17,346
Total for July.....			60,776

Condemned and destroyed 2 lump-jaw steers; 180 lbs. meat;
76 lbs. poultry in markets. Abattoir and Western meat
houses in good condition.

Respectfully,

G. R. GODMAN.

For August, 1895.

August	1. Cattle.....	2,402	
"	1. Sheep.....	12,591	
"	1. Calves.....	477	
			15,470
"	5-8. Cattle.....	2,545	
"	5-8. Sheep.....	15,040	
"	5-8. Calves.....	656	
			18,241
"	12-15. Cattle.....	3,278	
"	12-15. Sheep.....	17,228	
"	12-15. Calves.....	497	
			21,003
"	20-22. Cattle.....	3,663	
"	20-22. Sheep.....	16,742	
"	20-22. Cattle.....	527	
			20,932
"	26-29. Cattle.....	3,441	
"	26-29. Sheep.....	12,097	
"	26-29. Calves.....	719	
			16,257
Total for August.....			91,903

Condemned and destroyed lump-jawed
steers..... 5
Condemned and destroyed tuberculous
cow..... 1
Total..... 6

Abattoir and Western meat houses in good condition.

Respectfully,

G. ROBT. GODMAN, *Inspector.*

Baltimore, December 1st, 1895.

DR. J. A. STEUART,

Sec'y State Board of Health.

Report of G. R. Godman, Inspector of Live Stock at Claremont Stock Yards, for months of September and October.

September	2- 5.	Cattle inspected.....	3,007	
"	"	Sheep "	12,800	
"	"	Calves "	497	
				16,304
"	9-12.	Cattle "	3,641	
"	"	Sheep "	14,411	
"	"	Calves "	649	
				18,701
"	16-19.	Cattle "	2,985	
"	"	Sheep "	11,813	
"	"	Calves "	618	
				15,416
"	23-26.	Cattle "	4,453	
"	"	Sheep "	14,549	
"	"	Calves "	713	
				19,715
Sept. 30-Oct. 3.		Cattle "	3,469	
"	"	Sheep "	11,180	
"	"	Calves "	538	
				15,187
October	7-10.	Cattle "	4,398	
"	"	Sheep "	13,040	
"	"	Calves "	567	
				18,000
"	14-17.	Cattle "	3,593	
"	"	Sheep "	13,971	
"	"	Calves "	746	
				15,310
"	21-24.	Cattle "	3,887	
"	"	Sheep "	11,698	
"	"	Calves "	434	
				15,019
"	28-31.	Cattle "	2,661	
"	"	Sheep "	7,026	
"	"	Calves "	294	
				9,981
				147,843

Condemned and destroyed 3 lump-jawed cattle; 2 bruised cows also ordered out of State; 5 lump-jawed cattle not subjected to condemnation.

Respectfully,

G. R. GODMAN, *Inspector.*

Baltimore, December 1st, 1895.

DR. JAMES A. STEUART,

Secretary State Board Health.

Report of G. R. Godman, Inspector of Live Stock at Claremont Stock Yards, for month of November.

November	4-7.	Cattle inspected.....	3,196	
"	"	Sheep "	7,457	
"	"	Calves "	292	
				10,945
"	11-14.	Cattle "	2,631	
"	"	Sheep "	8,122	
"	"	Calves "	327	
				11,080
"	18-21.	Cattle "	2,516	
"	"	Sheep "	9,880	
"	"	Calves "	354	
				12,750
"	25-28.	Cattle "	1,626	
"	"	Sheep "	4,991	
"	"	Calves "	152	
				6,769
		Total.....		41,504
		Condemned lump-jaw steers.....	2	
		" tuberculosis cows.....	1	
		" bruised steers.....	2	

Ordered out of State 5 suspected cases.

G. R. GODMAN, *Inspector.*

Baltimore, January 1st, 1896.

DR. JAMES A. STEUART,

Secretary State Board of Health.

Report of G. R. Godman, Inspector, for month of December,
of Live Stock at Claremont Stock Yards.

December	2-3.	Cattle inspected.....	2,381	
"	"	Sheep "	8,462	
"	"	Calves "	236	
				11,079
"	9-12.	Cattle "	2,273	
"	"	Sheep "	4,644	
"	"	Calves "	247	
				7,167
"	16-19.	Cattle "	1,844	
"	"	Sheep "	5,701	
"	"	Calves "	283	
				7,828
"	23-26.	Cattle "	1,461	
"	"	Sheep "	6,445	
"	"	Calves "	171	
				8,077
		Total.....		34,151

Two suspected cases shipped out of State.

Respectfully,

G. R. GODMAN, *Inspector.*

At a meeting of the State Board of Health of Maryland, held April 5, 1894, it was moved by Dr. Steuart, that some appropriate notice be taken of the recent death of Dr. John H. Rauch, the distinguished Secretary of the Illinois State Board of Health. This being generally approved, the Secretary was requested to prepare suitable resolutions in the name of the Board, and to transmit a copy of the same to the State Board of Illinois, as well as to the family of the deceased. The following resolutions were prepared and sent as directed :

At the regular quarterly meeting of the Maryland State Board of Health, held in Baltimore on the fifth day of April, 1894, the sad announcement was made by the Secretary, of the recent death of our esteemed co-laborer in the field of Sanitary Science, Dr. John H. Rauch, late Secretary of the Illinois State Board of Health.

It was thereupon,

Resolved, That by the death of Dr. Rauch, this Board has lost its brightest and most zealous exemplar, the cause of Sanitary Science, its most advanced and experienced leader, and the country at large, the man who has done more in the dissemination of sanitary knowledge and the prevention of disease, than any other of his time.

Resolved, That those of us who have had the good fortune to have known him personally and learned to admire his many noble traits of character, mourn his loss with keenest feelings of sorrow.

Resolved, that this Board respectfully tenders its sincere sympathy to the State Board of Health of Illinois, and to the family of the deceased.

Resolved, That a copy of these resolutions be transmitted to the Illinois State Board of Health, and that they be requested to communicate the sentiments herein expressed to the family of the deceased.

JAMES A. STEUART, M. D.,
Secretary and Executive Officer
of the State Board of Health of Maryland.

LEBANON, PENNA., *May 26th, 1895.*

DR. JAMES A. STEUART,

Secretary Maryland Board of Health.

DEAR SIR:—I embrace the earliest opportunity since my return from a recent trip west, to acknowledge the receipt of resolutions passed by your board on the death and life work of my

brother, Dr. John H. Rauch. Please extend to the Board our sincere thanks for this kind testimonial of their appreciation of his long and zealous labors in the domain of Preventive Medicine, and the elevation of the standard of the Medical Profession.

Very sincerely yours,

C. G. RAUCH,

For the Family

WASHINGTON, D. C., *October 23, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health,

Baltimore, Maryland.

SIR:—I enclose herewith a newspaper clipping regarding a case of small-pox in Washington—a colored woman. I am informed by the Health Officer of the District, that a sister of this woman has gone to Pisgah, Maryland, about ten miles from Glymont. She was associated with the patient before her departure. The patient who is now sick in Washington is named Mary Mundell. The name of her sister is also Mundell, but I have not her first name.

Respectfully yours,

WALTER WYMAN,

Supervising Surgeon-General, M. H. S.

P. S. I have mailed (no telegraph communication,) the facts to Dr. Benjamin Smith, Pisgah.

W. W.

The suspected case of small-pox, mentioned in yesterday's Post, was ascertained upon careful investigation by Health Officer Woodward and Police Surgeon Nevitt to be a well defined case. The patient is Mary Mundel, a colored woman, and as stated in The Post, she has been removed to the small pox hospital, in the extreme eastern part of the city, where Dr. Nevitt is caring for her.

The woman lived in the house of P. J. Coston, 433 Fourth street northeast, and was employed as a nurse. She was in charge of a little daughter of Mrs. Coston, who had returned September 14th, from a visit to her grandfather, in South Pomfret, Vt. Fifteen days after returning, the child became ill, and October 13, she died. She was supposed to have been afflicted with chicken-pox. None of the other members of the family became ill. A little more than a week ago Mrs. Mundel washed the clothing which had been worn by the little one, and

Monday, a week ago, she became ill. Dr. H. R. Street attended her, and as the case did not improve under ordinary treatment, he became convinced that she had small-pox, and so notified Health Officer Woodward. The investigation was made Sunday night, and the woman removed to the pest house.

Dr. Nevitt thinks the patient's life may be saved, although her condition is serious.

The house on Fourth street northeast has been thoroughly disinfected, and every possible precaution taken to prevent the spread of the disease. Mr. Coston is a law clerk in the Department of the Interior.—*Washington Post*, Oct. 23, 1894.

WASHINGTON, D. C., *October 31st, 1894.*

DR. J. A. STEUART,
Sec'y State Board of Health,
Baltimore, Md.

DEAR DOCTOR:—After telegraphing you regarding the reported case of small-pox at Glymont, Maryland, I learned that Glymont is something of a river resort, closely connected with Washington by boat. Therefore, with a view to prevent the possible reconveying of the disease back to Washington from Glymont, and Washington being so near that point of infection, I concluded to send an officer at once to look into the matter.

I beg that you will not consider that this action was with a view to anticipating your action, or of interfering with the work of your inspector. It seemed to me very necessary to lose no time in the matter. Therefore, Assistant Surgeon Stewart was sent there yesterday and I transmit herewith a copy of his report to me.

Respectfully yours,
WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

WASHINGTON, D. C., *October 31st, 1895.*

*To the Supervising Surgeon-General,
U. S. Marine-Hospital Service,
Washington, D. C.*

SIR:—I have the honor to report that, in accordance with your verbal orders of the 29th instant, I visited Glymont, Md., on the 30th instant, for the purpose of investigating the reported death from small-pox at that place.

On my arrival I learned that the woman, a colored woman, Mundel by name, was not dead, but was, on the contrary, recovering.

The following are the facts in the case: The woman, who was a relative of one Mary Mundel, who died from small-pox in this city about ten days ago, and by whom she was probably infected, left Washington, D. C., on Sunday the 21st instant, by the steamer Harry Randall for Glymont, Maryland, that being the nearest landing to the home of the Mundel woman's mother. On arrival she walked from the landing to her mother's house, a distance of about $3\frac{1}{2}$ or 4 miles. The mother lives on the farm of Mr. Roe, and has (besides the daughter who came from Washington) three children—one a baby.

Mr. Roe, whose house is about a half mile from the infected house, has a family consisting of a wife, two sons and an adopted boy. They have also one servant, who carries food to the Mundel family, leaving it about 200 feet from the house, when they come out and take it. These have possibly been exposed, as, before the recognition of the disease, the Mundel woman's mother visited the Roe's house once. Of these ten persons, Mrs. Roe and Mrs. Mundel were the only ones who had ever been vaccinated. I vaccinated them all. The Mundel woman was feeling badly when she left Washington, and when Dr. Compton, the physician who attends her, first saw her on the 25th instant, the pustules were formed. The case has been a very light one, of the discrete variety, and she has been confined to bed only for a day and a half. When I saw her the crusts were beginning to form and she expressed herself as feeling fairly well. The children living in the house, a log cabin about 10 feet square and about the same height, were all well when I saw them, as were Mr. Roe and family also. I gave some vaccine points to Dr. Compton and also to Dr. Mitchell, (another physician living in that vicinity) as they expressed themselves desirous of having them, and vaccinated all whom I saw who were desirous of being vaccinated. Owing to the isolation of the patient, an insolation of accident more than of intention, as the house is at least a quarter of a mile from any other house, and to the fear of the colored people of the disease, I think the danger of spread is very little except in the case of the children living in the same house. In that case, the natural isolation of the house will again prove of benefit. The possibility of infection of the steamer Harry Randall and of the passengers, who were distributed at various points as far as Maddox Creek, on the 21st instant and since, is an interesting one and can only be shown by subsequent developments. The only other person who may be presumed to have been infected is a child whom this Mundel woman is said to have held in her arms for a while on the trip to Glymont. I was told that this child lived at Indian Head, and that all persons there had been vaccinated by the resident physician. Dr. Compton has promised to send reports

to this office, and on the recovery of the patient, if no new case has occurred in the Mundel house, to disinfect the house and premises, giving information to this office of such disinfection. For his use in such disinfection, I left him at the landing, 50 lbs. of roll sulphur and 1,000 c. c. of alcohol.

Respectfully yours,

W. J. S. STEWART,

Assistant Surgeon, M. H. S.

This investigation was followed up by the Secretary of the State Board of Maryland, with the result that the threatened danger of an epidemic of small-pox was quickly averted, and the good resultant of the scare is the renewal of the neglected practice of vaccination. It takes the figurative coal of fire upon the backs of some communities to make them move in the direction of sanitary and prophylactic protection from disease.

CUMBERLAND, MD., *September 7th, 1894.*

DR. JAMES A. STEUART,
Secretary Board of Health,
Baltimore, Md.

DEAR DOCTOR:—Enclosed is a portion of intestine of Peter Walther, the cholera suspect, taken from the body at 10 A. M. today, (September 7th.) Please have bacteriological examination made, and report result to me as soon as possible.

Respectfully,

E. T. DUKE, M. D.

BALTIMORE, *September 18, 1894.*

DR. JAMES A. STEUART,
Secretary State Board of Health,
1611 John Street, City.

DEAR SIR:—I beg leave to present herewith my report on the specimen sent to me by you, through Dr. Penniman, on September 14th, 1894, for bacteriological examination, with especial reference to the presence or absence of cholera-bacilli. The specimen consisted of a small loop of intestine tied at both ends, from a patient suspected to have died of cholera at Cumberland, Md., on September 7th, 1894.

Examination of Cover Slips.

The intestine was opened with sterilized forceps and scissors, and a number of smear cover glass preparations made in the ordinary way from its contents, stained with carbol-fuchsin and partially de-colored with dilute acetic acid; these were care-

fully studied with an oil-immersion lense. Besides many short, rather thick bacilli, there were also many spore-bearing forms, and a few cocci to be seen, but in none of them could any curved bacilli at all resembling the bacterium of Asiatic cholera be found.

Cultures.

A number of tubes and one large flask of an alkaline-peptone-salt-solution, especially recommended for use in examinations for cholera-bacteria, were inoculated from the contents of the intestine, and placed in the thermostat at 37° C. The upper surface of the liquid in these culture tubes was examined after six hours, and several times later up to the end of forty-eight hours. No cholera bacilli developed in the solution. In addition, gelatin plates with dilutions were made from the intestinal contents, and examined after the colonies had grown out. None of the colonies consisted of cholera-bacteria.

Finally, plate cultures agar-agar with dilutions were made, and in these no colonies resembling those of the *bacillus cholerae-asiaticae* developed. It is tolerably certain therefore, that in the specimen, as it reached me, no living cholera-bacilli were present, as they could scarcely have escaped detection had they existed in the intestinal contents.

Respectfully yours,

LEWELLYS F. BARKER, M. D.

The Pathological Laboratory, Johns Hopkins University.

BALTIMORE, *February 24th, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health.

Baltimore, Md.

DEAR SIR:—I have the following further report to make to you in regard to my investigation of the sample of milk given me by Mr. W. B. D. Penniman, January 30, 1893, for examination.

In my former communication, February 10, 1894, I stated that I was unable to demonstrate the presence of tubercle bacilli under the microscope, in preparations made from the sediment of a centrifugalized sample of the milk.

The culture experiments started at that time have shown only negative results, no tubercle bacilli having developed in cultures made from the sediment of centrifugalized samples of the milk. The precautions used were stated in my former letter.

By an accident, the guinea-pig inoculated with a portion of the sediment of the centrifugalized sample of milk, was killed on the fifteenth day. Careful search of the serous membranes

and of the organs of this animal disclosed no tubercles. The peritoneal cavity of this animal had been inoculated with a comparatively large amount of the milk.

I have carefully examined a large number of sections made from the various organs of this animal and appropriately stained and have been unable to find any of the histological changes characteristic of tuberculosis. Neither have I been able to find tubercle bacilli in any of the tissues.

This milk has then reacted negatively to severe tests and I think it safe to say that the sample given me was free from tubercle bacilli.

While the results of the inoculation test are not entirely conclusive, guinea-pigs not infrequently dying with tuberculosis following inoculation with materials containing tubercle bacilli, only after several months, the fact that the organism was not demonstrated by careful microscopical examination or by culture experiments, justifies us, I think, in the above conclusion. This opinion is strengthened by the result of recent investigations which seem to show that the milk of one tuberculosis cow may so infect the milk of a whole herd as to allow the demonstration of the presence of tubercle bacilli in such milk with the microscope and to give rise to tuberculosis in animals inoculated with it. So I think the sample submitted to me was in all probability free from tubercle bacilli.

Still, as this is true of only one sample of the milk of this herd, I am not, of course, prepared to say that the cows of this herd are, on account of the negative results obtained by the examination of a single sample of this milk, free from tuberculosis.

Very truly yours,
W. T. HOWARD, JR., *M. D.*

BALTIMORE, *March 7, 1894.*

DR. JAMES A. STEUART,

MY DEAR DOCTOR: I examined microscopically the specimen you sent me this morning.

I find in it no fibrin, and very few puscells; the only cells present in any numbers being large epithelial cells. The material is made up mostly of granular material and mucus. There are a large number of bacteria in it. These are chiefly of two varieties, micrococci of the size and appearance of pneumococci; and a bacillus, which is seen usually in masses. This bacillus resembles the diphtheria bacillus, morphologically in many respects, but I am not prepared to identify it with that organism on microscopical examination alone. So I have made cultures from and have inoculated an animal with some of the material.

I will be able to let you know definitely to-morrow, whether or not this bacillus is the bacillus diphtheria.

Hoping that that will be early enough for your purposes.

Very truly yours,

W. T. HOWARD, JR.

BALTIMORE, *March 8, 1894.*

DR. JAMES A. STEUART.

MY DEAR DOCTOR: Cultures and inoculation experiments demonstrated the fact that the specimen you sent me yesterday is not diphtheria. The bacillus that I mentioned in my note to you yesterday, turns out not to be the bacillus diphtheria, but is probably an ordinary saprophyte.

The micrococcus referred to is the streptococcus, and a large number developed in the culture tubes.

The appearance of the false membrane sent did not favor the view that it was due to the diphtheria bacillus.

A large number and probably most of the anginas secondary to and complicating the acute exanthematous diseases, are due to the streptococcus. (Prudden, Booker, et als.)

They are also often contagious and severe, but never so severe as the true diphtheria caused by the Klebs Loeffler bacillus.

Most of the primary anginas, often affecting individuals previously healthy are also caused by the streptococcus. Often in these cases the diagnosis between these cases can be made only by a bacteriological examination as in our case.

As the result then of my examination, I would say that this case was a simple angina, either primary or complicating some other disease, and due to the streptococcus pyogenes.

Though there is some danger of contagion, it is not the dread true diphtheria.

I shall be glad to learn of the clinical developments of the case.

Very truly yours,

W. T. HOWARD, JR.

BALTIMORE, *March 9th, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health,
Baltimore, Md.

MY DEAR DOCTOR:—I have the following report to make on the specimen sent me by you on March 7th, 1894, for examination for diphtheria.

The specimen consists of two small grayish yellow masses, about the size of a large pea, and of a small amount of thick grayish white pus-like material.

Cover slip preparations made at once from these, after being properly stained, showed under the microscope two varieties of micro-organisms, both varieties being present in large numbers. By far, the greatest number of these are streptococci, in longer and shorter chains. The second variety is a stout bacillus with rounded ends, and which in some respects resembles in its morphology the bacillus diphtheriae of Klebs & Löffler.

Further study, however, shows that the bacillus of this case is larger than the bacillus diphtheriae, and it shows none of the irregular involution forms so characteristic of that organism. There are no other organisms to be seen in the preparations. There is no fibrin, and very few polymorphous-nucleae leucocytes seen, contrary to what one would expect to find in an exudation associated with the bacillus diphtheriae. In the material on the coverslip preparations examined, are some large, flat epithelial cells, and smaller connective tissue cells and small round cells—lymphocytes.

Plate cultures made from the masses and from the pus-like material on nutrient glycerine agar-agar, after twenty-four hours in the incubator show an abundant growth. There are two varieties of colonies, the most numerous being small white colonies, which on microscopical examination are seen to be made up of streptococci. The other colonies are much larger, of a grayish white color, and under the low power, of a regular, round or oval outline, and finely granular. They can be easily distinguished from colonies of the bacillus diphtheriae, to which they have little resemblance. These colonies are made up of bacilli of the same size and appearance as the bacillus found in the cover-slip preparations made from the masses of tissue.

One of these masses of tissue was broken up in a tube of nutrient bouillon and a considerable quantity of this was injected sub-cutaneously into a guinea pig. The animal died twenty-eight hours after. At the autopsy there was no local re-action at the seat of the injection. Cultures made from the blood of the heart and from various organs, show the streptococcus and a few colonies of the bacillus referred to above.

The streptococci are numerous.

Description of specimen sent for examination.

The two masses, which are about the size of a large pea, were covered on one side with a grayish loosely adherent granular material which was easily removed. The two masses are about the same size, and are irregularly round. The tissue under the grayish material is softer than the rest of the tissues, which is quite firm.

After hardening in alcohol, sections were cut from one of these masses of tissue and stained in methyllore blue and cosine.

Study of these shows that the masses are made up chiefly of connective tissue, enclosing a considerable amount of adenoid tissue. At one side, the base, there is some striped muscle tissue. At the free border there is a considerable necrosis of the cells of the tissue, many of the cells being completely destroyed. In the tissue here, there are many free and fragmented nuclei and cells without nuclei. This cell necrosis does not extend far into the tissues.

There is a considerable increase of the cells of the part, which is chiefly due to the fixed cells, there being comparatively few polymorphous-nucleated leucocytes seen.

Along the free border and in the area of necrosis there are two varieties of bacteria, the most numerous being streptococci, in longer and shorter chains. They are present in larger and shorter clumps and in places in large masses. In many places these streptococci can be found deep down in the tissue, where they are often seen in the lymph spaces. The other organism, or bacillus, is present in considerable numbers, and has the same appearances as the bacillus described above. The bacillus is found usually along the free border of the necrotic area, but in some places it has penetrated the tissue, which it seems to have invaded after the streptococcus. It is never seen without the latter on the surface of the area of necrosis, there is entire absence of fibrin formation, leucocytic-infiltration and hyaline degeneration so commonly present in the pseudo-membrane of true diphtheria. Here there is no pseudo-membrane at all, but the mass consists of a mass of connective and adenoid tissue, presenting a superficial necrosis, and containing a great number of streptococci and a bacillus, which is proven by cultural inoculation experiments *not* to be the bacillus diphtheria. The bacillus is probably a saprophyte present in the mouth, which has found conditions suitable for its growth in the necrosis of tissue produced by the streptococcus present.

This last organism, the streptococcus, must be regarded as the infectious agent causing the lesion, and the presence of the bacillus is to be looked upon as an accidental invasion.

Owing to the great number of streptococci in the lesion and in the tissues, and the relatively small amount of local reaction, this would seem to be a rather virulent infection. This view is supported by the fact that the guinea-pig inoculated died so soon of general septicaemia.

While it has been demonstrated that most of the anginas secondary to and complicating the acute exanthematous diseases are due to the streptococcus pyogenes, (Prudden, Booker, et al),

it is also known that many cases of primary angina, both in adults and in children, are due to this micro-organism, and are not cases of true diphtheria caused by the Klebs-Löffler bacillus.

Whether or not the patient in this case had a primary angina due to the streptococcus, and died of a septicoemia secondary to this, as is not improbable, cannot be settled by examination of the specimen. Certain it is, however, that it was not a case of true diphtheria.

Very truly yours,

W. T. HOWARD, JR., *M. D.*

BALTIMORE, *April 25, 1894.*

DR. JAMES A. STEUART,

Sec'y State Bd. of Health, 1611 John St.,
Baltimore, Md.

DEAR SIR: As per your request, I visited Odenton, Md., to learn if the swamp on the property of Mr. Watts had been drained as you directed.

I wish to report that Mr. Watts has done as you desired, and has by a system of ditching, thoroughly drained the swamp, thus abating the nuisance.

Yours respectfully,

ARTHUR LEE BROWNE,

Inspector, S. B. of H.

ORANGEVILLE, *Baltimore County, April 14, 1894.*

DR. JAMES A. STEUART,

State Health Commissioner.

DEAR SIR: We, the undersigned citizens and taxpayers of the village of Orangeville, Twelfth District of Baltimore county, do most earnestly partition you to abate the nuisance of dumping night soil on the property occupied by Mr. Christian Fisher, just east of the city limits and north of the Union R. R., which at times is most unbearable, besides being very injurious to health. Seven of the neighbors waited on Mr. Fisher, on Easter Monday, and made complaint. He admitted that he had allowed the dumping of night soil on his property, but assured us that it would not occur again. On Thursday, April 12th, at 4.10 P. M., a wagon was seen unloading night soil on said premises, and we appeal to you to preserve the health of our families and the value of our properties.

Chas. J. Fox.

J. H. Carrick.

G. W. Candles.

Geo. F. Corpier.

Wm. H. Gernmill.

Mg. P. Ebaugh.

Francis M. Grim.

Howard R. Wright.

Henry Marks.

BALTIMORE, *April 24th, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health,

1611 John Street, Baltimore, Md.

DEAR SIR:—I have the following report to make upon my inspection of the swamp at Elvaton, Anne Arundel county, Md., caused by an embankment of the Baltimore and Annapolis Short Line Railroad.

The railroad, about seven (7) years ago, built a solid embankment across a ravine through which flows a small stream, and changed the course of this stream to enable them to obtain water for their engines.

The present bed of the stream is three (3) feet above its original level, thus causing the water to back up three (3) feet before it will follow the new course. This backed-up water covers over an acre of land, and is saturated with decaying vegetable matter.

Dr. C. H. Robinson, who lives within five hundred (500) yards of this swamp, tells me that malaria was unknown to that part of the county before the embankment was built, but that now there is a great deal of it in the immediate neighborhood of the swamp, there being two cases in his own family.

Mr. G. T. Sappington, who wrote the letter of complaint, is now suffering from an attack of malaria; he lives on the edge of this swamp.

I have no hesitation in saying that this swamp is a nuisance and a menace to the health of the people in the neighborhood, and that the railroad should be compelled to open a culvert through the embankment where the original stream bed was, and thus drain the swamp.

Enclosed please find all papers bearing upon this matter.

Yours respectfully,

ARTHUR LEE BROWN, *Inspector.*

A legal notice was at once served upon the president of the Baltimore & Annapolis Short Line Railroad to abate the nuisance complained of and reported upon by Inspector Browne. After a little delay the necessary alterations were made by the railroad and the evil corrected. As we have heard no more complaints it is to be supposed that sickness caused by this stagnant pond has also disappeared.

BALTIMORE, *May* 16, 1894.

HON. J. F. C. TALBOT,
Lutherville Md.

MY DEAR SIR:—Attached please find report of sanitary examination of water. The sample shows no sign of contamination, and I have no hesitation in pronouncing the water perfectly pure. It contains no metallic impurities. It is a hard water, *i. e.*, it contains lime and magnesia salts in solution as follows:

Clark's scale—

8.5° Total Hardness.
6.2° Temporary Hardness.
2.3° Permanent Hardness.

The use of these hard waters sometimes produce temporary stomach troubles in the case of persons unaccustomed to their use, but the system soon adapts itself, and no further annoyance is experienced. The slight cloudiness produced on boiling is caused by a portion of these lime salts being rendered insoluble. A portion of these sometimes adhere very intimately to the kettle and other kitchen utensils, and may readily be removed with a little vinegar or other acids.

I send this report to you direct by authority of Dr. James A. Steuart, Secretary State Board of Health.

Yours, very truly,

W. B. D. PENNIMAN,

Analyst, S. B. of H.

MARYLAND STATE BOARD OF HEALTH.

Report on Sanitary Examination of Water.

Source—Well on property of Hon. J. F. C. Talbot, Lutherville, Maryland. Drawn by ——— Date—May 15th, 1894.
Remarks on sanitary surroundings.

PHYSICAL PROPERTIES.

Color—None. Odor—None. Reaction—Neutral.

CHEMICAL ANALYSIS.

Parts per
1,000,000.

(1.) Total residue on evaporation at 230° F.....	174.
(2.) Inorganic residue on ignition.....	114.
(3.) Organic residue.....	60.
(4.) Amount of chlorine.....	4.8
(5.) Amount of free ammonia.....	trace
(6.) Amount of albumenoid ammonia.....	.017
(7.) Amount of nitrates.....	2.00
(8.) Amount of nitrites.....	none

Explanation.

Good drinking water should be clear and colorless without odor and neutral in reaction.

- (1.) The total residue should not exceed 500 pts. per 1,000,000.
- (2.) The inorganic residue may constitute the total residue.
- (3.) The smaller the amount of organic residue the better.
- (4.) The am't of chlorine should not exceed 6 pts. per 1,000,000
- (5.) " " free ammonia " .05 " "
- (6.) " " albumenoid ammonia " .15 " "
- (7.) " " nitric acid (N_2O_5) " 5 " "
- (8.) " " nitrous acid (N_2O_3) should not be present in sufficient quantities to estimate.

NOTE.—The word trace indicates that the substance is present, but in too small an amount to be determined.

Conclusions. This water is free from contamination.

W. B. D. PENNIMAN, *Chemist.*

BALTIMORE, *May 16, 1894.*

HAGERSTOWN, MD., *July 20th, 1894.*

DR. W. B. D. PENNIMAN,

DEAR SIR:—I forward you to-day, through State Board of Health, being Health Officer of Washington county, Md., a sample of water taken by Dr. E. Warehaun from a well in the rear of a residence of Hagerstown, in which there has been lately several cases of typhoid fever. As a number of families use the water from this well, I desire to know if it is responsible for these cases before I condemn it. Please give me the analysis as soon as you can, and oblige,

Yours very truly,

DR. L. W. SIMMONS, *Health Officer.*

MARYLAND STATE BOARD OF HEALTH.

Report on Sanitary Examination of Water.

Source—Well water. Drawn by Dr. E. Warehun. Date—June 15th, 1894. From 213 E. Franklin street, Hagerstown. Remarks on sanitary surroundings.

PHYSICAL PROPERTIES.

Color—None. Order—None. Reaction—Neutral.

CHEMICAL ANALYSIS.

	Parts per 1,000,000.
(1.) Total residue on evaporation at 212° F.....	478.
(2.) Inorganic residue on ignition.....	231.
(3.) Organic residue.....	247.
(4.) Amount of chlorine.....	20.9
(5.) Amount of free ammonia.....	trace.
(6.) Amount of albumenoid ammonia.....	.033
(7.) Amount of nitrates.....	11.11
(8.) Amount of nitrites.....	.01

Explanation.

Good drinking water should be clear and colorless, without odor and neutral in reaction.

- (1.) The total residue should not exceed 500 parts per 1,000,000.
- (2.) The inorganic residue may constitute the total residue.
- (3.) The smaller the amount of inorganic residue the better.
- (4.) The am't of chlorine should not exceed 6 pts. per 1,000,000.
- (5.) " " free ammonia " .05 " "
- (6.) " " albumenoid ammonia " .15 " "
- (7.) " " nitric acid (N_2O_5) " 5 " "
- (8.) " " nitrous acid (N_2O_3) should not be present in sufficient quantities to estimate.

NOTE—The word trace indicates that the substance is present, but in too small an amount to be determined.

Conclusions—This water is evidently contaminated and unfit for use. The well should be closed.

W. B. D. PENNIMAN, *Chemist.*

BALTIMORE, *June 30, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

MY DEAR SIR: I enclose samples of candies from the establishment of Mr. Rittenhoff, who was the maker of the taffy containing magenta dye contaminated by arsenic, the use of which produced the dangerous illness of some children who had eaten of it. By your instructions, Mr. Browne procured some samples (14 in all) of the cheaper kinds of taffy and candy, which I have analysed for poisonous metals with the following results:

Nos. 1, 2, 4, 5, 9, 11 and 12 contain traces of arsenic or other poisonous metal.

Nos. 3, 6, 7, 8, 10, 13 and 14 contain no arsenic or other poisonous metal.

In the case of the candies containing only "traces" of the poisonous metals, the amount was present in quantity far too small to weigh, so that its presence is unimportant. 5 lbs. containing certainly not as much as $\frac{1}{100}$ of a grain. The presence of this small amount could arise from a large variety of causes, and the manufacturer cannot be called to account for it, as it is beyond his control, and there is no possibility of danger.

Yours, very truly,

W. B. D. PENNIMAN, *Analyst.*BALTIMORE, *January 21, 1896.*

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

MY DEAR SIR: Below will be found a tabulated statement of the "standards" used in judging the purity of waters analysed.

These standards have been in use now for a period running over two years. In the main they have proved satisfactory. The authorities for the standards chosen in addition to our own experience as to the character of waters from different parts of the State, are as follows:

Total solids—Waukylu, Reichart, Kubel and Teiman, Wibel, Fechter.

Chlorine. The Institute of Hygiene of the State of Michigan, a tabulation of a large number of analyses of water from various parts of the State. Free and albumenoid ammonia Waukylu, Chapman & Smith, Fox.

Nitrates. Reichart, Kubel and Tieman, and Wibel, Nitrites, Mallet and Nichols.

DR. JAMES A. STEUART,
Sec'y State Board of Health, Baltimore.

DEAR SIR:—With reference to the attached letter I have the following report to make:

The Roland Park Company has a system of drainage substantially as follows: All the wash water, (bath rooms, kitchens and water closet flushings) from the houses, about fifty in number, is carried by a system of pipes to one main pipe which empties into a field at the junction of the Baltimore and Lehigh Railroad and Cold Spring Lane.

This main pipe opens out in this field to an open runaway which is provided with flood gates; these gates open into a series of small ponds, which are formed by raising a dyke of broken stones about eighteen inches above the level of the field. The flood gate is opened, and the wash water is allowed to run in until the pond is full, then the gate is closed, and the water filters through the loose stones and empties into a stream which flows through the field. These ponds are in a very foul condition, the bottom is several inches deep with solid excreta, and the stones are thickly coated with deposited matter and paper. These ponds are cleaned out occasionally, and the filth disposed of. The stones when they become very thickly incrustated are either washed or thrown aside, and new ones put in their places. At present there is a large pile of the stones in a field by the railroad, there are a number of houses near the field, and the people living in them complain very much of the stench that come from these ponds.

I have no hesitation in saying that this system is defective and is a nuisance and a menace to the health of the neighborhood.

The other nuisance spoken of in the attached letter, is caused by a choked drain-pipe on Cold Spring lane, midway between the Baltimore & Lehigh R. R. and Roland avenue. This pipe carries the waste water from a pump on the property of Mr. Nace, whose house is but a few feet from the road-bed of Cold Spring lane. Police Officer Bull tells me that the choking of this pipe is due to an open drain that the Park Company has recently opened about 30 feet from the pump on Mr. Nace's property. This place is evidently a nuisance and the drain-pipe should be attended to.

There is another nuisance on Cold Spring lane, which, I think, is more serious than that of the choked drain, and that is a manure pit on the property of Mr. Bortner. The place is about 100 yards east of Mr. Nace's property. This pit is about 10 feet square, and receives all the waste from the stable and all the slops from the house. It is in a most foul condition and looks as if it had never been cleaned. The odor from this pit was

very bad and was perceptible at a considerable distance. This pit is about 30 feet from the Bortner house, and about 25 feet from the residence of Mr. Zirkel.

The sanitary condition of this place—the group of houses on Cold Spring lane—is very bad; there are a number of very foul pig-styes and cow stables, and a number of houses have no drainage system at all, every thing, chamber slops and wash water, being thrown out and allowed to run into the road, thus forming a number of very disagreeable stagnant pools.

Yours, very respectfully,

ARTHUR LEE BROWNE, *Inspector.*

ELKTON, MD., *June 28, 1894.*

MY DEAR DOCTOR: Dr. Bratton has informed me that he has quite a number of cases of dysentery and acute diarrhoea in the vicinity of Baldwin's Mills, 3 miles from the town, and he thinks it is due to a polluted condition of the water from which they all in common draw their supply. I should be glad to have Prof. Penniman analyze a sample of it. How shall I send it? In a jug, or will he prefer to send up one of his demijohns.

Your early answer will oblige, yours truly,

J. H. JAMAR.

BALTIMORE, *June 30, 1894.*

JOHN H. JAMAR, M. D., Elkton, Md.

MY DEAR SIR: Dr. Steuart has directed me to send you a demijohn for a sample of water from Baldwin's Mills or in that neighborhood. When you send the sample, will you kindly give me the following information:

1. Is the sample from a spring, stream, well or pond?
2. If a stream or pond, what drainage is known to find its way into the water?
3. If a well or spring, how far and how many wells, manure pits, privies, etc., are in the neighborhood?
4. If a well, how deep?

Kindly have the demijohn filled up to 2 inches of the top (not nearer, or the expansion of water will break the demijohn.) The stopper firmly fastened and cut off flush with the top of the neck, and a small amount of sealing wax poured on to prevent tampering. The demijohn should be rinsed three times with the water before filling. No other washing is required.

Very truly yours,

W. B. D. Penniman, *Analyst.*

MY DEAR SIR:—I have shipped the demijohn of water, as directed. It is from a well about twenty feet deep, a manure pit 100 feet distant and six privies on an average of 250 feet. I cannot imagine much pollution from these sources. It is said the well is not, or has not been, cleaned out in years, and the curbing is in rather a dilapidated condition, and rather lower than the surrounding ground. It is possible it may be affected more, in fact, by surface drainage during storm. On general principles it would be well enough to suggest in given letter that attention be given to letter. I will then report the same.

Truly yours,

J. H. JAMAR.

Water from Baldwin's Mills.

BALTIMORE, *July 7th, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

MY DEAR SIR:—I attach analysis of water from Baldwin Mills. As you perceive, the results of the analysis leave us in an uncertain position in regard to the purity of the water, and I would respectfully suggest that a Sanitary Inspector be sent to the spot so that we may form our conclusions from the complete data.

Yours, very truly,

All papers herewith. W. B. D. PENNIMAN, *Analyst S. B. of H.*

BALTIMORE, *July 12th, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

MY DEAR SIR:—Dr. Goldman reported to you that George Preissmann, living on George street near Pennsylvania avenue, was made very ill by eating snow balls, the flavoring syrups of which was made by McCormick & Co., 118 South Howard street, city. The snow balls were obtained from a small store at the corner of Pear and Biddle streets.

In accordance with your instructions, I obtained in the open market quantities of these syrups and submitted them to an examination for: 1st. Mineral poisons, arsenic, lead, tin, etc.; and 2d, poisonous coloring matter. The syrups examined were as follows: Raspberry, blackberry, orange, peach, root beer, ginger, banana, sarsaparilla, world's fair (containing mainly oil of winter green), strawberry, vanilla, chocolate, lemon, tonic, and pine apple.

(1.) I have found no trace of mineral poisons or deleterious coloring matter. The high color seen in the samples sent you

are obtained by the use of very pure dyes prepared for such purposes. As the syrups are made by adding fruit extracts to a solution of cane sugar, I obtained from McCormick & Co., the extracts which they add to the sugar syrup so that by having a concentrated solution of the substances used to give the flavor, I could get some idea of their composition. I have analyzed the following extracts: raspberry, orange, peach, ginger, banana, winter green, strawberry, vanilla, lemon, and pine apple.

The general composition of fruit extracts as obtained from the fruits themselves, is very closely imitated by the addition to alcohol of small quantities of certain ethers and these bodies are now prepared on a very extensive scale for the imitation of the natural flavors. The bouquet of the fruit is quite easily obtained from the use of these ethers, but the after taste depending upon the acidity or some other physical peculiarity of the natural fruit is in general more difficult to imitate.

For this reason the examination of these extracts requires a determination not only of the volatile ethers, but also of the acids and other substances left after the alcohol and volatile ethers are evaporated, and these substances are often inferior.

It would be manifestly unfair to McCormick & Co. to publish in detail the results of my analysis, but I have no hesitation in saying that there is no injurious substance in any of their syrups or extracts.

I send you samples of the syrups and extracts for examination.

Yours very truly,

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

BALTIMORE, *November 6, 1894.*

JAMES A. STEUART, M. D.,

Sec'y State Board of Health.

DEAR SIR: I herewith transmit copy of letter sent this department by Dr. Charles H. Bubert, of 1928 Pennsylvania avenue.

BALTIMORE, *November 5, 1894.*

DR. MCSHANE.

DEAR SIR: I am attending a case of typhoid fever, at the corner of Pulaski street and Herbert street. The patient tells me that he has been working for a dairymen in the eastern limits of the city. From what I can gather, I find that the wife of the dairymen died about two months ago with this disease, also two weeks ago, one of the hands died and there is now a colored man at the same place very ill; from all accounts the place is kept in very dirty condition, and as there are a number of other

persons employed, and for the sake of those who purchase milk from this dairy, I think it my duty to inform you of the condition of affairs.

John Deem, Eastern avenue, first house below the poor house,
left hand side.

Yours truly,

CHAS. H. BUBERT, M. D.,
1928 Pennsylvania ave.

As this property and dairy complained of are located in Baltimore county, you are earnestly requested to give this matter your attention.

Very respectfully yours,

JAMES F. McSHANE, *Com. of Health.*

BALTIMORE, *November 12th*, 1894.

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

MY DEAR SIR:—In accordance with your instructions, I visited and inspected the surroundings of the dairy owned by John Deem, on Eastern avenue, near Bay View, with the idea of learning, if possible, the cause of the typhoid fever which has been prevalent in this household, and also to suggest means for the prevention of the spread of the disease. The water supplied to this place is from the regular supply of Baltimore city.

The cow stable is about fifty feet from the house and contains twenty-one cows; it is in a most filthy condition, the drainage from it being most inefficient; just outside the stable is a pond of considerable extent, formed by the out-flow from the cow stalls and from the rain water which drains from the manure pile. I consider the surroundings of this place to constitute a nuisance and to be a menace to the health of all persons using the milk of these cows.

Most of the milk from this dairy is sent to Baltimore city and there sold at wholesale to milk dealers, the rest is served directly to the consumer in Highlandtown. I was unable to learn where the milk was sold in Baltimore city, so I investigated that sold in Highlandtown, to learn, if possible, whether there had been any typhoid fever amongst the purchasers of this milk; I could learn of no cases of typhoid which could be attributed to this cause.

There have been in all, four cases of typhoid at this place, Mrs. Deem and an employee, both of whom died of it, a German, who was employed there, and is now sick with this disease at the corner of Pulaski and Herbert streets, and a colored man who

was employed at this place, and is now at Bay View Asylum. The colored man, before he was moved to Bay View Asylum, made his bed in the hay-loft over the cow stalls.

To sum up: 1st. The condition of the stable, etc., is such as to constitute a nuisance, and he, John Deem, should be compelled to provide a proper drainage from the stable and do away with the accumulated filth; 2d, I could learn of no cases of typhoid that could be attributed to the use of this milk, at the same time I do not consider that the milk from a place that is kept in such a filthy condition can be up to the sanitary requirements of good milk, especially as typhoid has prevailed amongst the attendants of the cows. Attached please find all paper bearing upon this matter.

Yours respectfully,

ARTHUR LEE BROWNE, *Inspector.*

BALTIMORE, *November 14, 1894.*

DR. JAMES A. STEUART,

Sec'y State Bd. of Health, Baltimore, Md.

MY DEAR SIR: Your letter of November 13, with enclosed notice to be served upon John Deem, was duly received this morning.

I wish to report that the above mentioned notice was served by me personally upon John Deem, this morning, and that he, John Deem, promises to have said nuisances upon his premises abated.

Yours respectfully,

ARTHUR LEE BROWNE, *Inspector.*

BALTIMORE, *April 17, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health.

MY DEAR DOCTOR: I examined carefully several preparations of sputum of the case you sent me this morning, and I found no tubercle bacilli.

The material consists of diphtheriae cells from the alveoli of the lungs and of puscells. These two kinds of cells are met with in about the same numbers. There is no fibrin or elastic tissue seen. There are large numbers of streptococci seen in each specimen examined. While this is only negative evidence, I am quite sure that the sputum you sent contains no tubercle bacilli. But I do not think we can say from this, that the patient has not tuberculosis. If you will get another specimen,

it will give me great pleasure to examine it at any time. But for the absence of tubercle bacille, the sputum has all the characters of a caseous tuberculosis pneumonia.

Very truly yours,

W. T. HOWARD, JR.

BALTIMORE, *April 20, 1894.*

MY DEAR DOCTOR: I examined carefully the specimen of sputum you sent yesterday. I do not find any tubercle bacilli or elastic tissue. As the result of these two examinations, I think we are safe in saying that the case is not one of tuberculosis.

The sputum consists of puscells and alveolar epithelial cells. In many of these cells (both kinds) there are cocci, usually as deplococci. For in the sputum there are numerous chains of cocci. I do not think that there is much doubt that we are dealing with a case of unresolved pneumonia.

Very truly yours,

DR. JAMES A. STEUART.

W. T. HOWARD, JR.

BALTIMORE, *February 10th, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

MY DEAR SIR:—Attached please find report of Dr. W. T. Howard, Jr., on the sample of milk you wished examined for tubercle bacilli, and also any chemical analysis of the same.

Yours truly,

W. B. D. PENNIMAN, *Analyst.*

Analysis of Sample of Milk from Dairy of Henry Macatee.

CONSTITUENTS.	REMARKS.
Water.....	87.33 % The sample was given to me by
Total solids.....	12.67 " Mr. Godman, cattle inspec-
Solids not fat.....	8.57 " tor.
Fat.....	4.10 "
Mineral ash.....	.61 " The "total solids" present is low
Specific gravity.....	1.040 " compared with the amount
Quality of milk.....	Fair. of fat.

BALTIMORE, *February 10, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

DEAR SIR:—I have the following report to make upon my examination for tubercle bacilli of a specimen of milk given me on January 30, 1894, by Mr. W. B. D. Penniman.

Two samples of the milk were centrifugalized (the usual precautions for sterilization of vessels and instruments being taken) for twenty minutes. The resulting sediments, after being properly stained on glass slides, were carefully examined with the microscope. A large number of preparations of this kind were examined with a negative result.

At the same time a portion of the sediment was inoculated into nutri agar-agar, which was then spread out in sterilized glass dishes and allowed to stay in the incubator for twenty-four hours in order to allow the development into colonies of any bacteria that might be present. The tubercle bacilli grow very slowly, and other organisms very rapidly. After twenty-four hours, there were numerous colonies of several varieties of bacteria in the glass plates. Portions of the media taken from between these colonies, and free from germs, except any tubercle bacilli that might be present, were transferred to slanting tubes of nutrient glycerine agar (a favorable medium for the growth of tubercle bacille) sealed and put in the incubator. By this method, I intended to demonstrate tubercle bacilli in cultures, if any were present. The cultures have not yet had time to grow out, as the colonies of tubercle bacilli do not develop under fourteen days.

As a further test, I injected another portion of the sediment of the centrifugalized milk into the peritoneal cavity of a guinea-pig, an animal very susceptible to tuberculosis.

These animals do not, however, die of experimental tuberculosis under fourteen days, and usually not under twenty or more days.

So, although I have applied the three recognized tests, my results are so far negative. If the two last tests are successful, I will apprise you at once.

Tubercle bacilli have often been demonstrated in the milk of tuberculosis cows, even when there was every reason to believe that the udders were free from tuberculosis. Tubercle bacilli are not infrequently found in such cases, (about 5 per cent.,) on coverglass preparations under the microscope. However, as far as I can learn, the unmixed milk of a single cow, at a trial, has been used in these researches, and not the mixed milk of a large herd, as I understand, has been done in the present case.

Of course, out of the herd, there may be one or several cows whose milk contains tubercle bacilli, possibly in large numbers; but owing to the fact that their milk has been diluted with that of a large number of other cows, the tubercle bacille may be so scattered as to escape recognition, even with the delicate tests

employed. So my investigation so far is entirely negative, in that I have failed to demonstrate tubercle bacilli in the milk, but this does not prove their absence.

Yours truly,

W. T. HOWARD., JR., M. D.

EMBLA, *March 18th, 1895.*

DR. JAMES A. STEUART,

SIR:—The nuisance I spoke of is complained of by Mr. Tunney. It is on the corner of Cold Spring lane and Falls road, and on Mr. Baker's property. It is composed of a manure pit filled to the top in a liquid state; it has bursted and run down the hill in front of Mr. Tunney's dwelling. Mr. Tunney complained to me, and I was instructed by the Chief of Police to inform you.

Respectfully,

OFF. J. THOS. BULL.

BALTIMORE, *March 22d, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore.

MY DEAR SIR:—With regard to the enclosed letter from county police officer J. Thos. Bull, I beg to state that I have visited and inspected the property of Mr. Charles H. Baker, at the southwest corner of the Falls road and Cold Spring lane, Baltimore county, and have the following report to submit:

Mr. Baker is in the milk business and feeds his stock upon distillery swill, and consequently has a large amount of almost liquid manure to dispose of. This manure he has hauled to a field in front of Wm. Tunney's saloon, and placed it in a kind of pond on the side of a hill. This pond has broken loose at one place and the manure has run down the side of the hill towards Tunney's saloon.

I do not, under the existing conditions, consider this manure pit a menace to the health of people dwelling in the neighborhood, but I do think it constitutes a nuisance which could easily have been avoided and can now be done away with, either by spreading the manure over the field so that the liquid matter may soak into the soil, or by putting the pit a few hundred feet further to the west so that the drainage may be away from the houses on the Falls road, rather than towards them, as now.

Yours respectfully,

ARTHUR LEE BROWN, *Inspector.*

BALTIMORE, *January 7th*, 1895.

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore, Md.

MY DEAR SIR:—I enclose all correspondence in regard to the investigation of the water supply of Mrs. J. C. Kinear's place at St. George's, Maryland.

There is no doubt in my mind that the typhoid fever was caused by the use of an infected well, and it is very astonishing that after the experience obtained, the question of convenience should be considered of most importance, and the use of the contaminated water continued.

Considering all the circumstances, the second well should be re-examined, and on condition that the well now in use be *absolutely closed*, a certificate of the purity of the second well be given.

I regret very much that my absence from the city has delayed my report on this matter.

Very truly yours,

W. B. D. PENNIMAN.

INFORMATION CONCERNING WATER SENT FOR ANALYSIS.

1. Sample from (give owner of property, tenant, town, county and post office.) Mrs. Kinear, St. George, Baltimore county, Maryland.

2. Sample taken (date.) May 20th, 1895, by H. C. Johnson.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Well.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. It does not change.

5. State if sample presents usual appearance of water. Yes, perfectly clear.

6. If from well, give diameter ($3\frac{1}{2}$ ft.); depth ($25\frac{1}{2}$.) State character of soil, sub-soil and water-bearing stratum. Mica and clay.

7. State distance of well, or spring, from all possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. 300 feet from privies.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. Yes, two cases of typhoid fever last summer, one death and one recovery.

10. Any other information that will, in your judgment, be of interest and importance. All drainage runs away from well down a hill.

BALTIMORE, *July 18, 1895.*

Report of Inspection of Premises of James R. Clark.

Spring:

This is situated at foot of a hill, and in rainy weather becomes contaminated with decaying leaves. It is used to supply the dairy as a rule, but at present is being used for all purposes. No drainage enters this spring. The nearest source of contamination is about 1,000 yards.

Creek (Reservoir):

This is a small stream running between hills. A cesspool is within forty feet. The drainage from stables makes its way down hill towards the creek, and no doubt in rainy weather enters the water. The creek is fed by numerous smaller streams, which are almost stagnant and full of decaying vegetable matter. The cesspool is on a neighbor's land, and to remedy it he is building a well which may serve temporarily to keep drainage from creek, but in the end it will find its way into the creek, as the land slopes in that direction. Cows bathe in the creek at short distance from reservoir. This water is evidently contaminated.

ARTHUR LEE BROWNE, *Inspector*, per M. B. D. P.

BALTIMORE, *September 7, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

MY DEAR SIR:—I have examined the milk from Glyndon for poisonous metals, and there are none present. The examination for alkaloids is not yet complete and I am at work on it now.

Yours respectfully,

W. B. D. PENNIMAN, *Chemist.*

BALTIMORE, *November 21st, 1895.*

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore, Md.

MY DEAR SIR:—I have made an inspection of the premises of Mr. Young O. Wilson, of Lutherville, and have the following report to make:

There are two wells on this property, one to the north of the house (analysis No. 3), and the other to the east or back of the house (analysis No. 4.) The water used for drinking purposes

comes from what is known as the spring, this is the overflow from an artesian well on the property of Dr. Peebles, and there is a cistern, (analysis No. 1), to the north of the house.

I have taken samples of all these waters and enclose the analytical report of Prof. Penniman. I was not able to get a sample of the ice, as there was none in ice house.

The overflow from the water closets in Mr. Wilson's house empty into a pool about sixty feet away from the cistern and the well on the north of the house. This pool or pit is not water-tight and the ground in its neighborhood must be thoroughly saturated with nitrogenous matter. There is no surface drainage or any visible source of contamination to these waters.

Yours respectfully,

ARTHUR LEE BROWNE, *Inspector.*

REPORT ON SANITARY EXAMINATION OF WATER.

*From property of Mr. Young O. Wilson, Lutherville—Drawn
by Arthur Lee Browne, Inspector S. B. of H.*

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	No. 1. Cistern water.	No. 2. Spring water.	No. 3. Well side of the house.	No. 4. Well back of house.
Color.....	none	none	none	none
Odor.....	none	none	none	none
Reaction.....	neutral	neutral	neutral	neutral
1. Total Residue at 230° F.	100.	151.	365.	294.
2. Ignited Residue.....	38.	84.	191.	146.
3. Volatile Residue.....	62.	67.	174.	148.
4. Amount of Chlorine..	2.4	5.1	17.5	12.5
5. Amount of Nitrogen as Free Ammonia.....	.06	trace	.045	trace
6. Amount of Nitrogen as Albumenoid Ammonia.	.18	trace	.29	trace
7. Amount of Nitrogen as Nitrates.....	.08	4.0	11.5	6.5
8. Amount of Nitrogen as Nitrites.....	present	none	present	present
9. Amount of Earthy bases calculated.....	.....	.....	.....	.....
10. Amount of Sulphates calculated as SO .....	.....	.....	.....	.....
11. Character of water....	Bad	Good	Bad	Bad

NOTES. 1—Determinations 9 and 10 are only made of water evidently hard.

2—The word "Trace" indicates that the substance is present but in too small a quantity to be estimated.

Remarks:—Of these waters, No. 2, the spring, is good, the others should not be used for any domestic purposes.

To Young O. Wilson, Esq.,

W. B. D. PENNIMAN,

Lutherville, Baltimore Co., Md.

Analyst S. B. of H.

Approved: JAMES A. STEUART, M. D.,

Date, November 21st, 1895.

Sec'y S. B. of H.

On November 4th, received a note from Dr. John Morris, dated same date, requesting me to make an inspection at Lutherville, with a view to discovering the cause, if possible, of several cases of typhoid fever, supposed to have originated there, and expressing a wish to accompany me in the performance of this duty. I replied at once, that I should be pleased to have his assistance, and would await his pleasure in the appointment of the day and hour. I received no reply until the tenth, in which he regrets being laid up in the house, and requests me to proceed, without him, in the investigation. On the 11th, I visited Lutherville, and could find nothing external that could be fixed upon as unsanitary. I learned, however, that the water closets of the house that had been occupied by the family in which the sickness and death had occurred, were discharged into a covered well not far from a pump well nearer to the residence. This I thought must be the cause, and at once procured a sample of this water for analysis, and as I expected, it proved to be polluted, and unfit for use of any kind.

When I reported this result to the parties interested, they said, but we never used that well water for anything but washing purposes, but drank only water from the artesian well, 184 feet deep, one hundred yards further up the hill, and by recent chemical test of the purest quantity. This increased the difficulty, but upon closer inquiry it was discovered that although the family drank nothing but the artesian well water, the servant was in the habit of using the water of this convenient pump well, to wash the ice which went each day into a large water cooler, filled with the artesian water for the family use. Here was evidently the cause, and I make this record as a hint that may lead to the discovery of the cause of typhoid fever in cases where it is most obscure, if not impossible to trace.

REPORT ON SANITARY EXAMINATION OF WATER.

From Dr. A. Riggs, Cooksville, Md.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.

Color.....	none
Odor.....	none
Reaction.....	neutral
1. Total residue at 230° F.....	571
2. Ignited residue.....	502
3. Volatile residue.....	69
4. Amount of chlorine.....	3.8
5. Amount of Nitrogen as free ammonia.....	trace
6. Amount of nitrogen as albumenoid ammonia....	trace
7. Amount of nitrogen as nitrates.....	3.00
8. Amount of nitrogen as nitrites.....	none
9. Amount of earthy bases calculated.....	
10. Amount of sulphates calculated as SO ₃	
11. Character of water....	very good

NOTES. 1—Determinations 9 and 10 are only made of water evidently hard.

2—The word "Trace" indicates that the substance is present but in too small a quantity to be estimated.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

November 13th, 1895.

1. Sample from (give owner of property, tenant, town, county and post office.) A. Sample marked No. 1 taken from spring belonging jointly to Mrs. Miller and Mr. Kemp's residences, Frederick county. P. O. Frederick.

2. Sample taken (date.) A. November 4th, 1895, by Wm. H. Baltzell, M. D.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. A. Kemp-Miller Spring.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. A. No.

5. State if sample presents usual appearance of water. A. Yes.

6. If from well, give diameter (feet), depth (feet.) State character of soil, sub-soil and water-bearing stratum. A. Soil, clay loam; sub-soil, clay; limestone stratum.

7. State distance of well or spring from *all* possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. A. The spring is about 100 yards from a barn yard and liable to contamination therefrom.

8. If from running stream, pond or lake, state if it is subject to pollution above source of supply (see No. 7), and if so, when and of what character. A. No.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. A. About twenty-five cases of typhoid fever have occurred in Frederick, the water from the spring being pumped in the reservoir in seasons of drought.

1. Sample from (give owner of property, tenant, town, county and post office.) Sample No. 2 taken from reservoir supplying the drinking water for Frederick.

2. Sample taken (date.) November 4th, 1895, by Wm. H. Baltzell, M. D.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Little Tuscarora creek, artesian wells, Kemp-Miller spring.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. Stated in paper accompanying.

REPORT ON SANITARY EXAMINATION OF WATER.

*From Frederick, Maryland—Drawn by Dr. Wm. H. Baltzell,
Health Officer of Frederick, Co.*

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	Kemp Miller spring, No. 1.	Reservoir No. 2.
Color.....	none	none
Odor.....	none	none
Reaction.....	Alkaline	Alkaline
1. Total residue at 230° F....	177.	70.
2. Ignited residue.....	134.	64.
3. Volatile residue.....	43.	6.
4. Amount of chlorine.....	2.8	2.1
5. Amount of nitrogen as free ammonia.	trace	trace
6. Amount of nitrogen as albumenoid ammonia.....	trace	0.11

7. Amount of nitrogen as nitrates.....	4.75	0.7
8. " " nitrites.....	present	present
9. " earthy bases calculated.....	.....	.....
10. " sulphates calculated as SO_3.....	.....	.....
11. Character of water.....	.....	.....

NOTES 1 and 2—*Supra*.

Remarks:—The results of the analysis show that the water supply is in good condition, and no danger is incurred by its use. There is only a trace of nitrites present, and being accompanied by no other indication of organic impurity the force of No. 8 above is lost.

M. B. D. PENNIMAM, *Analyst S. B. of H.*
WILLIAM H. BALTZELL, M. D., *Health Officer, Frederick, Md.*

BALTIMORE, *November 9, 1895.*

DR. J. A. STEUART,
Sec'y State Board of Health.

DEAR SIR: I send you herewith, by bearer, a portion of water taken from a stream of water flowing through the farm of Wm. Klein, at Fairlee, Kent Co., Md.

For some time past the milk and butter of Mr. Klein's cows has been tainted with a peculiar taste and smell, and to such an extent that his customers refused to accept same. The cause is presumed to be due to the water the cows drink, and this presumption is verified by the smell of the water alone.

A short distance above Mr. Klein's place, a butterine factory is located, and it is a well known fact that all their refuse is thrown in the same stream, and may be the cause of this.

I would ask you to carefully examine this water for Mr. Klein and advise him of the result of your examination. Oblige yours,

PHILIP H. LENDERKING.

REPORT ON SANITARY EXAMINATION OF WATER.

From Wm. Klein, Fairlee, Kent County, Md.

CHEMICAL ANALYSIS.

(Figures in parts per millon.)

CONSTITUENTS.

Color	cloudy
Odor	bad
Reaction	neutral
1. Total residue at 230° F.....	291
2. Ignited residue.....	50

3. Volatile Residue.....	241
4. Amount of chlorine.....	36.4
5. Amount of nitrogen as free ammonia.....	0.38
6. Amount of nitrogen as albumenoid ammonia...	3.00
7. Amount of nitrogen as nitrates.....	trace
8. Amount of nitrogen as nitrites.....	none
9. Amount of earthy bases calculated.....	
10. Amount of sulphates calculated as SO_3	
11. Character of water.....	very bad.

Notes 1 and 2—*Supra*.

This water is badly contaminated and is entirely unfit for any domestic purposes.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

November 13, 1895.

REPORT ON SANITARY CONDITION OF WATER.

From Town Pump, Trappe, Talbot County, Maryland.
Drawn by Dr. James A. Chaplain.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	Pump water
Color.....	none
Odor.....	none
Reaction.....	neutral
1. Total residue at 230° F.....	983.
2. Ignited residue.....	543.
3. Volatile residue.....	440.
4. Amount of chlorine.....	242.7
5. Amount of nitrogen as free ammonia.....	1.25
6. Amount of nitrogen as albumenoid ammonia...	0.194
7. Amount of nitrogen as nitrates.....	37.00
8. Amount of nitrogen as nitrites.....	
9. Amount of earthy bases calculated.....	
10. Amount of sulphates calculated as SO_3	
11. Character of water.....	very bad

Notes 1 and 2—*Supra*.

This water is unfit for use, as it is dangerously contaminated. The pump should be removed at once.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

REPORT ON SANITARY EXAMINATION OF WATER.

From Trappe, Talbot County, Maryland—Drawn by Dr. Jas. S. Chaplain, November 26th, 1895.

CHEMICAL ANALYSIS.

(Figures in Parts per Million.)

CONSTITUENTS.	1. Well—resi- dence, Dr. J. S. Chaplain.	2. Well—resi- dence, W. S. Merrick.	3. Driven well, residence of E. A. Powell.
Color.....	None.	None.	None.
Odor.....	None.	None.	None.
Reaction.....	Neutral.	Neutral.	Neutral.
1. Total residue at 230° F.....	107.	550.	386.
2. Ignited residue.....	28.	279.	97.
3. Volatile residue.....	84.	271.	289.
4. Amt. of chlorine.....	5.6	91.6	76.9
5. " " nitrogen as free ammonia,	Trace.	Trace.	Trace.
6. " " " albumenoid			
ammonia.....	Trace.	.075	.03
7. Amt. of nitrogen as nitrates.....	9.5	3.75	9.5
8. " " " nitrites.....	None.	Trace.	Trace.
9. " " earthy bases calculated...	.....	.....	.....
10. " " sulphates calculated as SO ₃,	.....	.....	.....
11. Character of water.....	Fair.	Bad.	Bad.

Notes 1 and 2—*Supra*.

Sample No. 1 is a fair water, while Nos. 2 and No. 3 are evidently contaminated and should not be used.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

To DR. JAMES S. CHAPLAIN, *Trappe, Talbot Co., Md.*

December 3, 1895.

1. Sample from (give owner of property, tenant, town, county and post office.) A. W. S. Merrick, Trappe, Talbot county, Maryland, No. 2.

2. Sample taken (date.) November 26, 1895, by Dr. Chaplain.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Well.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter (2½ ft.); depth (16 ft.) State character of soil, sub-soil and water-bearing stratum. Soil loam, sub-soil clay, water-bearing stratum gravel.

7. State distance of well, or spring, from all possible sources of contamination, and their nature; such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering estab-

lishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. Twenty yards from nearest privy; fifty yards from stable.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. One case of Typhoid fever, within the past two months.

1. Sample from (give owner of property, tenant, town, county and post office.) A. E. A. Powell, Trappe, Talbot county, Maryland, No. 3.

2. Sample taken (date) Nov. 20, 1895, by Mrs. E. A. Powell.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Driven Well.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

6. If from well give diameter (galvanized pipe $1\frac{1}{2}$ inches); depth (24 ft.) State character of soil, sub soil and water-bearing stratum. Soil, loam; sub-soil, clay; water-bearing stratum, gravel.

7. State distance of well or spring from all possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. Nearest privy, thirty feet; nearest stable, fifty yards.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. No.

1. Sample from (give owner of property, tenant, town, county and post office.) A. Well on home place of Dr. James S. Chaplain, Trappe, Talbot county, Maryland, No. 1.

2. Sample taken November 26, 1895, by Dr. Chaplain.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name if it has any. Well.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. No.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter ($2\frac{1}{2}$ ft.); depth (15 ft.) State character of soil, sub-soil and water-bearing stratum. Soil, loam; sub-soil, clay; water-bearing stratum, sandy gravel.

7. State distance of well or spring from all possible sources of contamination and their nature, such as cesspools, sewers, privies,

stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. The nearest privy 200 feet; privy kept in good condition.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. No. The well is placed on elevated ground, the highest point within 200 yards.

1. Sample from (give owner of property, tenant, town, county and post office.) A. Town pump, galvanized iron, Trappe, Talbot county, Maryland.

2. Sample taken (date.) November 11, 1895, by Dr. Jas. S. Chaplain.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Driven pump.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. I dont know of any change.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter (2 inch pipe in diameter); depth (24 ft.) State character of soil, sub-soil and water-bearing stratum. Soil loam, sub-soil clay, water-bearing stratum pebble.

7. State distance of well, or spring, from all possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. Nearest privy 150 feet, nearest stable 300 feet.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. None to my knowlege.

10. Any other information that will, in your judgment, be of interest and importance. A scum forms on the water after standing six or eight hours.

OWINGS MILLS, MD., *December 3, 1895.*

PROF. PENNIMAN, Baltimore, Md.

DEAR SIR: Some time ago in talking with Dr. Steuart, he said if I would send you a sample of the water which we are using, you would analyze it for us. I sent you to-day, two gallons by express, prepaid. We have just completed a new water supply and think it is pure, but would like to know positively. Hoping to hear from you at an early date. I am, yours truly,

L. GIBBONS SMART.

REPORT ON SANITARY EXAMINATION OF WATER.

From Maryland State Asylum and Training School for the Feeble Minded, Owings Mills.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS

Color.....	none
Odor.....	none
Reaction.....	neutral
1. Total residue at 230° F.....	51.
2. Ignited residue.....	16.
3. Volatile residue.....	35.
4. Amount of chlorine.....	2.6
5. " nitrogen as free ammonia.....	trace
6. " " albumenoid ammonia...	.029
7. " " nitrates.....	.45
8. " " nitrites	none
9. " earthy bases calculated.....	.....
10. " sulphates calculated as SO ₃.....	.....
11. Character of water.....	very good

Notes 1 and 2—*Supra*.

This water is free from contamination, and is a good, soft water for all domestic purposes.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

December 4, 1895.

REPORTS OF COUNTY HEALTH OFFICERS.

DORCHESTER COUNTY.

EAST NEW MARKET, MD., November 15, 1895.

JAS. A. STEUART, *Secretary State Board of Health.*

I hereby submit my report as health officer for Dorchester county: In the first place, I will say that the visit of Dr. Steuart, Secretary of the State Board of Health, was greatly appreciated by the County Board, as also by the physicians who were present. His lucid explanation of the purpose and power of the County Boards of Health will awaken greater interest in the important subject of sanitary matters. We look forward with pleasure, to his second visit, which we hope will not be far distant.

The general health of the people in Dorchester county is now, and has been for the last two years, most excellent, as proved by my own practice and that of other physicians, with whom I have consulted.

There was very little pneumonia last winter, notwithstanding the cold, snowy, wet weather. No epidemic of contagious diseases, such as small-pox, diphtheria or scarlatina has visited Dorchester.

There were a very few cases of typhoid fever. In August and September, there were some cases of malarial fever, assuming most generally the remittent form.

Upon inquiry, I am satisfied of the fact, that vaccination of the school children is not duly enforced by teachers of the public schools.

Yours very respectfully,

GEO. P. JONES, M. D.,

Sec'y of the Board of Health for Dorchester county.

QUEEN ANNE'S COUNTY.

November 26th, 1895.

JAMES A. STEUART, M. D.

Sec'y State Board of Health, Baltimore, Md.

MY DEAR DOCTOR:—In reply to your request of a few weeks ago, for my Fall report some time this month, I herewith transmit the following facts obtained by personal knowledge, as well as information gotten from brother physicians and members of the laity interested in sanitation. 1st. That the towns of our county are kept much more cleanly, and in better condition as regards health than at any time in the past; that filthy pig-pens, foul privies and badly kept slaughter houses are things of the past, and in the place of foul and noxious odors, to offend the public sense and endanger public health, there is a pure and exhilarating atmosphere to breathe, a factor so important and necessary for the health of everyone. 2d. That our people generally are becoming better educated to the importance and necessity of health laws and sanitary measures for the abatement of nuisances or the suppression of disease wherever found in the county.

As regards sickness, the fevers have been the prevailing diseases during the Summer and Fall. Malarial fever, typho-malaria and typhoid fever have prevailed to a moderate extent throughout the county from the middle of the Summer to within the past few weeks. There have also been a few cases of scarlet fever in Centreville district near Chucktown. I visited the school there a few weeks ago, and found it necessary to have it closed until there is some abatement of the disease; also ordered the house thoroughly fumigated. I wrote letters to the heads of families having the disease amongst them, and gave full directions for isolation, disinfection and fumigation, which, if properly carried out will soon suppress it. I am sorry to report more intermittent fever this Fall than for some years past, but just what it is due

to is hard to determine, perhaps to the severe drought in the latter part of the Summer, which had been preceded by quite a heavy growth of vegetation earlier in the season. Typho-malarial fever has prevailed more extensively than anything else, many cases having been very severe, lasting three, four and five weeks; the death rate however was very light compared with the extent of the disease, as I can recall but one or two deaths in Queenstown district during the year. Some of our physicians report a few cases of genuine typhoid fever, but I have not myself seen a single case of enteric fever with rose spots, loose bowels and persistent delirium, all were of a mixed character and all without bowel trouble. The county remains comparatively exempt from lung diseases. It is a rare thing to hear of a case of pneumonia or even tuberculosis. We had an epidemic of whooping cough that continued for about two years, but is now about subsided, as I don't know of a single case in the district.

CHARLES COCKEY, M. D.,
Sec'y Q. A. County Board of Health, Queenstown, Md.

CHARLES COUNTY.

LA PLATA, CHARLES CO., MD., *November 24, 1895.*

DR. JAMES A. STEUART, Sec'y State Board of Health.

DEAR SIR: In compliance with your request, it gives me great pleasure to report favorably in regard to the healthful condition of Charles county, during the past two years.

Malarial fevers have been the most prevalent. During the past summer, we have had a number of cases of typhoid fever, most of these complicated with malaria. Nearly all of these cases of typhoid can readily be traced to unsanitary conditions, of which, contaminated well water, pig pens, outhouses near these wells, and badly ventilated houses constitute the most prolific sources of contagion. During the summer, a great many cases of stomach troubles among children and a few cases of dysentery.

Early last spring, there was an outbreak of small-pox among the colored people of the lower part of the county, afterwards extending to two families of white people. Was thought to have originated from infected clothing brought from Washington city, or brought here by a colored woman who had been staying there for a short while as a nurse. By prompt action of the Local and State Boards of Health, the epidemic was confined to a comparatively small area. Nearly every person, within ten miles of the cases, was vaccinated at once, in fact there was general vaccination throughout the county. It may be interesting to report, that in one family of eleven members only one escaped the disease. This was the mother who had been vacci-

nated when a child, she was also pregnant at the time of the epidemic. In another family only one member escaped, she had never been vaccinated, but was pregnant at the time, was vaccinated however after others were taken and took well.

Realizing the great danger of future epidemics of this dread disease, owing to the situation of the county on the Potomac river, the nearness to Washington and excessive travel between the county and Washington, especially among negroes, the Local Board of Health hearkened to the advice of yourself and appointed vaccine agents in the various districts of the county, to vaccinate all persons as far as possible.

The establishment of the Local Board of Health in the county last year, which I believe is the first we ever had, has met with the favor and approval of our people.

There has been no unusual sickness in the county, other than above mentioned. I would like very much to present reports from the various districts in full, but it seems almost impossible to get the physicians throughout the county to make these reports to the Local Health Officer.

Very truly yours,

THOS. S. OWEN, M. D.,

County Health Officer.

WORCESTER COUNTY.

SNOW HILL, WORCESTER Co., MD., *November 20th, 1895.*

DEAR DOCTOR:—I herewith submit my report as to the sanitary condition of our county. After due effort to arrive at the health of the county during the year, I am happy to state that our section of the Eastern Shore of Maryland still maintains its reputation for extraordinary healthfulness. Cards were distributed to all the registered physicians of the county, accompanied with the request that they would make prompt returns. The meager responses are attributable largely to the general healthfulness of the county; some of our leading physicians informed me that they had nothing worthy of a report. We have very little sickness at this time.

Respectfully yours,

C. P. JONES, *County Health Officer.*

MALARIA—*Its Disappearance from the Eastern Shore.*

Read before the Sanitary League of Health Officers of Maryland, by J.

C. CLARK, M. D., Federalburg. Health Officer of Caroline County, Maryland.

Malaria, bad air, or marsh miasm, are synonymous terms according to medical nomenclature; and malaria has been the term used for more than a century to designate the disease caused

by the entrance of a certain specific poison into the human system. That it is one of the so-called germ diseases is now pretty well established, the microscopists having found small bodies belonging to the order of protozoa, or lowest living organisms, invariably present in the blood of patients suffering with the different forms of malarial diseases.

Six different species of these parasites have been described and their relation to the different symptoms and types of the disease has been worked out by one observer, who reports certain definite cycles of evolution in the development of the parasite in the blood; its gradual increase in size until a process of segmentation or sporulation takes place, causing the paroxysm of chills. This same observer describes a rapid destruction of the red corpuscles of the blood by the micro-organism, which destruction we know does take place, as evidenced by the pallor and anemia of malarial patients. This fact, together with the fact that such organisms are not found in any other disease and of their rapid disappearance on the administration of quinine, makes the theory plausible. While it is yet somewhat *sub judice*, and the testimony of more witnesses must be heard, it satisfies more of the conditions of the disease than any other theory thus far advanced.

There are yet gaps in our knowledge concerning it; it is not known how it enters the system or in what form it leaves it, nor how it is propagated, and no record of successful cultivation has been recorded. Heat and moisture and a proper breeding place are necessary for its development. Low, swampy, marshy places and hot weather supply these conditions. It does not follow, however, that all such places are malarious; in fact, sometimes in the same section of the country and exposed apparently to the same conditions, one district will be malarious while another will not. Salt water marshes, as a rule, are free from it, while it prevails around fresh water and mixed fresh and salt water marshes.

Salt water is said to neutralize or absorb it. It does not develop at a lower temperature than 60° F. and is entirely destroyed at 32°. Infection is most liable at night and the nearer the ground the more liable the infection. It is said to adhere to trees of dense foliage. It is probably transmitted through the air to a locality formerly free from it; in fact, it seems to develop in cycles. Residence is the only way to tell whether a given locality is malarious or not, though probably in time chemistry and microscopy will do it. That malaria used to prevail on the Eastern Shore is true, though reports concerning it have been greatly exaggerated, and that it has almost entirely disappeared is equally true. Having practiced my profession in Caroline county nearly fifteen years, I speak from positive knowledge and

experience. In collecting the vital statistics for my county, I addressed letters to all the physicians, asking their observation as to the prevalence of malaria; each reported it as fast disappearing; one of the oldest and most intelligent reported it as compared with forty years ago at five per cent. This corresponds with my own observation, and at the present ratio of decrease, in a few years malaria will be an unknown quantity on the Eastern Shore. The few cases that do exist are found around old mill ponds. Cut all the mill dams on "the Shore," and I will venture to say that in a few years it will be an unknown quantity.

There must be some reason for this great change in this section of the State; it can not be attributed to any one cause but to a possible sum or combination of causes. The old stereotyped reason of "better drainage" will not entirely explain it, as we used to find malaria in some of the best drained sections of the country. While no doubt drainage is a factor, the better cultivation of land, which goes hand in hand with drainage, is probably a greater one; with increased cultivation and growing vegetation come purer air. Vegetation has a purifying influence on air, removing the carbonic acid gas and restoring that life-giving principle, oxygen; consequently the more vegetation and the more luxuriant, the purer is the air; the purer the air, the more ozone, with its remarkable powers of oxidation and disinfection, antiseptic and anti-germicial properties. To the presence of this agent alone a possible explanation can be found.

Another probable factor is the growth of the pine tree. In the march of civilization the larger oak trees have been cut down for building purposes and the smaller and less valuable pine trees allowed to stand. Pine trees have for ages been supposed to possess some antiseptic power, due probably to the evaporation of the volatile oil which they secrete naturally and the giving out of ozone. The removal of the oak, has probably allowed the more thorough dissemination through the air by the winds of the purifying principle of these trees. The planting of the peach tree is another possible factor. Trees with a large leaf absorb or destroy the malaria germ; if not by absorption, possibly by the general rule of vegetation, of giving out oxygen. Better drinking water as obtained from the more general use of the artesian and drive pumps, and the abandonment of the old surface wells, adds largely its quota. Climatic changes are probably another factor, heat and moisture being necessary to the development of malaria. From some inexplicable cause the rainfall and heat of the summers have been less than formerly. While I have not had the means of determining accurately the rainfall, I know from observation and experience that certain fields on my farm which were invariably drowned out a few years since

now yield good crops. Why the summers are not so hot, I cannot explain; possibly for the same reason that the pine trees have more room, the cutting away of the larger trees and thereby allowing the modifying and cooling influence of the Atlantic ocean on one side and the Chesapeake bay on the other to be better felt. With these two necessary properties for its development lessened, combined with the other possible factors mentioned, it looks as if the "bug will have to skip."

With malaria disappearing and la grippe having run its course, the Eastern Shore of Maryland is now exceptionally healthy, and with its temperate and salubrious climate, is almost a natural sanatorium. Typhoid fever, a few diarrheal diseases in summer, catarrhal ones in winter and an occasional case of scarlet fever and diphtheria, which, however, under the pure atmosphere nearly always assume a mild and tractable type, are about the only diseases which prevail; in proof of which I present the vital statistics of my county:

Total number of deaths, 120. Population at last census, 13,903, is 8.6 per cent. per 1,000.

16 from consumption.	6 from typhoid fever.
7 " bright's disease.	6 " pneumonia.
5 " heart disease.	6 " dysentery.
5 " cancer.	3 " malarial fever.

5 from apoplexy.

9 were over 80; 15 between 70 and 80; 15 between 60 and 70; 16 between 50 and 60; 16 were infants under one year; one was 110.

These statistics, as well as the condition of my visiting list testify to the correctness of the eulogium of Dr. Chancellor in his work, "The Climate of the Eastern Shore of Maryland;" the recapitulation of which is: 1. A temperature pleasantly warm for eight months in the year; 2. An air moderately dry, rich in oxygen, of excessive purity and constantly in motion; 3. A large number of clear, sunny days and comparatively few days of rain and fog; 4. A rich and luxuriant vegetation, flourishing as in a sub-tropical climate; 5. The possibility of almost daily promenades and drives in the open air; 6. The refined social advantages of the country; 7. Its unrivaled dietetics and cuisine; and, finally, in its proximity to the great centers of population.

FEDERALSBURGH, MD., *November 20th, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR DOCTOR:—I herewith send you a brief report of the sanitary condition of Caroline county during the year 1895.

I have had very little claiming my attention this year, except the unprecedented prevalence of typhoid fever.

This disease has been much more prevalent than formerly, and unusually fatal, though the newspapers have greatly exaggerated it. Very few of the cases were reported to me, but from diligent inquiry I do not think there were over forty cases in the county, with eight deaths. I had several cases in my own practice. Two of my cases, and one that I saw in consultation died from hemorrhage of the bowels. The disease was very fatal at James Fountains, who lived near the Delaware line, in a low, swampy locality. Fountain died from hemorrhage of bowels at the end of the second week of the disease. His two daughters died three weeks later, within twenty-four hours of each other, and were both buried in the same grave. I could find no local cause for the disease; the premises were well kept, the water used was from a driven well, and seemed perfectly pure. I was so well satisfied with the condition of the water that I did not have any analysis made. I am inclined to think that the first case was of a spontaneous or epidemic origin and the balance were infected from it.

In the country districts, with no trained nurses, it is almost impossible to carry out the rules for disinfection in such cases. One neighbor will be in charge of the case one day and another the next, and the many rules that should be observed regarding cleanliness and prevention are often forgotten.

The disease seemed somewhat epidemic in that locality. Dr. J. W. Hignutt, the local physician, informing me that he had more cases under treatment than at any time in his thirty years practice.

My observations in these cases as well as in those of my own, leave the cause of the epidemic uncertain, as very many investigations in other sections of the State have proven to be. It is only history, however, repeating itself as to the well known fact, that as a country develops, and lands are properly drained, malaria and malarial fevers become less frequent, and typhoid more so.

The type of fever prevailing this year has been decidedly and unmistakably typhoid. The low prostrated delirious condition, tympanitic abdomen and death from hemorrhage, form a train of symptoms which cannot easily be misunderstood.

The fevers heretofore prevailing have been mostly of a malarial type and more tractable.

Regarding intermittents and remittents, I repeat that they are almost an unknown quantity in this section. I do not remember treating but three cases during the year. There have been a

few cases of scarlet fever and two or three of diphtheria in the county, but no deaths from either.

I cannot give you the vital statistics of the county this year, for the simple reason that I have not collected them, and have no regular or legal way to do so. I collected them last year by personal solicitation and correspondence with the physicians of the county, but I think it is asking too much without any equivalent. It seems to me our health laws for the counties are very deficient in this respect. It should be compulsory on the part of the physicians in attendance or the undertaker that buries the corpse, to keep a record of deaths or burials, as the case may be, and send them in at end of the year to clerk of court or Health Officer for record. I offer this as a suggestion, and if it meets with your approval, I hope the next General Assembly will pass some such compulsory law, so that the State Board can tabulate the deaths in the entire State. I am satisfied that when this is done, Maryland can present as small a death rate as any State in the Union.

Respectfully submitted,

J. C. CLARK, M. D.

FEDERALSBURGH, MD., *November 28th, 1895.*

DEAR DOCTOR:—Yours was duly received this P. M., and in reply, would say that I knew of the existence of typhoid in three of the families named, but was not aware that there were any cases at the parent's house (Clement Noble's). None of the cases were reported to me, but I saw the case of Mr. Fountain and also of Linden's daughter, in consultation. These cases occurred simultaneously in the same neighborhood and were the first cases in the family. The disease was somewhat epidemic in that locality, and as I could find no local cause, I supposed it was due to such influence.

The cases at Sylvester's and Noble's, who live near Denton and about six or eight miles from Fountain's and Liden's, occurred about two months later. I have not investigated these cases, but saw the attending physician at Sylvester's and told him I would have waters analyzed if he so desired it. I heard no more from him, and supposed the worst was over. It is very singular that this one family has been so sadly afflicted, and it does look like they all might have drank some poisoned water or in some other way have imbibed the germ. Can't you run down to-morrow (Friday) and take a trip around with me to the several premises, we can make it in one afternoon in time for you to take night-boat for Baltimore, if you so desire. Telegraph me as soon as you get this if you will come. Come direct to Federalsburgh on P., W. & B. R. Train leaves Baltimore about 6 A. M. and arrives here about noon. I will have a fresh horse, and after dinner we can make the trip.

Hope you can come, it will have a good effect. My investigation in my own cases have been so unsatisfactory that I have lost confidence. If you can trace the cause it will help us in the future. If you cannot come I will send you water from Noble's, but as the last case is at Noble's it looks like the others should also be analyzed.

Hoping to hear from you that you are coming, I remain,

Yours, very truly,

J. C. CLARK,

P. S. Of course, there is nothing in the watermelon theory, it is some old woman's, I suppose.

J. C. C.

ELLCOTT CITY, MD., *November 27th, 1895.*

DEAR DOCTOR:—I drove up to Clarksville this morning, and found two families with scarlet rash; one family the children went to school all the time, thinking it was from poison oak. The other family did not know it was anything until their doctor called, when he pronounced it scarlet fever. They did not have any sore throat. I told Mr. Miller he must not send his children to school for 30 days after the disappearance of the disease.

Yours truly,

THOS. B. OWINGS.

TALBOT COUNTY.

EASTON, January 1, 1895.

DR. JAS. A. STEUART,

Secretary State Board of Health, Baltimore, Md.

DEAR DOCTOR: I have to report for the year ending December 31, 1894, a remarkable condition of healthfulness in every section of Talbot county, except a part of the town of Easton, near the depot of the P. W. & B. Railroad, where pump water is used almost exclusively. While typhoid fever did not prevail epidemically in this locality, yet there were a number of cases of a severe type, none however proving fatal. There was no doubt of the source of the disease, as it could be traced directly to the use of pump water.

In the practice of Dr. Howard Hopkins, of Wye Mills, there were a few cases of scarlet fever of a mild type. Dr. Thos. Greenly, of Trappe, also reported a few cases of the same fever. In the month of November I was called to a young man by the name of Clark, at Cordora, ten miles from Easton, who had malignant diphtheria, which proved fatal in a few days. The attending physician, Dr. Steele, used every precaution to prevent the spread of the disease, and fortunately there were no other cases.

In my last report I referred to the exemption of our people from malarial troubles and pneumonia. I have only to emphasize what I said at that time, for thus far this winter I have not treated either a case of pneumonia or bronchitis.

Very respectfully,

J. M. H. BATEMAN, M. D.

EASTON, *December 15, 1895.*

DR. JAMES A. STEUART, Sec'y State Board of Health.

MY DEAR DOCTOR: Since my last report the health of our county has been excellent. We have no epidemics of any kind. The so-called gripe has ceased to recur. We have had a few cases of typhoid fever in the county, of a mild type, due to bad water, as the wells have been low during the summer on account of the drought. These cases are often diagnosed malarial, which I think is a mistake. I have been strengthened in this opinion by an article in the *Medical News* of a recent date by Dr. Wm. Osler of the Johns Hopkins Hospital. It certainly has been the fashion to call many cases malarial which however did not reflect their true origin. There are now two cases of scarlet fever in the town, both convalescent. I have investigated these cases and have not been able to trace them to contagion. I may add that I have never passed a winter here without having one or more cases of this fever (sporadic). The malarial troubles which were prevalent here ten years ago have disappeared, almost every farm house in certain sections of the county has been turned into a boarding house during the summer, the same visitors with many others return every year, showing that they appreciate our salubrious climate.

Yours respectfully,

J. M. H. BATEMAN, M. D.

ST. MARY'S COUNTY.

LEONARDTOWN, ST. MARY'S COUNTY.

DR. JAMES A. STEUART.

DEAR SIR:—In the performance of a duty as required by law, I take pleasure in transmitting to you the following brief report of work done by the St. Mary's Board of Health, and the conditions of health prevailing during the last few months.

The recent organization of the local board in this county, none having existed before for a number of years, makes a report covering the full space of time contemplated by the law impossible. The appointment as Health Officer having come to me, only as late as the middle of July, made it impracticable without

encountering great opposition, to inaugurate the reforms which are most needed. Conceiving that the most hasty and radical course is not always the best, but may often defeat or retard the very ends desired, and that the people should be educated in sanitary matters, and taught that such steps are for their own good and welfare, I thought it proper not to recommend these changes until the approaching Spring.

A new system of privies should be adopted in our villages and towns, the present one allowing of a deposit of the night soil upon the plane surface of the earth, where it is seldom disturbed, often giving off offensive odors in the Summer months, and likely to contaminate the water supply.

Pig pens in the villages, when improperly kept, are another source of nuisance, especially in warm weather, and are equally as likely to contaminate the water which is taken from surface pumps and wells. The only nuisance complained of to the Local Board was promptly abated upon its recommendation.

The vaccination law which has been generally disregarded throughout the county, I called especial attention to through the county press, and urged full compliance therewith. This I am glad to say was rewarded with a measure of success.

Most of the teachers have required children attending school to be vaccinated, and a large number have received the benefit of Jenner's preventive.

Parents and guardians have not given the law the attention it deserves.

An attempt was made by me, along the lines adopted by the State Board, to collect the county statistics. Postals were sent to every physician in the county, but only a few were properly filled and returned. It would probably be possible to collect statistics of births, deaths and contagious diseases, but with the busy practitioners the more common and less dangerous diseases are of too frequent occurrence to be recorded.

The general health of the county during the summer and fall has been fair, no epidemics of contagious or infectious diseases having prevailed. Sporadic cases of diphtheria, typhoid and scarlet fevers have come to my attention, but with the use of antiseptics and disinfectants by the attending physician and proper isolation, they have in every case been kept under control.

An increase of malarial fever during the last two years, and that especially, after a long period of comparative freedom from malarial influence and no unusual climatic influence having been observed, deserves special study. Both the intermittant and remittant forms had been observed. The latter generally of a mild type, but the former severe, and having a distinct

tendency to become remittant unless treated early. Trusting that this brief statement of facts may meet with your approval, and that it may be followed next year by a fuller report from this section.

I am most obediently yours,

F. F. GREENWELL,

CECIL COUNTY.

ELKTON, October 8th, 1895.

To the President and Members of the

Board of Health of Cecil County.

GENTLEMEN:—We have met in semi-annual session for the purpose of taking a retrospective view of the work accomplished for the previous part of the past year, and I think we have many reasons for congratulation in the fact that in our various efforts to enforce measures along the line of sanitary reform and improvements, we have been successful. When complaints have been made, the people have manifested a spirit of cheerful compliance with the requests made, and suggestions given for the purpose of suppressing existing nuisances, abating and restricting disease and all unsanitary conditions prejudicial to good health. As we all know all reforms in any direction are gradual and the potent factors in accomplishing them are education and agitation by means of the press and official visitation. When the people are informed upon these subjects, when they are made to understand that the existence of certain evils are in violation of law, and prejudicial to their well being, and a way pointed out by which the evils complained of can be corrected, we have found, in a large majority of cases, that there is that innate sense of justice and right which prompts a willing compliance to correct them, especially when it is shown to them that it is both legal and contributes to their permanent good. We have found it not to be the result of unwillingness, indifference or defiance of law, but a want of knowledge that the cause of certain complaints have been permitted to exist.

I am sure much good has been accomplished this year along the line of educating the citizens of our county up to a knowledge of what benefits may accrue to them by a stricter observance of the laws of hygiene and sanitation. In proof of this I can recall the many visitations in different parts of the county, in answer to complaints of existing nuisances prejudicial to health. All were satisfactorily adjusted and the troubles complained of corrected.

Special attention has been directed toward the management of creameries and canneries in the county. The owners and managers of these enterprises have been instructed to observe greater care and supervision over their buildings and surroundings, to see that they are kept clean and proper disposition made of all refuse, both solid and liquid; and to see that no unsanitary conditions prejudicial to the health of the neighborhood were permitted to exist. Special attention has also been directed to the proper care and preparation of ice ponds in the Summer and in the Fall previous to the harvesting of the ice crop for home consumption and refrigerating purposes, to see that they were drained out, all impurities from stagnation removed, and then filled with pure spring water, thus insuring a crop of ice fit for all purposes for which it is now so much needed.

I would also call your attention to the fact of the numerous complaints made in various parts of the county of the existence of cholera among swine, where fearful havoc has resulted; all the remedies known by experience to have any efficacy have been used, and, in some cases, proved very successful, in others, no benefit was derived whatever. This has entailed serious loss upon the farmers. The same may be said in regard to horses; many complaints have been made of the existence of some obscure disease among them, and many have died, resisting all treatment instituted for their relief.

In reference to the general health of the county, I am happy to state there has been no serious outbreak of any infectious or contagious disease in any part of the county from the reports furnished by any of the physicians in their several localities. There have been this year, as in the past, a few cases, here and there, in the county, of diphtheria, typhoid fever, scarletina and whooping cough, but no widespread epidemic, and most of them in a mild form. It has been generally noted by the physicians in the county the marked diminution in the diseases of children during the Summer months. The general opinion has been they have not known so few for many years. This has been attributed to the wise use of sterilized milk and better character of food for those children who have not been fortunate enough to have the natural food of the mother.

I am happy also to report that from the statements furnished by the vaccine physicians of the county, a stricter observance is given to the vaccination law, not only among the school children, but among children not in attendance upon school. The parents have been impressed in regard to the legal requirements concerning vaccination of all children, and they are giving heed to it.

I cannot close the report without making reference to the most commendable improvement made in our county jail, both as an economic as well as sanitary measure; you are entitled to the thanks of the citizens of the county for the changes there made, which have resulted in not only abating long existing unsanitary conditions, but which will be the means of saving hundreds of dollars to the taxpayers of the county in the future.

In conclusion, allow me to express my thanks for the hearty co-operation you have given me in all my endeavor to enforce the public health laws of the State in the county, for the restriction and suppression of disease, and in instituting such sanitary reforms as will aid in their prevention. Let us continue our good work as laid out along these lines, and I venture the prediction that the time is not far distant when our county will be second to none in the State in the cheerful obedience of her citizens to all laws which shall contribute to their mental, moral and physical well-being.

JNO. H. JAMAR, *County Health Officer.*

BALTIMORE COUNTY.

WETHEREDVILLE, MD., *December 1, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR: From the information received by the Local Board of Health from the different districts, the healthful conditions prevailing in Baltimore county during the past year will compare favorably with previous years.

Typhoid fever has been less prevalent than in the summer and autumn of last year. Diphtheria occurred in some places in a malignant form. The number of cases were few, but a large percentage were fatal. A mild form of scarlet fever has been reported in several sections remote from one another. In the places where we made a personal investigation, no deaths had occurred from this cause.

Measles and whooping cough have not prevailed to any extent.

Malarial fever in its varied types seems to be on the decrease, and it is rarely we meet a case of the old time fever and ague, which was so prevalent some years ago along the sluggish water courses.

The number of free vaccinations was about the same as in the past year.

Parents usually neglect this important matter until the child's entrance to the public school is conditional upon its performance.

Therefore, few children are vaccinated before they arrive at the age of from seven to ten years.

It is only in times of a threatened epidemic of small-pox that the younger ones are thought of in this connection.

Baltimore county is somewhat differently situated from most of the other counties of the State, in being very thickly populated in some districts, and sparsely so in others. The territory surrounding the city of Baltimore, particularly the eastern section, is as densely settled as the city itself, and yet it is with few exceptions, without the advantages of local sanitary laws and regulations, other than are in force in the country districts. Canton and Highlandtown can not be kept in a good sanitary condition, owing to the fact that many of the streets and alleys are not properly graded, and the gutters are unpaved.

Frequent complaints have been made of nuisances from bad drainage from vacant lots, cow stables, and pig-pens, but under the circumstances it is a difficult matter to exact from property owners a proper performance of such sanitary regulations as should be maintained in a community so situated. Until some means are taken to pave the gutters and street crossings, it will be impracticable to efficiently enforce the existing laws.

At this period of rapid development of suburban settlements and country towns, it seems to us that it would be a measure of wise economy, both in a sanitary and financial way, if some system was adopted whereby a survey of such places as Catonsville, Towson, Lutherville and other towns were made by a competent engineer, with a view of the future needs of proper sewerage. The location for drains and sewers could be laid out, and if not constructed at the present time, plats could be made and filed in the office of the commissioners, or clerk of the Court for reference and future improvements regulated in accordance therewith. The importance of these matters is not generally realized until there is an awakening to their need by an epidemic of disease, the cause of which can be traced to bad drainage. The State, through the Board of Health, should have printed and distributed to the people the law relating to the isolation of persons affected with contagious diseases, with such directions for disinfection and fumigation of infected places, as in the judgment of the Board of Health will best serve the purpose. At the same time attention could be called in simple non-technical language to other matters of equal importance, such as the contagion of consumption, the danger lurking in impure water, the necessity of early vaccination, &c. Following these, the next year other papers could be issued giving directions as to infant feeding, suggestions as to ventilation, and kindred subjects. By this means the masses would be soon educated so as to avoid

many of the more common causes of disease. The cost of these pamphlets will be but a trifle, and they could be sent out by the County School Boards when they make the annual distribution of books and stationery to the teachers, and by them given to scholars, with instructions to deliver them to their parents or guardians. This would be a very effectual and inexpensive method of reaching the people for whose benefit they are intended. Since writing the above, I have had occasion to refer to the Report of the State Board for the year 1889, and I find that certain circulars embracing fully the matters I have indicated, and others of equal importance were issued by the Board of Health. Their circulation, however, must have been limited, and I think the method of distributing them by the School Boards which I have suggested, will be attended with better results.

Respectfully yours,

J. C. MONMONIER.

HOWARD COUNTY.

ELLICOTT CITY, MD., *November 10th, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR:—We have had very little trouble in the past two years with contagious diseases. We had but few cases of typhoid in our vicinity in 1894, and I think it was due to the fact that I succeeded in getting the authorities to start a garbage cart, and issue a proclamation forbidding the pollution of the Tiber with stale vegetables. This has been a very fertile year for the disease all over our county, as well as most other parts of the State, though in our town there were not more than eight or ten cases. I have had a great deal of trouble at ElkrIDGE, where there is always a good deal of typhoid and diphtheria, and I do not see that much good can be accomplished until the citizens get an act of incorporation giving them power to punish any violations of law. The surroundings are such, with the village in a flat, with a cemetery lying on the hillside, with a clay sub-soil where many bodies of patients who have died with diphtheria and typhoid fever are buried, and wells and pumps dug in the flats of the village from which all the drinking and cooking water is taken, it seems to me that so long as this continues you will have the same trouble repeated year after year. I had here last fall a number of cases of diphtheria, but by prompt action in cleansing the sewers and isolating the cases, what might have been a dreadful scourge, was averted. I have been called to several points in the county to examine into the causes of fever, but you know how hard it is in country places to locate

the cause. There are other matters relating to the duties of a Health Officer which, with the law in its present form, makes it impossible to accomplish any good; the section in reference to impure food needs a fund to make it effective, as analysis is impossible without an appropriation to carry it out. And this seems to me one of the most important duties of a Health Officer (to see that people have pure food.)

In several instances where there were cases of contagious diseases breaking out in the public schools, I have tried to have the school closed, but upon one occasion was curtly notified by the school examiner to attend to my duties and the school board would attend to theirs. And as the law is not clear on this point, I have had to content myself by notifying the parents. Such things should not be and the authority of the Health Officer should be set clearly forth. I received a notice from you, also from the Governor of the State, Surgeon-General, and officer in charge of Marine Hospital, last spring in reference to a supposed case of small-pox near Jessup's; I visited the house and found the man had been vaccinated in one of the departments and was suffering from its effects. These seem to be all the facts of any moment occurring in our vicinity.

Very respectfully,
THOS. B. OWINGS., M. D.

MONTGOMERY COUNTY.

ROCKVILLE, *November 12th, 1895.*

DR. JAMES A. STEUART,

DEAR SIR:—I am glad to be able to report that the health of our county, (Montgomery) has been during the past year remarkably good, as far as my knowledge goes. No diseases have prevailed as epidemics; some few cases of diphtheria, not of the malignant type, generally yielded quickly to treatment; in one case anti-toxine was used with favorable results.

During the prevalence of small-pox in Washington, a few cases of that disease were reported here, but the precautionary measures taken prevented its spread. Of typhoid fever we have had much less than in former years, generally of a mild type, and with but few fatal results. Owing to continued dry weather, and consequently the partial drying of streams and wells, the water becoming sluggish and stagnant, malarial fevers have appeared in some localities where malaria was never before known. Notably is this the case near Forest Glen, from the condition of a lake in that vicinity. Complaints having been made of it as a nuisance, we hope soon to have it corrected.

The sanitary condition of the county, as far as I can ascertain, is generally good.

Respectfully,

C. J. MADDOX, M. D.

Secretary Local Board of Health for Montgomery County.

WASHINGTON COUNTY.

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore, Md.

MY DEAR SIR:—With the exception of a mild form of scarlet fever, that has prevailed in certain sections of this county since my last report, and at present in Hagerstown and some of the smaller towns in the county, the health of our people has been exceptionally good. Typhoid fever has been conspicuously absent, more so than for many years.

At a meeting of the County Commissioners which was called on account of the annual visitation of the Secretary and Executive officer of the State Board of Health, Dr. James A. Steuart. A most interesting and instructive presentation of many sanitary subjects was brought to the attention of the Board by him. He plainly outlined the important duties to be observed, and forcibly impressed the Board with the great importance of a prompt and business like execution of all these sanitary matters that come within their jurisdiction, and a full co-operation with the County Health Officer, who he knew would do his part. Dr. Steuart's wise suggestions were most cordially received by the Board, and the following *order* which he presented was adopted:

"Whereas, the vital statistics of the State of Maryland is of the highest importance in the interest of public health, and whereas the laws of Maryland require that the State Board of Health shall compile and publish the same from time to time, and especially biennially in the report to the Legislature,

"Therefore, be it resolved by the County Commissioners sitting as a Board of Health, that all practitioners of medicine registered in Washington county be requested and respectfully urged to do their part in reporting to the Secretary of the State Board of Health, all cases of disease of a serious character, as well as all deaths that may occur from any cause, in their practice, at least once a month, or oftener if they so desire."

At the same meeting, the County Health Officer offered the following order, which was strongly commended by Dr. Steuart, and adopted by the Board:

"Ordered by the Board of County Commissioners of Washington County, sitting as a board of health. That in compliance with article 43, section 27 of the Public General Laws of the State of Maryland, that we hereby appoint vaccine physicians for the county of Washington, and that said county shall be divided into nine vaccine districts, naming them, and that a physician be appointed for each district, under the following instructions: It shall be the duty of each physician appointed under this order, to vaccinate all indigent children applying for the same, and to visit each school within his vaccine district upon the day of opening or as soon thereafter as practicable, and ascertain if all the pupils in attendance have complied with the law governing the vaccination of children attending public schools, and report the same to the County Health Officer as soon as practicable. And for the proper performance of the duties herein set forth, each physician shall receive a compensation of dollars per annum.

Upon the adoption of this order the Board of School Commissioners, at the instance of their efficient secretary, Mr. George C. Pearson, passed the following:

OFFICE OF BOARD OF SCHOOL COMMISSIONERS,

DR. T. W. SIMMONS,

HAGERSTOWN, Md.

Health Officer, Hagerstown, Md.

DEAR SIR:—At a meeting of the School Board held September 18th, 1895, the following order, relating to the vaccination of school children and intended for the guidance of teachers, was passed:

"In order to prevent the annoyance and confusion incident to sending or securing, by the patrons of the public schools, the certificates of vaccination required by law, it is ordered: That the teachers of the public schools of the county shall keep a *record* of the pupils in their respective departments who have been vaccinated, together with the names of those performing the operation (regular practicing physicians) and the date thereof. This record shall be kept on the blank pages of the school register, where three columns may be made for the purpose, with the following heading: 'Record of Vaccination, E. D. —, S. D. —.'"

It was further ordered that the principal of every graded school shall, on the last day of the school year, transfer all pupils who are promoted to the rooms they are to occupy the next, or coming, school year, and the principal shall give to the teacher receiving the pupils a copy of the record of vaccination of the pupils as found in the school register of the school from which they have been promoted, and the teacher receiving the pupils shall record in his record of vaccination the names, etc., found

in the copy furnished by the principal. It was further ordered that if a pupil removes from one school district to another, it shall be the duty of the teacher of the school from which the removal has taken place to send a copy of the record of vaccination to the teacher of the school of the district to which the child has removed; or, if that is not practicable, to send the same to the parent or guardian of the pupil, when requested to do so.

A meeting of the nine vaccine physicians was then called in order to settle upon a course to be pursued by them in carrying out the order.

This system, which is, perhaps, the only one organized in our State, has so far proven to be most satisfactory. And I believe it can be said with truth, that there is no county in this State or any other State, where the law upon vaccination has been so thoroughly and systematically carried out as in this, and at the same time with much less expense than under the old plan. The co-operative aid given by the school commissioners as shown above, renders the whole system most complete and practical.

Having recognized the crying need of a more comprehensive sanitary ordinance for Hagerstown than the one which has been in existence for many years, and which has proven so inadequate to its sanitary requirements since Hagerstown has assumed the proportions of a city, with a population of about fifteen thousand, I have endeavored to have a suitable ordinance adopted by our Mayor and Council, for the last two years, and notwithstanding my unceasing efforts in this direction, I am compelled to report that my efforts have been in vain; although the City Council finally passed the ordinance after having eliminated the sections which provided for the removal of hog-pens and slaughter-houses beyond the sanitary limits. I believed I had gained a step forward and that the whole would soon be achieved, but to my disgust as well as to the disgust of every intelligent well meaning citizen of the town, the man who was elected to fill the position of Mayor, placed his veto upon the entire ordinance. His reasons for so doing, evinced in my opinion, a very narrow appreciation of the vital importance of what was carefully designed for the protection of the health and lives of our people; for example he says in his veto, "I have no objection to the establishment of a sanitary board for Hagerstown if the power and authority of said board is clearly defined, but I can not approve an ordinance that transfers to said board the power to say what shall constitute a nuisance."

The duties of said board, as given in this ordinance, are ~~identically the same as~~ laid down by the State Board of Health, which says "the Sanitary Board of any incorporated town in the

State of Maryland, shall be the supervisors of all matters affecting the health of the people within its sanitary limits, and the investigation of all known causes which injuriously affect or tend to affect the health, or imperil the lives of the people living therein, they shall take cognizance of all nuisances, sources of filth, and other causes of sickness, as well as the existence and spread of all infectious and contagious diseases as the public health and safety may demand, and as may be provided by the ordinances of the town." Surely this defines the object and purpose of the Board clearly enough, and as for what constitutes a nuisance this ordinance provides that such questions must be settled before a police justice in case of dispute, and not before the sanitary Board.

Section 4th of the ordinance which is next considered, provides that every physician practising medicine within the sanitary limits of Hagerstown, shall immediately after the occurrence thereof, certify and report to the sanitary board, in writing, all deaths which come within his practice within said limits, and the cause of death and the age of the deceased. This section is verbatim as issued by the State Board of Health, and for which the veto says, so far as the provisions of section 4th are concerned, I can see no reason for any such general provision.

Section 5th provides that no undertaker shall bury any person within the sanitary limits of Hagerstown without a permit therefor first being had and obtained from the Sanitary Board, and no grave digger or cemetery keeper shall inter any body unless the undertaker in charge of said body shall first exhibit a permit therefor, and said permit shall be taken by said grave digger or cemetery keeper, and returned by him to the Sanitary Board. This section is just as issued by the State Board of Health, and for which the veto says, it is unnecessary and can have no useful purpose.

His veto finally states, the ordinance is full of lead pencil interlineations, &c., and if for no other reason I could not approve it; to this I will state that but three lead pencil interlineations appear in the entire ordinance, and those were made at the instance of the council, when considering the same for their adoption.

In the latter part of the ordinance which provides for additional sanitary regulation for Hagerstown, Section 1st provides, that if any premises within the sanitary limits of Hagerstown has upon it a well, spring, cistern or other source of drinking water, that is suspected or known to be unfit for use as drinking water, that it shall be unlawful to allow the same to be used as such until after due investigation is made by the Board of Health, and for which the veto says it is too broad and general and its provisions might result in great hardship.

Section 11th is next vetoed. This section provides for the removal of small-pox and cholera patients outside of the sanitary limits, when in the judgment of the board it might become necessary. This section might have been omitted, as such action is taken directly by the Secretary of the State Board of Health, when the local board is ordered to remove such cases.

Sections 15 and 16 the veto says, are very severe, in that they make the person violating its provisions liable, however ignorant they may be of selling diseased meat on the market or elsewhere. How far does ignorance of the law extend? His reasons for vetoing section 17th are entirely too insignificant to refer to.

By this detailed statement of how this sanitary ordinance has been disposed of, you can form some idea what an unfortunate obstacle it met with. Strange as it may appear, nearly every section vetoed is plainly laid down in the model of an ordinance to create a Board of Health, and provide other sanitary measures in each incorporated town in the State of Maryland, as provided by the State Board of Health.

Very truly and respectfully yours,

L. W. SIMMONS, M. D.

WORCESTER COUNTY.

SNOW HILL, MD., *March 30th, 1895.*

DR. JAMES A. STEUART,

DEAR SIR:—I herewith submit my report for the first quarter of the year. From general observation and inquiry I am justified in stating that our county—Worcester—still maintains her reputation for general healthfulness. We have had several cases of "La Grippe," but few of a serious character, yielding readily to appropriate treatment. There have been a few cases of malarial fever of a mild type; also measles and a few cases of a mild form of scarletina; mumps are now prevailing epidemically. Our death rate has been very small in proportion to the number sick, being confined principally to the aged and infirm.

Very respectfully yours,

C. P. JONES, M. D.

P. S. I distributed the few cards I had, with the request that they should fill them and remit to you.

QUEEN ANNE'S COUNTY.

January 7th, 1895.

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore.

DEAR DOCTOR:—I intended to enclose you my report this morning, but afterwards discovered I had not done so. I herewith enclose it.

Respectfully,

CHAS. COCKEY, M. D., *Sec'y Q. A. Co. Bd. of H.*

*Report of Dr. Cockey before the Queen Anne's County
Health Board*

The following report was submitted by Dr. Chas. Cockey to the county commissioners last Wednesday. It contains many valuable suggestions and shows a gratifying condition of public health. Its observations on the decrease of pulmonary diseases, lends strength to our claim that this county is one of the best places in the world to live in:

GENTLEMEN:—At this our second semi-annual meeting provided for in the Act creating Local Boards of Health for the counties, I herewith submit my report of the health conditions of our county noted since my appointment as Health Officer in June last.

In the discharge of my official duties I have visited our principal towns and villages, talked with the practicing physicians and others interested in sanitation, and am gratified to be able to report health conditions fairly good, with a growing sentiment favorable to sanitary laws, as well as for their better enforcement. I can testify to a change in this direction since I held the office of health commissioner in 1890-91, and I think the change for the better may be made apparent and manifest to all when our present health conditions are compared with the highly offensive and unsanitary state of things which prevailed before and at the time of the organization of a health board for the county, and before our towns became incorporated, with health laws to assist the County Board in abating and removing filthy pig-pens, badly kept slaughter houses and other sources of filth which we all remember so well. But although we may justly claim our health conditions to be somewhat improved, yet sanitation can not be very greatly advanced, or made to show its legitimate and proper results until health laws, both written and natural, are more systematically and strictly observed or enforced. Pure food, pure drinking water and a pure atmosphere to breathe, together with isolation and disinfection during the prevalence of contagious and infectious diseases, are the

main factors for the suppression of diseases and the promotion of health, and to these important health essentials I would direct public attention for a better execution of the laws relating thereto.

By calling into requisition the offices of the Sanitary Board for live stock, with provisions as well for the inspection of food under the supervision of the State Board of Health, the markets may be freed, in a great measure, from impure food of all kinds, animal, vegetable, and the fruits as well; it being the duty of this board, through their executive officers, when properly informed, to see that no diseased stock of any kind be slaughtered for the markets, and that no impure or unwholesome food be offered for sale. We may have protection as well against impure drinking water through our State analytical chemist, who is prepared to analyze all suspected drinking water, and report results free of charge when such water has been properly taken, and labeled and sent through the proper channel for his examination. The air may be purified by proper drainage and the timely removal of all decayed and decaying matter from the premises to the soil, where it may be utilized for fertilizing purposes, and at the same time freeing the atmosphere of the noxious and dangerous gases and properties arising therefrom.

I have paid several visits of inspection to the jail and almshouse during the summer and fall. The almshouse still maintains its excellent reputation for sanitation. The building, being well adapted to its purposes and kept thoroughly clean and well ventilated, affords no habitat for the germs of disease; the same highly satisfactory condition of things prevails on the outside, the grounds are well drained, and kept clear of filth, permitting the circulation of a pure atmosphere about the place for the benefit of the inmates. The trustees are entitled to the highest praise for the exceptionally good sanitary condition of the institution.

Since the grounds in the rear of the jail have been raised with earth and sand, giving good drainage, where heretofore the water, with wasting from the kitchen, was permitted to pool and sometimes become stagnant, both the health and comfort of the place have been greatly improved. But not until the further suggested and contemplated improvements so necessary for the health of those living at the jail, as well as persons living adjacent thereto, have been completed, can the sanitary condition of the building be considered satisfactory or safe. As a board of health for the county, having the health conditions of the institution directly under our control, we should see to it, that no room for charge of unsanitation exist in the future. The "vaccination law" as applied to the "public schools," I believe, cer-

tainly, so far as I know, is well observed. The practice now observed by physicians of giving a temporary, or ten day certificate on performing the act, and reserving a permanent certificate until known to be successful, serves a useful purpose in preventing unprotected children from attending the schools. I have advised the teachers, to a strict enforcement of the law in requiring successful certificates both for their own protection as well as for the protection of the public health. The Act as applied to children from one to five years of age is almost entirely ignored. I have vaccinated myself between fifty and sixty children, most of whom are school children, this number multiplied by the number of practicing physicians in the county would count, say, some seven or eight hundred school children vaccinated during the year. These figures are, of course, only approximate, but I would judge not far out of the way.

Owing to the very dry summer, we have had more **fever cases**, perhaps, than for some years past. In its relation as a cause of typhoid fever, epidemics of this fever are most frequent during dry seasons, when the ground water is low, and the springs and water sources drain most thoroughly contaminated foci, conveying to the wells and other water supplies a greater amount of poison; the water supply being low, the dilution is less and the danger of infection consequently greater. It is opportune to say just here, that pig-pens and all other sources of filth should be kept as remote as possible from wells and other water supplies, as there can be but little doubt that drinking water is frequently infected from such causes. As a cause of malarial fever, the dry season may operate in the light growth and early decay of vegetation, which, when kept growing, serves a useful purpose in absorbing the gases and neutralizing the miasm arising from the soil, the reputed cause of the fever. There has been but little scarlet fever or diphtheria in the county during the year. A mild epidemic of scarlet fever made its appearance in Centre-ville about two or three months ago, but by the judicious observance of isolation, with fumigation and disinfection the disease, I believe, has been pretty well stamped out. We have at this time a few cases of scarlet fever in Queenstown, which, I hope, by strict isolation to prevent from spreading.

The county has been peculiarly exempt from lung diseases, both of an acute and a chronic character, for some years past. Pneumonia, once so prevalent and fatal, has become comparatively infrequent. I think it safe to say, that the number of cases occurring now in a given population and a given time, as compared with fifteen or twenty years ago under similar conditions as to population and time, have decreased from 50 to 75 per cent.; consumption or pulmonary tuberculosis, the most general as well as the most fatal of diseases throughout the

world, is becoming less frequent with us year after year. Our growing exemption from this most dreadful disease may be accounted for, I think, in the raised, or improved standard of the general health of our people, furnishing a better physique and especially a more healthy lung tissue to resist the tuberculous bacilli which finds such sure and ready lodgement and growth in the lungs of the debilitated and weak.

I herewith transmit below a statement of my official acts during the year.

CHARLES COCKEY, M. D.,
Health Officer for Queen Anne's County.

DR. COCKEY'S REPORT.

As secretary of the Queen Anne's Board of Health, and in the name of our many good people, I would welcome our worthy secretary of the State Board of Health, Dr. James A. Steuart, of Baltimore, to our county. His mission is a good one, being for the recommendation of such laws of health and sanitary measures as will contribute to the suppression of disease and the promotion of the general, or public health. No branch of the science of medicine, perhaps, contributes more to the public weal than that of the sanitarian. He would not only suppress disease by the abatement of unsanitary nuisances, the use of disinfectants, deodorizers, etc., promote the general health by the securement of pure air, food and water, but, perhaps, save as many lives as either of the other branches by preventing disease, were computation possible in such a case. Too often diseases, when once established in the system, are beyond the control of the best equipped and most skillful practitioner, and although we boast of our specifics and remedies and the great advances made in the treatment of diseases, yet we are compelled to acknowledge our inability to contend successfully with some of the most serious forms of infectious and zymotic diseases when they appear in their greatest malignancy. The result of the treatment often depends upon the nature and character of the disease, the amount of poison taken into the system and the constitutional vigor, or want of vigor, it may be, of the individual case. But the sanitarian would contend with the causes of disease rather than with the disease itself; he would destroy the poison before it had been taken into the system; he would, as it were, attack the enemy before he had been entrenched, or is in a position to do harm, and thereby save much trouble and many lives by such mature and timely action. Every one, laymen as well as professional men, can understand and appreciate the importance of the removal of the vast amount of filth, in the way of garbage and decayed matter, found in every large and densely populated city.

It is the duty of the sanitarian, either by efficient sewerage, cremation or some other method, to dispose of and render innocuous to the public health all such matters, which, it must be plain to all, if allowed to remain, would not only be offensive to the public sense, but would become the foci for the dissemination of poisonous and noxious gasses dangerous to public health. The same condition of things, the same methods for relief, and the same dangers spoken of, apply to country towns and country places as to the cities, only in a less degree. He also has to deal intelligently with isolation, disinfectants, deodorizers, etc., during the prevalence of contagious and infectious diseases.

I am glad to report the health of the county as good since my report in the fall of 1894. There have been no serious epidemics during this period. Whooping cough has prevailed pretty generally throughout the county, I believe, but happily it is rarely fatal, except with the very young, children under one and two years of age. There has been one death from it in our district since its inception, sometime last year. Some two or three deaths from this disease have occurred during the epidemic on Kent Island.. There have been some mild cases of fever in different parts of the county, all of which, so far as I have been informed, have been amenable to treatment. I have not been called upon to abate a nuisance of any kind since our last meeting. Since the towns of the county have been incorporated with health laws a great deal has been done for the removal of unsanitary conditions, such as filthy pig pens, offensive privies, and many other sources of ill health, found previous to this time.

WORCESTER COUNTY.

SNOW HILL, WORCESTER COUNTY, MD.,

January 8th, 1895.

DR. JAMES A. STEUART.

DEAR DOCTOR:—In compliance with your request, I send you a limited report of the health of our county. In the meantime please accept my apology for the delay, as I did not keep note of the time of the meeting of the Health Board.

The health of our county for 1894 has been exceptionally good, having had less sickness during that year than in any in my experience, covering an extended period of forty-five years. We had some cases of typho and malarial fevers, also of diphtheria, scarletina and measles, but they were attended with *very little* fatality. The lateness of my appointment would preclude a statistical report, and hope, therefore, I will be excused at present for not going into further detail. I shall during the present year devote my time more fully in making more elaborate reports.

Is it necessary to make monthly reports, or include in the year's report all the statistics of health for the current year? In looking over the laws regulating the Board of Health, I find them very stringent, involving great responsibilities in the discharge of the duties thus imposed, which I shall endeavor to make in a manner satisfactory to the Board.

Yours truly,

C. P. JONES, M. D.

BALTIMORE COUNTY.

WETHEREDVILLE, MD., *January 1st, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR:—Since the report sent you in July last, the attention of the Local Board of Health has been called to the prevalence of typhoid fever in a number of localities in the county. When reported, these places were visited and efforts made to discover the sources of infection, and such suggestions offered as were thought best to prevent the increase of the disease.

The localities affected were differently situated, some in the high, rolling sections of the county, others in the low or valley lands. In some instances it was difficult to trace the causes that produced the trouble, in others it was clearly apparent that it was owing to impure drainage into the water supply. We have no means of obtaining reliable data to base an estimate of the number of cases or of the rate of mortality.

Scarlet fever and diphtheria have prevailed to some extent, but probably not more so than in the previous year. We have not been informed of the existence of either in an epidemic form. Whooping cough is now prevailing quite extensively with no more serious results however, than decreasing the attendance at the public schools.

With the above exceptions, the health of the county generally has been good.

Three hundred and ninety-nine vaccinations were reported to the county commissioners during the past six months.

Respectfully yours,

J. C. MONMONIER, *Secretary.*

CECIL COUNTY.

ZION, MD., *July 2, 1894.*

DEAR SIR: Please find statistics about the number of births, 12; deaths, 3; vaccinations, 20. No epidemics except grippe.

Yours, etc.,

DR. GRIFFORD.

DEAR DOCTOR: This is the report sent in by Dr. Grifford, from 9th district, just received. Yours,

J. H. JAMAR, M. D., *Health Officer, Cecil Co.*

ANNE ARUNDEL COUNTY.

ANNAPOLIS, MD., *June 25, 1894.*

DR. J. A. STEUART,

Sec'y State Board of Health.

DEAR SIR: Permit me to submit my report for the past six months.

Acute lung diseases, adults, two; infants, two; died in my practice.

Measles, scarlet fever, diphtheria, whooping cough and malarial fevers, have been limited to cases few in number and of a mild character. The general health of the county, as reported and sustained by my observation, has been unusually good.

April 2d, several cases of scarlet fever were reported at Eastport; I had the house and yard cleaned, the dirt and sweepings, buried in a trench and well limed. No other cases developed.

May 17th, visited the two reservoirs which supply the city with water. Found the supply ample and both full. A former visit showed one empty, and another one third full, the employee responsible, has been dismissed. The company is making every effort to furnish pure water.

May 25th, in obedience to your letter about the two cases of small-pox at Bodkin point, visited the residence of Dr. Elijah Williams, who was not at home, but had already attended to all the details necessary in the matter.

May 28th, visited the city garbage dump and rectified some of the dangers incident to this old fashioned, filthy and dangerous method of disposing of the city's filth; that is, moving it at great expense, labor and trouble from the city, and dumping it outside, to pollute the pure air of the country. In my opinion published many years ago, there is only one solution of the garbage question: all dirt and filth, possible, should be *cremated*, BURNED, DESTROYED. This ends it at once and forever.

June 2d, visited Brooklyn to bury Samuel Dorsey, colored, who died two days before of small-pox. The public funeral was stopped, and a large concourse of people were prevented from assembling at the home and church. Every effort was made to prevent the damage to those exposed.

June 5th, met the County Board of Health to confer in regard to the above cases of small-pox.

June 17th, visited Dr. Thos. H. Brayshaw, at Glen Burnie, in regard to matters relating to my office, particularly in regard to the huddling together of Poles and Bohemians in houses not adapted to the numbers.

I did not count the "creatures" nor measure "the barracks," but am sure no "Chester pig" on my father's farm was ever so limited for space to sleep in.

I think these "pickers" should be quartered in huts and tents, four or eight in each, the huts and tents separated for spaces for fresh air, then with sunshine and pure, clean, abundant water supply, to be had on every farm, their condition would be eminently improved, morally and physically. A contagious fever in one of these "barracks," crowded beyond human conception, would be a fatal calamity; a contagious fever in a hut or tent, separated, and occupants limited, would be nearer sanitary perfection than we can hope to attain.

The County Board of Health have had seventeen hundred vaccinations performed, nearly all due to the three cases of small-pox mentioned.

Very respectfully,

J. M. WORTHINGTON,

Secretary County Board of Health.

MONTGOMERY COUNTY.

ROCKVILLE, *July 2d, 1894.*

DR. JAS. A. STEUART,

DEAR SIR:—In response to your letter, I enclose report for Rockville and vicinity. It has been impossible for me to hear fully from all portions of the county, but as far as I can learn, the health of the whole county has been remarkably good for the past six months. Some few deaths from cholera infantum during the heated term; also some fatal cases among the aged from bowel disorders. The cases of la grippe, which disease still lurks among us, generally yield to medical treatment.

I note your suggestion of the promotion of a Sanitary League, and will do all in my power to forward it. It meets with my approbation, and will, I am sure, have the cordial support of our Board of Health.

Truly yours,

C. J. MADDOX, M. D.

Report from January 1st, 1894, to July 1st, 1894.

Cases.		Deaths.
29	Whooping Cough.....	
3	Erysipelas.....	
1	Typhoid Fever.....	
2	Malarial Fever.....	
12	Dysentery.....	
96	Diarrhoeal Diseases.....	
11	Consumption or Pthisis.....	3
3	Acute Lung Diseases.....	

This report is for Rockville and vicinity. The population of the village is 1,600.

C. J. MADDOX, M. D.

QUEEN ANNE'S COUNTY.

QUEENSTOWN, *June 30th, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

MY DEAR SIR:—At your request I herewith transmit my health report for Queen Anne's county, for the period named in your letter, viz.: from January to July of the present year. From information obtained from professional brethren throughout the county, both by letter and personal intercourse, and my own experience and observation, I am glad to state the county has been exempt from any severe epidemics of zymotic or infectious disease for the time covered by my report, and that the general health has been fairly good. There were a few mild cases of scarlet fever in Centreville during the winter, but by the observance of isolation, the use of disinfectants, and the general intelligent management of the cases by the physicians in charge, the disease was checked and prevented from spreading beyond some two or three families; there were no deaths. In my own district, Queenstown, there were also some cases of scarletina during the winter and spring months, it was limited to a small section, occurred in four families, and numbered twelve or fourteen subjects, with one death. The fatal case was peculiarly malignant and might be denominated fulminant, as death resulted in some thirty-six or forty hours after its inception. It came on suddenly with great nausea and vomiting, in a short time had very high fever and most excruciating pain in the head, so severe that the child pressed her hands to the head and called for relief. I saw the case myself in about twenty-four hours after it came on, the temperature was 106, the tonsils swollen and injected and covered with a glazy looking exudation, pulse

rapid and very weak, breathing heavily, and in a semi-conscious condition, she died in about twelve hours from this time. As there was no other case in the family and none in the immediate neighborhood, some doubt was expressed as to the diagnosis, but in about ten or twelve days two distinct cases of scarlet fever developed with the characteristic tongue and rash. By the observance of isolation, the use of disinfectants, etc., and closing the neighborhood school for some three or four weeks, there was no further spreading of the disease. Grip, catarrhs and pneumonia prevailed pretty generally in the county during the past winter, and as late as March. Pneumonia in most cases was associated with grip, attended with an unusual amount of intercostal pain, and very fatal. At no time since I began the practice of medicine do I recollect this disease to have been so fatal; I believe the fatality to have been due to its being complicated with grip or influenza. It is worthy of notice here to state that our county has been remarkably free from pneumonia for the past ten or twelve years until last winter. From the time I began the practice of medicine in 1866, for some ten or twelve years pneumonia was the prevailing disease from November until April, and I am quite sure the period just named would number five cases for one of the period named, as being so remarkably exempt.

We are to be congratulated for our exemption from malarial diseases for the past ten years, either in the form of chills or remittent fever. Some ten or twelve years ago, running from 1879 to 1884 or 1885, malarial fever was almost a scourge to our people, scarcely a family escaped it in some form, cases frequently lasting six and seven weeks, though it was not often fatal; since then we have had but little of it in any form. Sometimes we have a case or two of fever that will last a few days or perhaps a week, and very rarely indeed do we ever see a case of chills—what was the cause of so great a prevalence of the disease for the period named, and the exemption for the past ten or twelve years, is a question well worthy of the attention and study of the medical profession. I hope, however, it has left us never to return, and that the investigation will not have to be made for our benefit. I report number of vaccinations made by myself, to be about fifty since last June; number of pauper vaccinations, paid for by County Commissioners, to be one hundred and eleven (111). Our Local Board has never yet appointed vaccine physicians for the public schools; the law on the subject is very indefinite as to its execution; it simply requires teachers to exact certificates of vaccination of children from a physician before entering the schools, without saying by whom it shall be done. The law requiring parents and guardians to have children under their charge over twelve months of age vaccinated, is

almost entirely ignored in the counties. I will say here that the ivory points are much more reliable for successful vaccinations than quills, for what reason I don't know, but it occurs to me it is because the points have more virus upon them than the quills.

Our alms house is a model of cleanliness and order, and I believe will compare favorably with any institute of the sort in the State, our trustees for the poor and physician in charge are highly intelligent and conscientious gentlemen, and have done much for the unfortunate pauper of our county.

The sanitary condition of the jail I regret to say is not so good, I am engaged at this time in recommending a change and improvements in the water closet arrangement of the institution, that will be conducive both to the comfort and health of the inmates, and do away with the offensive odors complained of by people living near the jail.

Bowel diseases are prevailing throughout the county at this time, mostly diarrhoea with some cases of dysentery, which possess all its characteristic symptoms of fever, bloody and mucous stools, violent pains in the bowels with tenesmus, etc. One case has proven fatal under my care. I have heard of (within the last day or two) several cases of typhoid fever, one case in Centreville and three cases in one family in this district, patients of Dr. Chas. Davidson. I will endeavor to investigate the causes and prevent, if possible, the spreading of the disease.

CHAS. COCKEY, M. D.,

Health Officer for Q. A. Co.

KENT COUNTY.

CHESTERTOWN, MD., *July 1st, 1894.*

DR. JAMES A. STEUART.

DEAR DOCTOR:—Press of business and a short absence from home have prevented my preparing the short report asked for in your last. I regret this very much, especially as our people have taken rather more interest than usual in sanitary matters, and have sought advice more frequently.

I shall of course present a report in October to our Local Board, and will also send one to the State Board. I would like to state however, that there have been rather fewer deaths this Winter and Spring than for several years.

The number of cases of contagious diseases is small, and the vaccination law has been quite well looked after. Many of our physicians have vaccinated at the county's expense; I am not able to say however, to what extent, as they have not rendered their accounts.

I heartily favor your proposition for a Sanitary League. I shall ask my Board to send me as its representative, and if I can find time, may prepare a short paper.

Yours very truly,

W. FRANK HINES, M. D., *Secretary.*

CECIL COUNTY.

June 29th, 1894.

MY DEAR DOCTOR:—In reference to a request for a report for the past six months, as to the general health of the county, I regret to say it will be exceedingly meagre at this time for some remarkable reason; the physicians in the several sections of the county have not all responded to my inquiries. Some I know are not at home, and others have overlooked it.

From 1st district I learn there have been no epidemics, one death, no births and no vaccinations reported.

2d. No report at all.

3d. So far as I am able to report, there have been a number of deaths; four in my practice, one from suppurative peritonitis after an operation, one from ossified valves of heart and senility, one of pneumonia, adult, (in jail, moribund when admitted); others in practice of other physicians, but give no report; several births. Have vaccinated 134 children, nearly all successfully. No epidemics of zymotic diseases have prevailed during the six months. General health at present good.

4th. I learn there have been about twenty-five births and eight deaths, no vaccinations, no epidemics, general health good.

5th. Report states there have been several cases of mild form of typhoid fever in early spring—all recovered. Recently there have been several cases of mild form of scarlet fever and whooping cough, scarcely epidemic, and few deaths; number not given. General health at present good.

6th. Report states there were seventeen births and three abortions, twenty cases of vaccination, one death, result of angina pec. A mild form of la grippe prevailed in January—no deaths therefrom. General health at present good.

7th. Report states ten births, one twins, five deaths, two vaccinations. There is an expressed need for vaccination of a good many children, preliminary to their admission to the new "Tome School." No epidemics have prevailed except a mild form of roseola. General health at present good.

8th. No report, possibly little to report.

9th. No report. The same.

They are both rural districts. We include the professional or medical area of the county. Quite a number of complaints have been made to the Local Board of Health, from 3d, 5th and 7th districts, concerning certain unsanitary conditions and nuisances, in all of which, save one, cheerful acquiescence has been given to requests to abate the same.

It is becoming more and more manifest each year, that the people are gradually being educated to the value and importance of a better and more careful observance of sanitary laws and hygienic measures, for it is found that, by so doing, it not only contributes to personal comfort and enjoyment of their home life, but also to the avoidance of diseases and the better preservation of health.

I take great pleasure in saying that the members of our Local Board of Health have manifested much interest, and lent me their hearty co-operation in the carrying out of all measures that tend to bring about sanitary reform.

J. H. JAMAR, M. D., *Secy. Bd.*

BALTIMORE COUNTY.

WETHEREDVILLE, MD., *June 30th, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR:—During the past six months Baltimore county has been almost entirely free of the more serious contagious diseases, with the exception of diphtheria. A few malignant cases of this disease were reported and several deaths occurred in locations remote from one another. Scarlet fever and measles have not appeared to any extent; and as far as we can learn have been of a mild type. One case of small-pox and one of variloid occurred about the time of the recent outbreak in Baltimore. A history of these cases was sent you in former communications. Mumps and whooping cough have prevailed very generally throughout the county, more especially among the school children.

Typhoid and malarial fevers usually do not appear until the late summer or autumn months, and we believe that during the past spring but few cases have occurred. We have noticed in former years that dysentery and diarrhoeal diseases prevail more extensively during a period of cold wet weather occurring in the spring months, and we have had the observation confirmed again this season by the prevalence of these troubles in a number of places. La Grippe disappeared with the advent of warm weather, leaving in its tracks some damaged lungs and wrecked nervous systems.

Vaccination has received more attention, both by parents and physicians, than formerly, and the number reported to the office of the county commissioners, since January 1st, 1894, was 675. Of course, this includes only those that are paid for by the county. The sanitary affairs of the county have been looked after very thoroughly, particularly during the past three months. Visits of inspection have been made to Govanstown, Catonsville, Canton, Arlington, Sunnybrook, St. Denis, Oella, and a number of other places. A marked readiness to aid the Health Officer and comply with the law was shown by all those who were notified to abate any existing nuisance. It may not be inopportune to herewith report the proceedings of the last meeting of the Local Board of Health, as follows:

On June 6th, 1894, Dr. James A. Steuart, Secretary of the State Board of Health, in response to an invitation, met the county commissioners, sitting as Board of Health, at Towson. Owing to the unfavorable condition of the weather, a cold rain prevailing at the time, the meeting was not as well attended by those invited, as the importance of the occasion warranted. Mr. Magruder, President of the Board, introduced Dr. Steuart, and it was very gratifying to notice the marked attention given by those present to the very interesting and instructive discourse made by him. The doctor gave a very exhaustive history of small-pox, dwelling more particularly on the contagiousness of the disease, and the great mortality among those not protected by vaccination. He related a number of incidents in his own experience and that of others, confirming his views on the prophylactic effect of thorough vaccination. He also gave instruction as to disinfection and proper isolation of those affected with the disease, and he enumerated cases where persons contracted the disease from what he considered a very remote contact with the source of infection. After a general interchange of views on various sanitary matters, the Board adjourned.

Respectfully yours,

J. C. MONMONIER, *Secretary.*

CHERRY HILL, CECIL Co., *November 14, 1894.*

DR. J. H. JAMAR.

DEAR SIR: I herein submit my report of the scarlet fever epidemic in my district. First case that came under my care, was in the fall of 1893, and during the winter of that year and 1894, I saw probably 6 or 8 cases, all of a very mild type. In the following spring and summer I saw no more of it, but about the middle of October of the present year, the disease again made its appearance in a more malignant form of the angino-se variety, and I have had possibly 25 cases, two of which proved

fatal. When I reported to and advised the school trustees to close the school, it was promptly done. The school house was whitewashed and scrubbed with carbolized material, also thoroughly fumigated, and the parents of children sick with the fever were advised to do likewise in their homes. Have had no new cases for two weeks.

Respectfully,

J. S. WHITAKER M. D.

RISEING SUN, *December 18th, 1894.*

MY DEAR DR. JAMAR:—I enclose your card as requested. These numbers are not probably all correct, as I have to depend largely on memory. I have only had two deaths in my practice, from the disease on card, and one other from neuralgia of heart, very sudden. It has been a very healthy year in this section; no epidemic of any kind.

Very sincerely yours,

GEORGE S. DARE, M. D.

ELKTON, *December 28th, 1894.*

MY DEAR DOCTOR:—I beg leave to submit my report for the past nine months in rather a novel form, furnishing an exhibit of the various forms of disease that have prevailed, the number of deaths, vaccinations, births, &c. It had occurred to me, that by adopting this mode of issuing cards in blank form to the physicians of the county, requesting them to fill them and return to me, would give me a better opportunity of furnishing you with a more definite report of the health conditions than in any other way. I herewith give you reports from different portions of each district in the county, from which you will be enabled to secure very satisfactory data. It will aid you in your report of vital statistics also. I am in a quandary whether to send them in this way or to compile a general report therefrom. I believe I will send them in this way this time, and if you prefer it otherwise, I will so arrange it the next time.

With kind regards and best wishes for your good health and happiness for the in coming year, I am very truly yours,

JOHN W. JAMAR.

ANNAPOLIS, A. A. Co., MD., *December 31, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

Since my report in Octobor, nothing of special interest has transpired. Typhoid and scarlet fever has prevailed in the county, but I know neither the number of cases nor the percent-

age of deaths. I cannot report vaccinations until the doctors send in their bills for the work done.

The County Board of Health met October 9th, in compliance with the law. All the members were present.

The general condition of the health of the county for the past year was excellent. I regret not being able to give the facts and figures. This demands the assistance of all the county physicians, and partial reports are of little use.

Very respectfully,

J. M. WORTHINGTON, M. D.,

Sec'y County Board of Health.

CARROLL COUNTY.

WESTMINSTER, MD., *January 7, 1895.*

DR. JAMES A. STEUART, Sec'y State Board of Health.

DEAR SIR: I received your request some weeks since, but have been so much occupied as to compel me to defer my reply. I have never kept a record of births or deaths in my practice, few physicians doing it, and not others of the county. It seems to me it would be of little practical value. Our county has had more typhoid fever this year than usual, many of them proving fatal. In some cases they were directly traceable to local causes. In others it could only be supposed to be due to low water, in a part of our county known as the *red lands*; where the water has never had a good reputation. I do not know that it has ever been analyzed, to test its true character. We have had a little malignant diphtheria. A mild epidemic of scarlet fever has been prevailing in many portions of the county, with rare, if any, fatality. With regards, yours &c.,

J. H. BILLINGSLEA, M. D.,

Health Officer for Carroll, Co., Md.

HOWARD COUNTY.

ELLCOTT CITY, MD., *January 10, 1895.*

DR. JAMES A. STEUART,

Secretary State Board of Health.

DEAR SIR: In compliance with your request, contained in your last letter for my report, I would say that we had considerable typhoid fever in certain localities. About thirty cases occurred at *Savage*, a manufacturing village. My attention was called to the unhealthy condition of the place by Dr. Linthicum; I went there and found the drainage and sinks in a miserable condition. Midway between two sinks, about forty feet apart, stood a pump,

that was in constant daily use, the sinks were blocked, and the contents flowing over the ground; in connection with this nuisance were numerous hog pens, in a filthy condition. Accompanied by the manager I spent several hours examining the premises, and left peremptory orders to have the place cleaned up. I sent a demijohn down to be filled with water from the pump, to have analysed, but the owners locked the pump, and before the water could be procured, pulled out the pump and filled the well. My visit resulted in great good, as there were only one or two cases occurring afterwards.

At Elkridge complaints were made, and visiting the place I found the drainage bad, sinks and pig pens in a terrible condition. There were numerous cases of diphtheria and typhoid fever. I had the privies and sinks cleaned and pig pens removed, which much improved the health of the place. There should be some system of drainage established, as every season there are frequent deaths resulting from the condition of the place. Without corporate assistance it seems almost impossible to overcome it. At Lisbon also there were sufferers from fevers, but I had the place cleaned and an improvement was the result. In our town of Ellicott city, two years ago, we had a bad epidemic of fever, and I was unable to get the authorities to act, but last season I notified them that I should resort to extreme measures, and I am happy to say that acting on my suggestions we were unusually exempt from sickness. There has been scarlet fever reported to me several times in sections of the county, but no serious epidemic; here and there a sporadic case of diphtheria, and with the exception of Elkridge, nothing like an epidemic.

In reference to vaccination and small-pox. I think the people are generally vaccinated, the schools ought to be, after all that has passed in our Court, of which you must be posted. There has been no small-pox in the county. We had a scare at Jessup's, in which the Surgeon-General of the United States, the physician in charge of the Marine Hospital, the Governor, the Health Officer of Anne Arundel, and State Board of Health, were all notified, but it was "a tempest in a teapot," and had the doctor, who caused the scare, in passing the house, gone in and examined the patient, as he was requested, there would have been no necessity of his signing a petition published in the Evening News, headed "Nero fiddled while Rome burned." It was simply, a man was vaccinated for the first time, and it took beautifully. I have unfortunately kept no record of the deaths in my vicinity; of births, ninety-four in my own practice. It seems to me that some legislation is necessary to make the Health Board of the counties more efficient—and that that part of the law making the Health Officer examine into the different articles of food, etc., should be repealed, or a sufficient appropriation made to

carry out the law. It is impossible to enforce the law without funds to analyze the suspected articles. Then the pay does not justify his visiting the different stores where they are offered for sale. In reference to the statistics of deaths and births, you will never be able to get even an approximate until a law is enacted requiring the physicians of the different localities to report to the Health Officer every month, under penalty of heavy fine for non-compliance. The Health Department has done much good and much more could be accomplished with proper legislation.

Yours truly,

THOS. B. OWINGS, *Health Officer of Howard County.*

KENT COUNTY.

CHESTERTOWN, MD., *January 2, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR: I send you as requested, a short report of the general sanitary condition of Kent county, for the past twelve months, and regret my inability to make it longer and more interesting, but so long as we have no record of vital statistics and are dependent upon voluntary reports of physicians in general practice, this will continue to be the case. I have endeavored in various ways to get birth and death statistics during the years I have been Health Officer, with such poor success as to render them of little or no value. The absence of a law compelling such reports is to my mind one of the greatest defects in our sanitary system.

The year eighteen hundred and ninety four was quite similar to its predecessor from a sanitary stand point. The occurrence of occasional contagious diseases, the usual catarrhal troubles, some cases of influenza, typhoid fever, and occasional malarial diseases have furnished the bulk of the patients that have sought medical aid.

Since the visit of yourself to our county, a little more than one year ago, we have had a more general observance of the vaccination law as regards the public schools. The discussion which took place at that time has been fruitful, especially as to what constitutes a "duly vaccinated" child who presents such a certificate to the school authorities.

I find in this connection, that five of our physicians have vaccinated children at the county's expense, to the number of three hundred and twenty-five; of these I have reason to believe fully two hundred and seventy-five were colored, showing a disposition to a great extent on the part of the poor whites, also on the part of the better class of the colored people to pay for vaccination

rather than have their children excluded from school. I have never encountered but one man who has positively declined to have his child vaccinated prior to admission to school. After holding out for one year he came to his senses and gave his consent, when he found they would not otherwise have the advantages of our admirable public school system.

It has been my observation for several years, that pneumonia has become an infrequent disease in this section. I have heard several doctors, with quite extensive practices, say, that saving the broncho-pneumonia of children and old people, they rarely meet with the acute croupous or catarrhal type of this disease. I am unable to offer any reason for its infrequency, inasmuch as it is now so generally recognized as due to specific germs other than the fact that our people are gradually learning to be more careful of their personal hygiene and dress; also, that exposure places them in a condition whereby they are more liable to succumb to infectious germs originating disease. If this is so, then sanitation and preventative medicine begins to show results even in rural sections.

The grip, during part of January and February claimed its victims, though I am glad to state it was of a mild type, and I have no knowledge of any fatal case, or any that I could believe to be traceable to this trouble. This has been the case with influenza since its appearance among us in 1890, with few exceptions.

It has been recently stated and shown by Dr. Clark, of Caroline county, that malarial diseases are rare in this section of the State. I believe this to be true. I have been practicing medicine in Kent county since the Spring of seventy-seven, and have lived in Kent, (with the exception of four years,) since 1856. When a boy and young man I remember well it was regularly expected by our people to have chills and fever every Spring and Fall; this continued to be so until the early seventies, when it began to be noticeable in its decline; since then it has steadily grown less and less, until now it is a fact that a case of chills is the exception. I can truly state, that the day is past when our section of the Eastern Shore can be called the home of malaria. The reason for this may not be fully understood; perhaps drainage, the use of commercial fertilizers, improved sanitation, hygiene and atmospheric changes have played their part; be this as it may, malarial diseases have become almost a thing of the past, and as is almost invariably the case, typhoid has become more frequent. Our town and county has during 1894, had more cases of typhoid fever than usual; this has unfortunately caused the loss of several valuable lives. This is to be deplored when we stop to think of all preventable diseases, this

is or should occupy the foremost place. I have investigated a number of cases of typhoid fever in various sections of the county, some of which could readily be traced to their source, others could not, notably, one family in which occurred three cases. Upon investigation it was found that a leaky pipe, running parallel with a drain pipe, through which ran all the closet water, at their nearest point of contact, was believed to be the point of danger; and upon this being remedied the trouble ceased. Several other local epidemics of from four to six or eight cases, due to causes afterwards remedied, that should never have existed, make us believe that the day may yet come when these diseases may be prevented, or at least made to occur with much less frequency.

The proximity of the source of water supply on farms, house-drains, privies and hog pens is too frequently a source of danger in this connection, and is worthy the attention of sanitarians. I have had examinations made of the hydrant water of Chester-town with satisfactory results, and while our town has had an unusual number of cases, there has been nothing like an epidemic, and from reports elsewhere, no more than in most towns of like size and conditions.

During the year there has occurred perhaps as many as eight or ten cases of scarlet fever. Having learned of these cases, and investigating them at once, and insisting upon strict quarantine, together with cards of instruction, it has been limited to a small area, and unattended with fatal results.

I am not aware of more than three real cases of diphtheria, this disease, so greatly to be dreaded, having passed us by, and in the light of recent developments in the treatment of it, I am less inclined to dread it than in the past, when it made its appearance and was so soon followed by a high rate of mortality. Though by no means should our vigilance cease, nor our efforts be lessened to prevent its occurrence or spread.

Frequent calls have been made upon me as the executive officer of the Local Board of Health to suppress nuisances and remedy existing evils. Inspection of the various towns and villages has been part of my work. This, with advice and circulars published in our county papers, calling attention to threatening conditions, how to correct evils, how to prevent the spread of disease, and other statements bearing upon hygienic and sanitary matters, have, I hope, helped to teach our people at least some better things.

I am unable to give any statistics of deaths or births, or to state the number of zymotic diseases or results of treatment as requested. In my own practice I have had one death from acute rheumatics; one from tubercular meningitis; one from mem-

braneous croup; one from capillary bronchitis; one from croupous pneumonia; one from cholera infantum. As there are twenty practicing physicians in the county, and a population of between eighteen and nineteen thousand, if they have had the same average number of deaths, there is no great cause for complaint of a high rate of mortality.

The sanitary condition of Kent county I believe to be improving all the time. The recent establishment of a score or more of tomatoe canneries in the county, brings to mind the complaint made against them some years since in Harford county. I believe they can be so conducted as not to be dangerous; they, like all other offensive trades and nuisances, will require official vigilance. The duties of Local Health Officers must multiply as the conditions requiring their supervisions increase, and if the counties expect good service from educated men, who are actively engaged in the duties of the professions, they must expect to offer such compensation as will warrant the expenditure of time and skill. This will increase local power and strict performance of duty can not fail to result in good to the community, from both a sanitary and financial standpoint.

Respectfully,

W. FRANK HINES, M. D., *Sec.*

WASHINGTON COUNTY.

HAGERSTOWN, MD., *December 22, 1894.*

TO DR. JAMES A. STEUART,

Secretary of the Maryland State Board of Health.

MY DEAR SIR: In obedience to your request, I herewith submit the Annual Health Report of Washington County:

The health of the people of the county during the first part of the year was uniformly good, but during the months of July, August, September, October and November, typhoid fever has prevailed sparsely in the rural districts, and also in Hagerstown and the villages of the county, in about the same proportion to the population.

Many deaths have occurred from this fever, and in most cases the disease manifested unusual tenacity by doubling its usual duration. I am unable to give the per centum of deaths, as we have no system of registration here, and therefore find it impossible to say more than that I believe the rate was larger than usual. There were no special conditions beyond the dry season and the low water level, that could be held responsible for the origin of the disease. It would frequently occur surrounded by the most perfect sanitary conditions, while in much

more neglected localities, it did not appear. The drinking water theory did not always maintain, as far as chemical analysis revealed.

The disease developed in families that used only cistern water, others that used only well water, and others again that used entirely mountain reservoir water. The latter was analysed by Prof. W. B. D. Penniman, analyst, when the disease was most prevalent, and pronounced by him to be pure.

Scarlet fever has recently made its appearance in several parts of the county in a mild form.

The disease has existed in one of the districts for some months, but in such a mild form that it was regarded by some of the physicians and people as being *only* scarlet rash, or scarlatina; no notification of which was given the Health Officer until a death from malignant scarlet fever revealed its true nature, as the following communications, which appeared in print, will show:

CHEWSVILLE, *December 6th, 1894.*

MR. EDITOR:—In connection with the death of Joseph Seigman, as reported by your correspondent, I would like to call the attention of your readers and the public generally, to the necessity of greater precaution in cases of contagious diseases.

We have laws regulating this matter, I know, but I am afraid that they are not sufficiently enforced, nor are the people made sufficiently to understand the danger in conveying the disease from place to place in diseases of this nature. Doubtless much of this state of affairs is due to the medical fraternity in not explaining to their patrons the great danger in all contagious diseases and the necessity for absolute isolation in all cases, however mild. Scarlet fever has been epidemic in this community for the past five or six months, fortunately in a comparatively mild form, the little boy referred to being the only fatal case in about twenty cases. There seems to be a disposition on the part of a great many of our people to relieve themselves of any uneasiness, (I had almost said responsibility), they may feel by calling the prevailing disease scarletina or scarlet rash and not regarding it as scarlet fever. This is absolutely wrong. From a mild or regular case of scarlet fever, so-called, scarletina can be developed and carried in the most malignant form, as was the case of the child above reported. The little fellow was sick just three days. His sister is now convalescing from a mild attack of the same fever, which, if it was any justification in so doing might easily be called scarletina.

I was led to thus trespass upon your valuable space by the wide-spread belief, in this community at least, and which I have endeavored to combat, whenever possible, that scarlet fever and scarletina are not the same disease.

Yours,
DR. J. M. STECK.

The Health Officer issued the following:

In connection with the letter of Dr. J. M. Steck, published in *The Mail* of yesterday, in regard to the existence of scarlet fever in and around Chewsville, I will state that no notification of the presence of this dangerous contagious disease had been given me until I received a letter yesterday from Dr. Steck, stating that the disease had been in the community in a mild form under the guise of scarletina, for the last five or six months, and that on Wednesday, the 5th instant, Joseph Seigman died of malignant scarlet fever, contracted from his little sister, then convalescent from a mild form of the disease generally understood among the people of that section as being nothing more than scarletina. This death is a verification of what I have before admonished the public against, viz.: that scarletina is not a distinct disease, but is scarlet fever, and nothing more or less. And notwithstanding it may appear in a mild form, yet it is capable of giving rise in another to the most malignant form of scarlet fever and death, as in the case of Joseph Seigman. The name of scarletina is very misleading, and should never be employed under any circumstances, because of perversion of its meaning. So let it hereafter be understood, that scarletina means nothing more or less than that dreaded disease scarlet fever. In the management of this disease, the State Board of Health requires:

1st. To report all cases to the Health Officer.

2d. To isolate cases as much as possible within the home, and to prevent communication with others, let no member of the family in which there is a case attend school or any kind of public gathering, until permission is granted by the attending physician.

3d. To carefully disinfect the house and room in which it has existed, as soon as possible, after the patient leaves, in the following: Place in the centre of the room a large wash tub about one-third full of water, place in the bottom of the tub bricks or stones, upon which stand an old iron pot containing not less than three pounds of powder of sulphur, close all the windows, doors, and other openings tightly, after placing a little fire on the sulphur in the pot. Without the presence of moisture the effect of burning sulphur is much less active as a germ destroyer. The room of the house should not be opened for twelve or fourteen hours thereafter, and it should be understood that the fumes of burning sulphur are very dangerous to inhale.

4th. When a death occurs, the body should be covered by a sheet that is wet by being dipped in a solution of bichloride of mercury, one part to five hundred, and buried within a few

hours, the funeral being strictly private, and no opening of the casket or exposure of the body allowed.

(Signed)

T. W. SIMMONS, M. D.,
County Health Officer.

BROWNSVILLE, MD., *December 12th, 1894.*

DEAR DOCTOR SIMMONS:—The five cases of scarlet fever referred to in the accompanying report are the result of contact with children suffering from scarlet rash or scarlatina, so called. I have warned the people that there is no difference between scarlet rash and scarlet fever, except in form; that they are one and the same disease, scarlet fever; and that the mildest case can produce the disease in its most malignant form. I was glad to see your letter in *The Mail* of December 7th, making public the same facts.

(Signed)

Truly yours,

DR. J. T. YOUTEE.

Vaccination has been very generally observed in the schools as far as it can be judged. Up to the beginning of the present school term, over 1,600 scholars have been vaccinated at the expense of the county. This number represents the poorer class, which is thought to be about one-third of the entire number subject to vaccination, and I would judge from this, that about five thousand were vaccinated before entering school. There has been much less opposition to vaccination during the present school term than formerly. I will again urge upon our Local Health Board the importance of appointing a vaccine surgeon for each rural district, and two for each of the city districts, whose duty it shall be to visit each school at the beginning of the term, and vaccinate those who are unable to pay for it, and as many others as may desire to have it done at their own expense, also to examine all scholars present, to find if any are unduly vaccinated and yet enrolled, as is too often the case.

My attention was called to a certain school by our School Examiner, Mr. George C. Pearson, (who has given most valuable co-operation to this work,) where I found that six scholars had been admitted upon certificates given by physicians, without having been vaccinated. Such deception cannot be prevented without a physician to inspect each school.

With the above exceptions, I do not find that any infectious or contagious diseases have appeared, and the general health is good at present.

Very respectfully,

T. W. SIMMONS, M. D.,
County Health Officer for Washington County.

CUMBERLAND, MD., *June 30, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore, Md.

DEAR SIR:—In compliance with your request of June 9th, I send you a compiled report of all the physicians in the city of Cumberland. I have no means of collecting statistics from the county.

Sanitary report of the city of Cumberland, Md., from January 1st to July 1st, 1894:

Number of deaths, 126; number of births, 183; number of cases of diphtheria, 103, with 16 deaths; number of cases of scarlet fever, 43, with no deaths; number of cases of typhoid fever, 6, with 2 deaths.

At present the health of the county is good. During this long term of hot weather there has been some tendency to dysentery and cholera morbus. I am, my dear sir,

Yours, very truly,

J. M. SPEAR, M. D.

Secretary of Board of Health for Allegany County.

FEDERALSBURG, MD., *June 26, 1894.*

DR. JAMES A. STEUART, Sec'y State Board of Health.

DEAR DOCTOR: Yours in reference to a report for the first six months of the year was duly received, as also yours regarding the sanitary league. I enclose my report to the County Board, which nearly covers the period; and which you said you would like to have when you were in the county.

There has not been much sickness in the county since May; no epidemics. There were some cases of diarrhœa and dysentery in some localities, but no more than is usual at the commencement of the heated term.

I know of but two or three deaths in county among adults; several small children succumbed.

Regarding the sanitary league, I think the idea an excellent one, and I have no doubt great good will come out of it.

I hope to be able to be present, and will do all I can though probably in a feeble way, to make it a success. I am at your service in the matter. Hoping you are well and that your plans in this important matter will carry, I remain,

Yours respectfully,

J. C. CLARK, M. D.

To the County Board of Health.

GENTLEMEN:—In accordance with custom, and in compliance with the provisions of the Act of the General Assembly of 1886, chapter 22, which constitutes your honorabl Board into a County Board of Health, and under which I was appointed Health Officer, I herewith submit my second annual report.

During this term there has been more claiming my attention than at any previous time, notwithstanding the fact that the general health of the county has been the best it has been for years; but owing to the prevalence of scarlet fever and diphtheria in different sections of the county. Early in the year, I had to take steps to prevent the spread of scarlet fever in Federalsburgh. By isolating the cases and disinfecting the houses in which it occurred, and closure of the public school for a brief period, the disease was confined to three families. Later, on February 9th, I was summoned to Ridgely to investigate an outbreak of diphtheria. I found the cases to be of a very malignant type, three of them resulting fatally, notwithstanding the efforts of the attending physician, Dr. H. H. Rickards, who gave the cases his undivided attention night and day, at a very great risk to himself and family. One week later I disinfected the house in accordance with the rules of the State Board for disinfection.

On February 22d I visited Greensborough, it being reported to me that there were several cases of scarlet fever in the town. I found that there had been five or six cases in three families, all of whom recovered, and that disinfection and fumigation were being carefully carried out by the attending physician, Dr. G. W. Betson, in whose practice the cases existed. On March 6th, I again visited Ridgely to investigate the cause of the death of a colored child, that was thought to have died from diphtheria. I made a post mortem on the child, and removed a portion of its tonsil and uvula, which were taken to Baltimore for microscopical examination by Dr. James A. Steuart, Secretary of the State Board, who was present, with the result of finding a bacillus closely resembling the so-called diphtheria bacillus of Klebs and Loeffler.

On March 20th, I visited Greensborough, a case of diphtheria being reported me; I found the case in an aunt of the child whose throat was examined, as above stated, and who had visited him. The case had been carefully isolated by the attending physician, Dr. Fred. Malone, and every precaution taken to prevent a spread of the disease. Disinfection and fumigation were ordered. On March 30th, I visited Ridgely for the third time, two or three more cases of diphtheria having developed. All of the cases were in a small circle around a swampy piece of ground, which has led me to believe that the disease was somewhat of an

epidemic character, as no connection between the first and last cases could be traced, and disinfection and fumigation had been thoroughly practiced.

In this connection, knowing the value of the public press as an educator, I had an original article on diphtheria published, with the rules and regulations of the State Board for prevention and disinfection, in the columns of the *Denton Journal*, and earlier in the year, one on scarlet fever in the *Federalsburgh Courier*. The vaccination act has been generally complied with. The vaccine physicians appointed by your predecessors have performed their duties well, and nearly all the schools in the county, both white and black, have been visited and the scholars vaccinated. I respectfully advise the appointment of vaccine physicians in each election district be continued.

On or about the first of January I addressed letters to all the physicians of the county, asking them to give me the name, age and cause of death of patients who had died during the year 1893, and also their observation as to the prevalence of malarial diseases as compared with previous years. Nearly all of them very kindly responded; and with the assistance of these letters and the death notices in the *Denton Journal*, I have compiled the following statistics:

Total number of deaths 120. Of these, 16 died from consumption; 7 Bright's disease; 6 pneumonia, following la grippe; 6 typhoid fever; 5 heart disease; 5 cancer; 5 apoplexy; 4 measles and complication; 3 malarial fever; 4 dysentery; 16 were infants under one year of age; 1 was 110 years of age; 9 were over 80; 15 between 70 and 80; 15 between 60 and 70; 16 between 50 and 60. Taking last census, 13,903, this is nearly 9 per 1,000.

As regards malaria, all the correspondents report it as fast disappearing; one of the oldest practitioners puts it as compared with 40 years ago, at about 5 per cent. This corresponds with my own experience. At the present ratio of decrease, in a few years malaria will be an unknown quantity in Caroline county.

Why this is so, I am somewhat at sea to explain; while no doubt due in part to the clearing up of swamps, better drainage, the use of the drive pump and more general intelligence on the part of citizens regarding the laws of hygiene, yet this will not wholly explain it as we used to find malaria in some of the best drained and best kept places, and among our most intelligent people. As there are older and more capable men than myself present, including the Secretary of the State Board, I yield to them for an explanation of this important matter.

Respectfully submitted,

J. C. CLARK, M. D., *Health Officer*.

WATERS FROM FREDERICK AND NEIGHBORHOOD.

[illegible]

REPORT ON SANITARY EXAMINATION OF WATER.

From Notre Dame School—Drawn by Dr. F. E. Chatard.

CHEMICAL ANALYSIS.

(Figures in Parts per Million.)

CONSTITUENTS.	1. Spring.	2. Lower tank.	3. Upper tank.
Color.....	Clear.	Clear.	Clear.
Odor.....	None.	None.	None.
Reaction.....	Alkaline.	Alkaline.	Alkaline.
1. Total residue at 230° F.....	157.00	162.00	151.00
2. Ignited residue.....	139.00	140.00	135.00
3. Volatile residue.....	18.00	22.00	16.00
4. Amt. of chlorine.....	4.40	4.10	4.10
5. " " nitrogen as free ammonia.	None.	None.	None.
6. " " " " albumenoid ammonia.....	Trace.	None.	None.
7. Amt. of nitrogen as nitrates.....	0.95	0.90	1.20
8. " " " " nitrites.....	None.	None.	None.
9. " " earthy bases calculated...	.....	.....	.....
10. " " sulphates calculated as SO ₃.....	.....	.....	.....
11. Character of water.....	Good.	Good.	Good.

NOTES. 1—Determinations 9 and 10 are only made of water evidently hard.

2—The word "Trace" indicates that the substance is present but in too small a quantity to be estimated.

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

September 7, 1895.

Waters from Industrial Home for Colored Girls.

SOURCE OF SAMPLE.	Pump Water.	Pump Water.	Spring Water.
Color.....	none.	none.	none.
Odor.....	none.	none.	none.
Reaction.....	neutral.	neutral.	neutral.
Total residue at 230° F.....	310.	316.	72.
Ignited residue.....	212.	246.	47.
Volatile residue.....	98.	70.	25.
Amt of chlorine.....	46.2	41.2	3.2
" " nitrogen as free ammonia..	.114	trace.	trace.
" " " " albumenoid " ..	.098	.092	trace.
" " " " nitrates.....	.25	1.2	3.1
" " " " nitrites.....	.08	trace.	none.
Character of water.....	bad.	bad.	good.
Sample drawn by.....	.....	Inspector, S. B. of H.	.....
Date.....	July 6, '94.	Oct. 13, '94	Oct. 13, '94

BALTIMORE, *October 18, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health.

DEAR SIR:—I have the honor to acknowledge the receipt of the analysis of the waters at Melvale, for Industrial Home for Colored Girls, and return original report.

Please accept our sincere thanks for your kind attention in the matter.

Very truly yours,

FRANCIS P. STEVENS,

*Chairman of Committee.*BALTIMORE, *October 13, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore.

MY DEAR SIR:—Attached please find analysis of water received from the Industrial Home for Colored Girls, at Melvale, Baltimore county. The analysis shows that the well water is badly contaminated, and should not be used for drinking purposes, while the water from the spring is in good condition.

Yours truly,

W. B. D. PENNIMAN, Per B.

BALTIMORE, *October 13, 1894.**Waters from Industrial Home for Colored Girls, Melvale, Md.*

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	Pump.	Spring.
Color.....	none	none
Odor.....	none	none
Reaction.....	neutral	neutral
1. Total residue at 230° F....	316.	72.
2. Ignited residue.....	246.	47.
3. Volatile residue.....	70.	25.
4. Amount of chlorine.....	41.2	3.2
5. Amount of nitrogen as free ammonia.	trace	trace
6. Amount of nitrogen as albumenoid ammonia.....	.092	trace
7. Amount of nitrogen as nitrates....	1.2	3.1
8. " " nitrites.....	trace	trace
9. Sanitary surroundings....	Poor	Poor

W. B. D. PENNIMAN, *Analyst S. B. of H.*

BALTIMORE, July 6th, 1894.

*Analysis of Water from Industrial Home for Colored Girls,
Melvale, Maryland.*

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	Pump water
Color.....	none
Odor..	none
Reaction.....	neutral
1. Total residue at 230° F.....	310.
2. Ignited residue.....	212.
3. Volatile residue.....	98.
4. Amount of chlorine.....	46.2
5. Amount of nitrogen as free ammonia.....	.114
6. Amount of nitrogen as albumenoid ammonia...	.098
7. Amount of nitrogen as nitrates.....	.25
8. Amount of nitrogen as nitrites.....	.08
9. Condition of supply.....	very bad

W. B. D. PENNIMAN, *Analyst S. B. of H.*

REPORT ON SANITARY CONDITION OF WATER.

*From Baltimore County, Neighborhood of York Road and
Arlington Avenue—Drawn by Dr. Purnell F. Sappington,
P. O. Station H.*

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	No. 1 Well. Mrs. Schley Residence.	No. 2 Well. Mr. Glensky Residence.	No. 3. Mr. DuRill Residence.
Color.....	cloudy	none	none
Odor.....	none	none	none
Reaction.....	alkaline	alkaline	alkaline
1. Total Residue at 230° F.....	138.	180.	83.
2. Ignited Residue.....	84.	139.	51.
3. Volatile Residue.....	54.	41.	32.
4. Amount of Chlorine.....	19.	34.9	14.0
5. Amount of Nitrogen as Free Ammonia.....	.294	trace	trace
6. Amount of Nitrogen as Albumenoid Ammonia.....	.063	trace	.018
7. Amount of Nitrogen as Nitrates..	5.6	.8	5.5
8. Amount of Nitrogen as Nitrites..	present	trace	trace
9. Amount of Earthy bases calculated.....	.....	.....	.....
10. Amount of Sulphates calculated as SO.....	.....	.....	.....
11. Character of water.....	Bad	Bad	Bad

Notes 1 and 2—*Supra.*

These waters are evidently badly contaminated, and should not be used under any conditions for drinking purposes.

Samples received from Arthur Lee Browne, Inspector, October 23rd, 1895.

W. B. D. PENNIMAN, *Analyst S. B. of H.*
October 25th, 1895.

INFORMATION CONCERNING WATER SENT FOR ANALYSIS.

1. Sample from (give owner of property, tenant, town, county and post office.) No. 3, DuRill.

2. Sample taken (date.) October 22, 1895, by P. F. Sappington

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Well.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. New well, only been dug several months.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter (4 feet.); depth (32 feet.) State character of soil, sub-soil and water-bearing stratum. Same as 1 and 2.

7. State distance of well, or spring, from all possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. About 30 feet from stable or privy. 30 feet.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. One case of typhoid; another case in adjoining house, using water from another well.

1. Sample from (give owner of property, tenant, town, county and post office.) A. No. 2, Glensky well.

2. Sample taken (date.) October 22d, 1895, by Purnell F. Sappington.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Well.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. After storms, and in early Spring is turbid, opaque.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter (4 feet), depth (30 feet.) State character of soil, sub-soil and water-bearing stratum. Same as No. 1.

7. State distance of well or spring from *all* possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. It is 50 feet from nearest privies, 12 or 14 in the row.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. One case, typhoid.

1. Sample from (give owner of property, tenant, town, county and post office.) Mrs. Wm. C. Schley, Arlington Avenue, Station H.

2. Sample taken (date.) October 22, 1895, by P. F. Sappington.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. Well.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. Becomes cloudy after storm, like milk mixed with muddy water.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter (4 ft.); depth (33 ft.) State character of soil, sub-soil and water-bearing stratum. Loam, gravel, white clay and sand, a peculiar purple sand-rock ("nigger head,"); and again, sand. A number of wells in this vicinity have a horrible odor; a man digging an artesian well a few hundred feet down the road from the office, tells me that 20 feet down he strikes a stream of water, which has an odor as though befouled with excremen. I know of several wells in the neighborhood that have at times the same smell. Water-bearing stratum, gravel mixed with sand.

7. State distance of well, or spring, from all possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufactories, gas, glue, soap and bleaching works. Well is about 60 feet from stable, and same distance from privy.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. . One case of typhoid.

BALTIMORE, *November 5, 1894.*

*Analysis of Waters Received from Dr. Wm. R. Eareckson,
Elk Ridge.*

(Figures in parts per Million.)

CONSTITUENTS.	SOURCE OF SAMPLE.					
	Clarence Boston. Dorsey's Station.	Charles Neilson.	William Owen. Elk Ridge.	Geo. Hopwood. Dorsey's Station.	William Brown.	
Color.....	none	none	none	none	none	
Odor.....	none	none	none	none	none	
Reaction.....	neutral	neutral	neutral	neutral	neutral	
Total residue at 230° F.....	79.	71.	37.	40.	108.	
Ignited residue.....	45.	46.	19.	24.	69.	
Volatile residue.....	24.	25.	18.	16.	39.	
Amt. of chlorine.....	10.7	2.8	2.9	3.8	5.6	
“ “ nitrogen as free ammo.	trace	.057	.024	trace	trace	
“ “ “ albumenoid						
ammonio	trace	.045	.084	.104	.029	
Amt. of nitrogen as nitrates...	4.6	2.25	.95	0.1	7.81	
“ “ “ nitrates...	none	trace	none	trace	none	
Condition of weather.....	bad	bad	bad	bad	suspicious	

W. B. D. PENNIMAN,

Analyst State Board of Health.

BALTIMORE, *May 11th, 1894.*

J. M. H. BATEMAN, M. D.,

President Maryland State Board of Health, Easton.

MY DEAR SIR:—In compliance with the instructions of Dr. Jas. A. Steuart, Secretary State Board of Health, I have made a very complete and exhaustive examination of the three (3) samples of water sent him, and I attach a full detailed statement of the results of my analyses.

The limits given in the “explanation” and the notes referred to, are taken from the highest and best known authorities in this

country and in England. Knowing the interest you take in sanitary matters, I feel sure that you will compare the figures in the report with the figures in the "explanation," and will come to the conclusion that I have reached, namely, that the samples of water are all perfectly pure. The only case in which the limits are exceeded is the amount of "free ammonia" in the Artesian well; but this excess is very often found in artesian wells, and when accompanied with no other sign of contamination (as in this case) is disregarded.

In conclusion, I can only repeat that there is not the slightest evidence of contamination, and all the waters can be used with perfect freedom from danger.

Yours very truly,

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

BALTIMORE, *May 11th, 1894.*

Sanitary Examination of Waters Supplied to Easton, Md.

(Figures in parts per Million.)

CONSTITUENTS.	Artesian Well.	Stand Pipe.	Spring.
Color.....	none	none	none
Odor.....	none	none	none
Reaction.....	neutral	neutral	neutral
1. Total solids at 230°F.....	282.	286.	293.
2. Solids after ignition.....	206.	197.	209.
3. Volatile solids.....	76.	89.	84.
4. Amount of chlorine.....	5.1	6.2	5.4
5. Amount of nitrogen as free ammonia.....	.082	trace	.02
6. Amount of nitrogen as albumenoid ammonia.....	.0135	.012	.06
7. Amount of nitrogen as nitrates..	none	.1	none
8. Amount of nitrogen as nitrites..	none	none	none
9. Am't of earthy bases as oxides..	76.7	72.3	106.8
10. Am't of earthy bases after boiling	none	none	16.7
Condition of supply.....	good	good	good

NOTES—Wm. Ripley Nickols, late professor at the Massachusetts Institute of Technology, says "ammonia" (in Artesian wells) may be allowed in amounts which would be suspicious in shallow wells." (Water Supply, 3d Ed., page 143.)

Wanklyn, the author of the process used for the examination of water for impurities, says: "A water containing less than .05 parts of albumenoid ammonia" per million, may be regarded as *very pure*.

For explanation of Analysis, see page 33 of this Report.

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

BALTIMORE, *August 9th*, 1894.

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore.

DEAR SIR:—I attach analysis of two (2) samples of water received here yesterday from Dr. W. Frank Hines. These samples are supposed to be duplicates of samples reported on August 4th. Sample B is practically the same as No. 2 while A is very different from No. 1. Sample No. 1 had a large amount of albumenoid ammonia and .5 of nitrites. A has only a trace of ammonia and no nitrites. The difference in these two waters illustrates the importance of having printed regulations as to sampling to be sent to the various health offices throughout the State.

Yours truly,

W. B. D. PENNIMAN, *Analyst*.

BALTIMORE, *September 6*, 1894.

DR. JAMES A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

MY DEAR SIR:—Enclosed please find letter from Dr. T. W. Simmons, relative to analysis of sample water sent here August 21st. Supposing that the analyses mailed him has been lost, I attach duplicate of same.

Yours truly,

W. B. D. PENNIMAN, *Per B.*

HAGERSTOWN, MD., *September 5*, 1894.

PROF. W. B. D. PENNIMAN.

DEAR SIR:—I sent to you several weeks since a sample of well water taken from the Fulteren well, in Hagerstown, Md., for analysis. As there have been seven or eight cases of Typhoid fever and two deaths, I have ordered the well to be temporarily closed, until I could hear from you. As your usual time to report has passed, I thought perhaps you had not received the sample; it was sent through the State Board of Health, as I did before. Another death from fever occurred yesterday, in reach of this well. Hoping to receive the analysis at once,

I remain very truly,

T. W. SIMMONS, M. D.,

County Health Officer.

BALTIMORE, *August 21st*, 1894.

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore.

MY DEAR SIR:—Enclosed please find analytical reports of two samples of water received here yesterday. The sample from

Hagerstown is free from sewage contamination but is strongly impregnated with lime and magnesia salts, or is what is known as a hard water.

The effect of hard water on health is quite marked, particularly upon those unaccustomed to its use. Dr. Cornelius B. Fox, perhaps the greatest British authority upon such subjects, says: "A hard water will sometimes produce for a time diarrhoea, and at others constipation. Dyspeptic symptoms are often complained of by those who have been accustomed to drink soft waters on coming into a hard water district. Lumbago and suppression of the urine have also been ascribed to the use of such waters." The water then, though free from sewage contamination, could, I think, give rise to serious bowel troubles, and its use is not to be recommended if other water can be procured.

The sample from W. D. Pyles, I have classed as suspicious, as I can see no reason for the large amount of chlorine present. At the same time the lack of nitrogenous matter would indicate that there was no contamination. Before passing an opinion upon this water, we should know something more of its surroundings, the nature of the soil, etc.

Yours very truly,

W. B. D. PENNIMAN, Per B.

BALTIMORE, August 21, 1894.

Analysis of Water from Dr. T. W. Simmons, Hagerstown, Md.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS		Fulteren well, S. Potomac St., Hagerstown.
Sample drawn by Dr. J. M. Gaines.		
Color.....		none
Odor.....		none
Reaction.....		neutral
1. Total residue at 230° F.....		332.
2. Ignited residue.....		211.
3. Volatile residue.....		121.
4. Amount of chlorine.....		8.9
5. " nitrogen as free ammonia.....		trace
6. " " albumenoid ammonia....		.024
7. " " nitrates.....		5.56
8. " " nitrites.....		none
9. Degrees hardness.....		12.8°
10. Condition of water.....		Fair

NOTE—The word trace indicates that the substance is present, but in too small an amount to be determined.

This water is free from contamination, but is very hard.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

BALTIMORE, September 27, 1894.

Waters from Dr. T. W. Simmons, Hagerstown, Md.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	Mountain water from reservoir pipes.	Spring at Heyser's.	Pump at Heyser's
Color.....	cloudy	none	none
Odor.....	none	none	none
Re-action.....	neutral	neutral	neutral
1. Total Residue at 230° F.....	124.	275.	287.
2. Ignited Residue.....	96.	185.	194.
3. Volatile Residue.....	28.	90.	93.
4. Amount of Chlorine.....	1.5	2.	2.9
5. Amount of Nitrogen as Free Ammonia.....	0.1	trace	.076
6. Amount of Nitrogen as Albumenoid Ammonia.....	0.138	trace	.057
7. Amount of Nitrogen as Nitrates.	.25	5.0	3.5
8. Amount of Nitrogen as Nitrites.	none	none	trace

Samples drawn by J. W. Cook, September 22, 1894.

Mountain water from reservoir pipes.—This water shows no signs of contamination by animal organic matter. The high amount of Albumenoid ammonia proceeds from decaying vegetable matter. No danger can proceed from its use.

Spring at Heyser's.—This water is of very superior quality, and is excellent for drinking purposes.

Well at Heyser's.—This water is evidently impure, as is well shown by the excessive amount of "free ammonia" and presence of "nitrites" ($N_2 O_3$). It is dangerous to use this water.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

CHESTERTOWN, MD., July 30th, 1894.

DR. W. B. D. PENNIMAN,

DEAR SIR:—I send by U. S. Express to-day two jugs of water marked No. 1 and No. 2, as per instruction, from Dr. James A. Steuart, Secretary State Board of Health.

Kindly send report to me at earliest convenience, and oblige,

Yours, &c.,

W. FRANK HINES, *Secretary.*

BALTIMORE, August 4th, 1894.

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore, Md.

MY DEAR SIR:—Attached please find tabulated results of my analyses of two (2) samples of water received here yesterday from Dr. W. Frank Hines, of Chestertown. One of these waters (No. 1) is in very bad condition, as is indicated by the amount of nitrites present; while No. 2 is a fairly good water.

Yours truly,

W. B. D. PENNIMAN, *Analyst.*

BALTIMORE, August 4, 1894.

*Analysis of waters received from Dr. W. Frank Hines,
Chestertown, Md.*

(Figures in parts per million.)

CONSTITUENTS.	Sample 1.	Sample 2.
Color	milky.	none.
Odor	none.	none.
Reaction...	neutral.	neutral.
Total residue at 230° F....	72.	79.
Ignited residue.....	35.	26.
Volatile residue.....	37.	43.
Amt. of chlorine.....	6.7	11.6
“ “ nitrogen as free ammonia..	trace.	trace.
“ “ “ “albumenoid ammonia.	.188	trace.
“ “ “ “nitrates.....	1.25	4.15
“ “ “ “nitrites.....	.5	none.
Condition of water.....	very bad.	good.

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

BALTIMORE, August 9, 1894.

*Analyses of Waters from Dr. W. Frank Hines,
Chestertown, Md.*

(Figures in parts per million.)

CONSTITUENTS.	Sample A.	Sample B.
Color	none	none
Odor	none	none
Reaction.....	neutral	neutral
Total residue at 230° F.....	76.	82.
Ignited residue.....	39.	36.
Volatile Residue.....	37.	46.
Amount of chlorine.....	5.4	11.1
Amount of nitrogen as free ammonia...	trace	trace
Amt. of nitrogen as albumenoid ammonia,	trace	trace
Amount of nitrogen as nitrates.....	4.75	4.5
Amount of nitrogen as nitrites.....	none	none
Condition of water.....	good	good

W. B. D. PENNIMAN,

Analyst, State Board of Health.

BALTIMORE, *March 29th.*

DEAR SIR:—Please take the inclosed note and make an inspection, and report at your earliest convenience.

Very truly yours,

JAMES A. STEUART, *Secretary, &c.*

ARTHUR LEE BROWNE, Esq.,

Balto. Med. College, Balto., Md.

BALTIMORE, *April 9, 1894.*

JAMES A. STEUART, M. D.

DEAR SIR: Mr. Chas. Ogle, No. 3 S. Charles street, is the owner of the lot 75 feet on Charles Street avenue, with depth of about 300 feet, immediately north, and adjoining the property of the Baltimore and Lehigh Railroad, known as Woodbrook station. This property is a large swamp, and where water is permitted to remain and become stagnant, therefore unhealthy and injurious to the neighborhood, and being largely interested in property in that locality, I request you to kindly inform him to either properly drain or fill up this swamp, to the grade of Charles Street avenue.

Very truly yours,

TELFAIR W. MARRIOTT.

JAS. A. STEUART, M. D.,

Secretary Board of Health, City Hall.

We the undersigned, owners and residents in the neighborhood of Woodbrook, Charles Street avenue, think that the swamp near the Wookbrook station, fronting on Charles Street avenue, is injurious to the health of the neighborhood, and request that you direct that it be properly filled up or drained.

TELFAIR W. MARRIOTT,

HENRY KERSHARD,

W. H. PEROT,

EDW'D OTIS HINKLEY,

SAMUEL BEALMEAR,

JNO. R. KLINEFELTER,

GEO. R. ROGERS.

BALTIMORE, *April 21, 1894.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR: Your letter of April 18th received, stating as you understood it, my complaint in regard to the swamp on Charles-street avenue, at Woodbrook station, was based on the assumption of injury to property interest. I herewith state, I do not own any land within 550 feet of the swamp, and that we have owned land in that neighborhood for some 30 years, but

clearly consider that the swamp is injurious to health, and that it ought to be properly drained or filled up.

Yours truly,

TELFAIR W. MARRIOTT.

BALTIMORE, *May 25, 1894.*

DR. JAMES A. STEUART.

DEAR SIR: Your letter of the 24th received. Pardon me for intruding on your valuable time, but may I call your attention to the fact that Mr. Howard Munnikhsen is not the owner of the lot on Charles-street avenue, but owned by George A. Ogle, 3 S. Charles street. Mr. Munnikhsen I do not think is ill, as I see him daily at the Maryland Club. Thanking you.

Very truly yours,

TELFAIR W. MARRIOTT.

BALTIMORE, *May 23, 1894.*

DR. JAS. A. STEUART,

DEAR SIR: Kindly inform me what decision you have given in regard to the lot on Charles-street avenue, about which we have corresponded. You will greatly oblige me.

Very truly yours,

TELFAIR W. MARRIOTT.

BALTIMORE, *May 29th, 1894.*

DR. JAMES A. STEUART.

DEAR SIR:—Your letter of May 28th received, as also enclosures, which I return herewith. In Ogle's letter he clearly admits that the land is wet and springy, and the small corner that he speaks of is a very *large area of ground*, and I am astonished from Brown's letter that he intimates that the cause of complaint, that the owners of the adjoining land would be benefited, and enhance the value of their land. I want it clearly understood that I do not own or interested in a foot of land within 400 feet of this swamp, and when such gentlemen and neighbors sign a petition, complaining that it was unhealthy, where snakes, weasels, ect., make their home, much to the detriment of the neighbors' chickens. Regretting to trouble you.

Very truly yours,

TELFAIR W. MARRIOTT.

BALTIMORE, *May 26th*, 1894.

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR:—Your favor of 25th inst. to hand. In regard to my ground at Woodbrook Station, Charles Street avenue, I would say that it is only wet or springy in *one small corner*; the body of marsh land belonging to the Baltimore and Lehigh Railroad Company. This will be evident by inspecting a map of the property. I have one, and will be pleased to show it to any of the gentlemen signing. The lot belonging to the Railroad Company was not long since surveyed by them, and the station mistress on the spot will show any person the boundary marks. While the neighborhood would undoubtedly be improved by the Railroad Company draining this swamp, and I would gladly co-operate with my little corner, I cannot regard land traversed with small running streams as necessarily unhealthy. Were it a stagnant pool, or the ground alternately covered and uncovered, and then exposed to the sun, the case would be different. I remain,

Very respectfully yours,

GEORGE A. OGLE.

BALTIMORE, *April 20th*, 1894.

DR. JAMES A. STEUART,

Sec'y State Board of Health.

DEAR SIR:—In compliance with your request, I visited and inspected the property of Mr. Charles Ogle on Charles Street avenue, adjoining Woodbrook Station of the Baltimore and Lehigh Railroad.

This land being full of small springs is consequently marshy, and if drained would undoubtedly enhance the value of the adjoining property; but as it is neither a nuisance nor a menace to the health of the neighborhood, I would respectfully suggest that the State Board of Health take no action upon the matter.

Enclosed please find all papers referring to this matter.

Yours respectfully,

ARTHUR LEE BROWNE, *Inspector*.FEDERALSBURGH, MD., *June 5th*, 1894.

DEAR DOCTOR:—About two weeks ago I sent two samples of water from a pump in the Denton jail grounds, which Dr. Wm. Lee thought was impure, to Dr. Penniman. He wrote me that he had commenced an analysis, and that the report would come through you. Will you kindly let me know the result as soon

as you hear from the chemist? The pump is artesian, 359 feet deep, and cost the county \$550 three or four years ago.

If both samples are unfit for use a new pump will have to be driven at considerable cost, whereas, if the sample sent, after pumping off about 350 gallons, is good, some arrangement, such as a windmill for pumping off of surplus, might be erected at a smaller cost.

Hoping to hear from you soon, with kind regards, I remain,
Yours, very truly,

J. C. CLARK, M. D.

TO DR. JAS. A. STEUART.

FEDERALBURG, MD., *May 15, 1894.*

W. B. D. PENNIMAN, M. D.

DEAR DOCTOR:—I have had sent you, by express, a sample of water from an artesian pump, 359 feet deep, in the yard at Denton jail, which Dr. Wm. Lee thought was impure and unfit for use. Will you please make an analysis of it and report to me or to Dr. Steuart, as soon as practicable.

Very truly yours,

J. C. CLARK, M. D. *Health Officer of Caroline Co.*

FEDERALSBURGH, MD., *May 23, 1894.*

PROF. W. B. D. PENNIMAN.

DEAR SIR:—I express you to-day two samples of water from the pump at Denton jail; No. 1 is from the mouth of the pump, and No. 2 is after pumping off about 360 gallons. It is an artesian pump 359 feet deep, three-inch pipe, on the bank of the Choptank river. The nearest water closet is about 30 feet away and is in a cleanly condition; stable and hog-pen sixty feet; hog-pen is a little offensive.

Please report to me at your earliest convenience. If it is bad and unfit for use, could you suggest a remedy. The pump cost the county over \$550 a few years ago, and our commissioners do not want to go to much more expense if it can be avoided.

Very truly yours,

J. C. CLARK, M. D., *Health Officer, Caroline Co.*

BALTIMORE, *April 29, 1894.*

DR. JAMES A. STEUART, Sec'y State Board of Health.

MY DEAR SIR:—I have received two (2) samples of water from Dr. J. C. Clark, Health Officer of Caroline county, will you kindly send him the enclosed information blank with instructions to fill it out and return to me.

Enclosed please find analytical report upon the city water.

Yours truly,

W. B. D. PENNIMAN.

BALTIMORE, *May* 26, 1894.

DR. JAMES A. STEUART,

Sec'y State Board of Health.

MY DEAR SIR: Attached please find analysis of water from Denton, Maryland. These samples are from the artesian well in the jail yard, No. 1 representing the water first delivered from the pump, and No. 2 the water as it is found in the bottom of the well. It is evident that the well water at the bottom is pure, but the analysis of the water first drawn shows that there is some contamination by surface drainage. The precautions to be taken are of course very simple, and can be carried out by any one familiar with the local surroundings. The amount of free ammonia in the sample No. 2 is higher than the limits ordinarily fixed for water, but artesian well water is an exception to this rule. As the amount of "total solids" in both samples is high, I have made an examination of the mineral constituents, and find that it consists mostly of silicates of the alkalis and alkaline earth. The water is soft and fit for drinking purposes.

Yours truly.

W. B. D. PENNIMAN,

BALTIMORE, *May* 26, 1894.

Analysis of Water from the Jail Yard, Denton, Maryland.

(Figures in parts per million.)

CONSTITUENTS.	Sample No. 1.	Sample No. 2.
Color.....	none	none
Odor.....	none	none
Reaction.....	neutral	neutral
Total Solids.....	519.	514.
Solids on ignition.....	452.	469.
Volatile solids.....	67.	45.
Amount of chlorine.....	5.5	3.5
" nitrogen as free ammonia...	.225	.090
" " albumenoid am-		
monia.....	trace	.082
Amount of nitrogen as nitrates.....	none	none
" " nitrites.....	none	none
Condition of supply.....	See letter herewith.	

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

REPORT ON SANITARY CONDITION OF WATER.

*From Property of Mr. Young O. Wilson, Lutherville—Drawn
by Arthur Lee Browne, Inspector S. B. of H.*

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	No. 1. cistern water	No. 2. spring water	No. 3, well side of the house	No 4, well back of the house
Color.....	none	none	none	none
Odor.....	none	none	none	none
Reaction.....	neutral	neutral	neutral	neutral
1. Total Residue at 230° F.	100.	151.	365.	294.
2. Ignited Residue.....	38.	84.	191.	146.
3. Volatile Residue.....	62.	67.	174.	148.
4. Amount of Chlorine..	2.4	5.1	17.5	12.5
5. Amount of Nitrogen as Free Ammonia.....	.06	trace	.045	trace
6. Amount of Nitrogen as Albumenoid Ammonia.	.18	trace	.29	trace
7. Amount of Nitrogen as Nitrates.....	.08	4.	11.5	6.5
8. Amount of Nitrogen as Nitrites.....	present	none	present	present
9. Amount of Earthy bas- es calculated.....	.....	.....	.....	.....
10. Amount of Sulphates calculated as SO .....	.....	.....	.....	.....
11. Character of water....	Bad	Good	Bad	Bad

Notes 1 and 2—*Supra*.

Of these waters, No. 2, the spring, is good; the others should not be used for any domestic purposes.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

November 21, 1895.

BALTIMORE, November 28th, 1894.

Sanitary Examination of Water received from C. W. Price.
(Figures in parts per Million.)

CONSTITUENTS.	C. W. Price Brooklandville, Maryland.
Color.....	none
Odor.....	none
Reaction.....	neutral
1. Total residue at 230° F.....	36.
2. Ignited residue.....	21.
3. Volatile residue.....	15.
4. Amount of chlorine.....	1.4
5. Amount of Nitrogen as free ammonia.....	trace
6. Amount of nitrogen as albumenoid ammonia...	.063
7. Amount of nitrogen as nitrates.....	.02
8. Amount of nitrogen as nitrites.....	none
9. Character of water....	very good

W. B. D. PENNIMAN, *Analyst S. B. of H.*

REPORT ON SANITARY EXAMINATION OF WATER.

From Samuel Ready Estate—Drawn by Eli A. Matthews.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	Well.
Color.....	clear
Odor.....	none
Reaction.	neutral
1. Total Residue at 230° F.....	452.00
2. Ignited Residue....	238.00
3. Volatile Residue.....	214.00
4. Amount of chlorine.....	68.10
5. Amount of nitrogen as free ammonia.....	none
6. Amount of nitrogen as albumenoid ammonia...	trace
7. Amount of nitrogen as nitrates.....	12.50
8. Amount of nitrogen as nitrites.....	trace
9. Character of water.....	bad

W. B. D. PENNIMAN, *Analyst S. B. of H.*

September 7th, 1895.

REPORT ON SANITARY EXAMINATION OF WATER.

From E. F. Baldwin, 44 South street, City.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	
Color	clear.
Odor.....	none.
Reaction.	neutral.
1. Total residue at 230° F.....	65.00
2. Ignited residue	50.00
3. Volatile residue.....	15.00
4. Amt. of chlorine.....	2.7
5. " " nitrogen as free ammonia.....	none.
6. " " " albumenoid ammonia....	trace.
7. " " " nitrates.....	1.05
8. " " " nitrites.....	none.
9. Character of water.....	good.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

August 31, 1895.

REPORT ON SANITARY EXAMINATION OF WATER.

From Dr. J. C. Monmonier, Wetherdsville—Drawn by J. C. Monmonier.

CHEMICAL ANALYSIS.

(Figures in Parts per Million.)

CONSTITUENTS.	Well No. 1.	Well No. 2.	Well No. 3.
Color.....	Clear.	Clear.	Clear.
Odor.....	None.	None.	None.
Reaction.....	Alkaline.	Alkaline.	Alkaline.
1. Total residue at 230° F.....	267.00	286.00	537.00
2. Ignited residue.....	167.00	186.00	296.00
3. Volatile residue.....	100.00	100.00	241.00
4. Amt. of chlorine.....	28.50	24.00	55.40
5. " " nitrogen as free ammonia.	None.	None.	None.
6. " " " " albumenoid ammonia.....	None.	None.	None.
7. Amt. of nitrogen as nitrates.....	5.00	6.49	9.61
8. " " " " nitrites.....	None.	None.	None.
9. " " earthy bases calculated...	.....	.....	.....
10. " " sulphates calculated as SO ₃.....	.....	.....	.....
11. Character of water.....	Bad.	Bad.	Bad.

NOTES. 1—Determinations 9 and 10 are only made of water evidently hard.

2—The word "Trace" indicates that the substance is present but in too small a quantity to be estimated.

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

August 8th, 1895.

REPORT ON SANITARY EXAMINATION OF WATER.

From James R. Clarke, Woodbrook, Balto. Co.—Drawn by J. G. Clark.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	Spring.	Reservoir.
Color.....	none	none
Odor.....	none	none
Reaction.....	neutral	neutral
1. Total residue at 230° F.....	154.00	65.00
2. Ignited residue.....	99.00	58.00

3. Volatile residue.....	55.00	7.00
4. Amount of chlorine.....	5.70	6.40
5. Amount of nitrogen as free ammonia.	none.	0.004
6. Amount of nitrogen as albumenoid ammonia.....	0.06	0.007
7. Amount of nitrogen as nitrates.....	5.60	2.500
8. " " nitrites.....	none.	none.
9. Character of water.....	good.	bad.

From the history of the water, the supply from reservoir is evidently bad, and is condemned for that reason.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

July 22, 1895.

REPORT ON SANITARY EXAMINATION OF WATER.

From Well of Wm. Shoops, Williamsport, Md.—Drawn by J. W. Cook, June 26, 1895.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.

Color.....	none
Odor.....	slight aromatic
Reaction.....	alkaline
1. Total residue at 230° F.....	870.00
2. Ignited residue.....	678.00
3. Volatile residue.....	192.00
4. Amount of chlorine.....	127.40
5. Amount of nitrogen as free ammonia.....	0.132
6. Amount of nitrogen as albumenoid ammonia...	0.087
7. Amount of nitrogen as nitrates.....	21.75
8. Amount of nitrogen as nitrites.....	trace
9. " earthy bases calculated.....	.....
10. " sulphates calculated as SO ₃.....	.....
11. Character of water.....	very bad

NOTES 1 and 2—*Supra.*

W. B. D. PENNIMAN, *Analyst S. B. of H.*

June 28, 1895.

REPORT ON SANITARY EXAMINATION OF WATER.

From Catonsville, Maryland—Drawn by Arthur Steuart, Esq.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.

Color	none
Odor	none
Reaction	neutral
1. Total residue at 230° F.	18.00
2. Ignited residue	9.00
3. Volatile residue	9.00
4. Amount of chlorine.	3.30
5. Amount of nitrogen as free ammonia.	none
6. Amount of nitrogen as albumenoid ammonia.	none
7. Amount of nitrogen as nitrates	1.00
8. Amount of nitrogen as nitrites	none
9. Character of water	very good

This water is in better condition than at any previous time when examined by the State Board of Health.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

June 22d, 1895.

HAGERSTOWN, MD., *July 18, 1894.*

PROF. W. B. D. PENNIMAN, *Analyst.*

DEAR SIR: I send you through the Secretary of the State Board of Health, Dr. J. A. Steuart, a sample of well water from a suspected well, it was drawn and sealed by Dr. C. R. Schelled of Hagerstown, at my request. I forward the sample by express, and hope you can give it as prompt attention as you did the sample of a few weeks ago; that well was closed instantly.

Very truly yours,

T. W. SIMMONS, M. D., *County Health Officer.*

BALTIMORE, *July 25, 1894.*

*From Property of John Muritz, Hagerstown, and L. Crook,
Oldspring Lane, Balto., Co.*

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	Well.	Spring.
Color.....	none	none
Odor.....	none	none
Reaction.....	neutral	neutral
Total residue at 230°.....	317.	158.
Ignited residue.....	181.	79.
Solatile residue.....	136.	79.
Amount of chlorine.....	5.6	12.4
“ nitrogen as “free ammonia”.	.018	trace
“ “ “albumenoid am- monia”.....	.014	trace
Amount of nitrogen as nitrates.....	11.67	8.78
“ “ nitrites....	trace	trace
	Bad	Fair

W. B. D. PENNIMAN, *Analyst S. B. of H.*BALTIMORE, *June 16, 1894.*

DEAR SIR: Your favor of the 14th received last night on my return to the city. The State Board of Health has made no analysis of water from any pump well in Druid Hill Park. If you will procure a specimen of this water (in a CLEAN one gallon demijohn) and send it to Prof. W. B. D. Penniman, at Baltimore Medical College, corner of Madison and Garden streets, an analysis will be made and reported upon in a short time. I am always inclined to suspect the purity of such pump water.

Very truly yours,

JAMES A. STEUART, *Secretary, &c.*BALTIMORE, *July 2, 1894.*

DEAR SIR: I wrote to Dr. James A. Steuart, Secretary of the State Board of Health, to enquire as to the analysis of the water in Druid Hill Park, taken from the pump in the picnic grounds, No. 3. He replied and his letter I herein enclose. I presume that the State will pay for this work. I mention this only because I do not myself wish you to undertake it at my expense.

Yours very truly,

C. C. SHRIVER.

BALTIMORE, July 5th, 1894.

Analysis of Water—Druid Hill Park Picnic Ground No. 3.

(Figures in parts per Million.)

CONSTITUENTS.	Analysis
Color.....	cloudy
Odor.....	none
Reaction.....	neutral
1. Total residue at 230° F.....	153.
2. Ignited residue.....	113.
3. Volatile residue.....	40.
4. Amount of chlorine.....	.8
5. Amount of nitrogen as free ammonia.....	.002
6. Amount of nitrogen as albumenoid ammonia...	.03
7. Amount of nitrogen as nitrates (nitric acid)....	.2
8. Amount of nitrogen as nitrites (nitrous acid)...	none
9. Condition of water.....	good

W. B. D. PENNIMAN, *Analyst.*

BALTIMORE, January 2, 1895.

*Analysis of Water Received from Wm. L. Amoss,
Benson, Maryland.*

(Figures in parts per Million.)

CONSTITUENTS.	Well at Benson's Shops.
Color.....	none.
Odor.....	none.
Reaction.....	neutaaal.
Total residue at 230° F.....	83.
Ignited residue.....	56.
Volatile residue.....	27.
Amount of chlorine.....	4.
Amount of nitrogen as free ammonia.....	trace.
Amount of nitrogen as albumenoid ammonia.....	.04
Amount of nitrogen as nitrates.....	.15
Amount of nitrogen as nitrites.....	none.
Condition of water.....	good.

W. B. D. PENNIMAN,

Analyst State Board of Health.

BALTIMORE, December 27, 1894.

Analysis of Water Received from F. H. Sidnell, M. D.

(Figures in parts per million.)

CONSTITUENTS.	Well at the residence of W. J. Wildride.
Color.....	none
Odor.....	none
Reaction.....	neutral
Total Solids.....	466.
Solids on ignition.....	118.
Volatile solids.....	348.
Amount of chlorine.....	96.5
“ nitrogen as free ammonia.....	trace
“ “ albumenoid ammonia.....	.104
“ “ nitrates.....	23.05
“ “ nitrites.....	trace
Condition of sample.....	very bad
W. B. D. PENNIMAN, <i>Analyst, S. B. of H.</i>	

BALTIMORE, November 26, 1894.

Sanitary Examination of Water received from Dr. Woodward, Sparrow's Point.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	Pollock's boarding house.
Color.....	none
Odor.....	none
Reaction.....	neutral
1. Total residue at 230° F.....	66.
2. Ignited residue.....	43.
3. Volatile residue.....	23.
4. Amount of chlorine.....	2.
5. Amount of nitrogen as free ammonia.....	trace
6. Amount of nitrogen as albumenoid ammonia...	.006
7. Amount of nitrogen as nitrates.....	.6
8. Amount of nitrogen as nitrites.....	none
9. Condition of water.....	good
W. B. D. PENNIMAN, <i>Analyst S. B. of H.</i>	

BALTIMORE, November 12th, 1894.

*Analysis of water received from Dr. Wishard, Lutersburg,
Washington County, Md.*

(Figures in parts per Million.)

CONSTITUENTS.

Color.....	none
Odor.....	none
Reaction.....	neutral
1. Total residue at 230° F.....	186.
2. Ignited residue.....	123.
3. Volatile residue.....	63.
4. Amount of chlorine.....	2.
5. Amount of Nitrogen as free ammonia.....	0.288
6. Amount of nitrogen as albumenoid ammonia...	0.192
7. Amount of nitrogen as nitrates.....	0.75
8. Amount of nitrogen as nitrites.....	present
9. Condition of water....	very bad

W. B. D. PENNIMAN, *Analyst S. B. of H.*

October 26th, 1894.

DR. W. B. D. PENNIMAN.

DEAR SIR:—By Dr. James A. Steuart's direction, I send you by express, two bottles of water, taken from the well belonging to the York Turnpike Company, at Timonium, to be analyzed. I found the pump out of order, so I had to dig down and remove some logs over the well and dip up the water with a bucket. The well is about thirty feet deep, has not been cleaned out for twelve years, and a lamp lowered into it about five feet, is extinguished by the foul gas.

A patient of mine who insisted on drinking this water after all his neighbors had stopped doing so, died this week of typhoid fever, therefore, I suggested to Dr. Steuart to have the water examined.

Respectfully yours,

J. CHALMERS PEEBLES, M. D.

BALTIMORE, November 5, 1894.

Sanitary Examination of Water received from Dr. J. Chalmers Peebles.

(Figures in parts per Million.)

CONSTITUENTS

Color.....	Timonium, Bal- timore co., Md. cloudy
Odor.....	none
Reaction.....	neutral

1. Total residue at 230° F.....	266.
2. Ignited residue.....	208.
3. Volatile residue.....	58.
4. Amount of chlorine.....	17.6
5. " nitrogen as free ammonia.....	trace
6. " " albumenoid ammonia....	.084
7. " " nitrates.....	16.67
8. " " nitrites	trace
9. Condition of water.....	very bad

W. B. D. PENNIMAN, *Analyst S. B. of H.*

ALPHA, MD., October 13, 1894.

PROF. PENNIMAN.

DEAR SIR: I send you this day a gallon jug of supposed polluted well water by order of Dr. Steuart, Secretary State Board of Health. I have had 3 cases of typhoid fever, who obtained their drinking water from above mentioned well. The well has not been cleaned out for twenty years or more, is about sixty feet deep, and the surface water finds its way to the well during every ordinary rain. Yours respectfully,

BENJ. F. SHIPLEY, M. D.

Sanitary Examination of Water from Benj. F. Shipley, M. D.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	Well water.
Color.....	cloudy
Odor.....	none
Reaction.	neutral
1. Total Residue at 230° F.....	150.
2. Ignited Residue....	68.
3. Volatile Residue.....	82.
4. Amount of chlorine.....	19.4
5. Amount of nitrogen as free ammonia.....	.104
6. Amount of nitrogen as albumenoid ammonia....	.179
7. Amount of nitrogen as nitrates.....	8.50
8. Amount of nitrogen as nitrites.....	trace
9. Condition of water.....	bad

W. B. D. PENNIMAN, *Analyst S. B. of H.*

EAST NEW MARKET, DORCHESTER COUNTY, MD.,
October 4th, 1894.

PROF. W. B. D. PENNIMAN,

DEAR SIR: I send you to-day, by express, 1 gallon of water, sample No. 1, from a well on the farm of Mrs. Baker. There

are four cases of typhoid fever in the family; one death. Attending physician is Dr. Clarke, of Federalsburgh, Md. We have examined the premises and can find no cause for the fever, unless it be the water. Please analyze and let me have your conclusions.

Yours respectfully,

GEO. P. JONES, *Health Officer for Dorchester Co.*

BALTIMORE, October 13, 1894.

Analysis of Waters received from State Board of Health.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	SOURCE OF SAMPLE.				
	Water from Dr. D. B. Speecher	Water from Dr. Geo. P. Jones	Water from Tom. Wash. Smith	Industrial Home for Colored Girls pump	Industrial Home for Colored Girls spring
Color	none	none	none	none	none
Odor	none	none	none	none	none
Reaction	neutral	neutral	neutral	neutral	neutral
Total residue at 230° F.	32.	52.	153.	316.	72.
Ignited residue	17.	23.	80.	246.	47.
Volatile residue	15.	29.	73.	70.	25.
Amt. of chlorine	2.	6.5	43.5	41.2	3.2
" " nitrogen as free ammo.	trace	trace	trace	trace	trace
" " " albumenoid ammonia	.021	trace	.021	.092	trace
Amt. of nitrogen as nitrates ...	.1	1.6	7.15	1.2	3.1
" " " nitrites	none	none	none	trace	none
Sanitary surroundings .....	.....	.....	.....	poor	poor
Condition of water	good	good	suspicious	bad	good

W. B. D. PENNIMAN, *Analyst.*

SAVAGE, MD., September 17, 1894.

PROF. W. B. D. PENNIMAN.

DEAR SIR: Dr. James A. Steuart told us that if we would send you a sample of water from our well, you would analyze and report to us. We send you by express to day 2 gallons in a jug. Please let us know as soon as possible. Yours truly,

ROBT. MORANG, *Manager.*

SAVAGE, MD., *September 22, 1894.*

MR. W. B. D. PENNIMAN.

DEAR SIR: We send to you by express the demijohn of water, put up as you directed.

The well from which this water was taken is stoned up. The well is planked and cemented over the top, so that there can be no entrance for surface water. There is a house within thirty feet of the well, but the house has a dry cellar. There is a privy about eighty feet from the well, there is no sink in the ground, there is a box under it.

We have always had trouble with this well in August and September, provided there has been a dry season. The water has had a queer smell and taste. We had the well cleaned out a year or so ago, and put in a ventilator. The water has been in this condition for twelve years, but to my knowledge there has been no sickness caused by it, to those who have used it. There has been some cases of malaria, nothing serious. We would not attribute it to this water, as there has been a number of cases outside the place. Our river has been unusually low, exposing the mud banks. We attribute the sickness to this. The mineral properties of the soil is iron. In places there may be found some sulphur.

Yours truly,

R. MORANG, *Manager.*

BALTIMORE, *Sept. 27th, 1894.*

Water from Robert Morang, Esq., Savage, Md.

(Figures in parts per million.)

CONSTITUENTS.

Color	yellowish.
Odor.....	none.
Reaction.....	neutral.
1. Total residue at 230° F.....	157.
2. Ignited residue	111.
3. Volatile residue.....	46.
4. Amt. of chlorine.....	15.8
5. " " nitrogen as free ammonia.....	.02
6. " " " " albumenoid ammonia.....	.012
7. " " " " nitrates.....	trace.
8. " " " " nitrites.....	trace.

The use of this water is inadvisable and unsafe.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

BALTIMORE, September 27, 1894.

Waters from Residence of Jos. H. Peddicord, Cooksville, Md.

(Figures in parts per millon.)

CONSTITUTENTS.	Maple Spring	Locust Spring
Color	none	none
Odor	none	none
Reaction	neutral	neutral
Total residue at 230° F.....	35.	85.
Ignited residue.....	34.	48.
Volatile residue	1.	37.
Amount of chlorine.....	2.	5.5
Amount of nitrogen as free ammonia...	.044	.028
Amt. of nitrogen as albumenoid ammonia,	.135	.057
Amount of nitrogen as nitrates.....	.8	3.5
Amount of nitrogen as nitrites.....	trace	none

The water from Maple spring is evidently contaminated, and is unfit for use. The locust spring water is free from contamination.

W. B. D. PENNIMAN,

Analyst, State Board of Health.

FAIR MONT MANOR, SILVER HILL P. O. MD.

PROF. W. B. D. PENNIMAN, *Baltimore Medical College.*

DEAR SIR:—Dr. Benjamin L. Bird was at my place to investigate the cause of sickness of my family, and asked me to send you a demijohn of water from my well, which is about 100 yards from my house.

Today I send you two gallons from the well after first pumping twenty or more gallons off, then filling jug.

Hoping you will let me hear from you as soon as you can, I remain,

Yours, &c.,

August 13th, 1894.

W. D. PYLES.

P. S. Enclosed please find certificate from doctor.

BALTIMORE, August 21, 1894.

Analysis of waters from W. D. Pyles, Silver Hill P. O. Md.

(Figures in parts per million.)

Sample sent by Dr. Benj. L. Bird.

CONSTITUENTS.	Well water.
Color.....	none
Odor.. ..	none
Reaction.....	neutral
1. Total residue at 230° F.....	110.

2. Ignited residue.....	70.
3. Volatile residue.....	40.
4. Amount of chlorine.....	24.1
5. Amount of nitrogen as free ammonia.....	trace
6. Amount of nitrogen as albumenoid ammonia...	.014
7. Amount of nitrogen as nitrates.....	.08
8. Amount of nitrogen as nitrites.....	none
9. Character of water.....	suspicious

W. B. D. PENNIMAN, *Analyst S. B. of H.*

BALTIMORE, June 26th, 1894.

DR. JAMES A. STEUART,

DEAR SIR:—According to your instructions I have obtained samples of water from Gwynn's run, on which is located the Butcher's Abattoir. I took the water from the stream about twenty feet below the waste pipe running from the abattoir; I also took samples from the same stream from Wilkin's hair factory, also sample from Gwynn's fall's, on which is located the Claremont Abattoir about the same distance from waste pipe; all of which samples, after properly sealing, I delivered at Mr. Penniman's office.

Respectfully yours,

G. R. GODMAN, *Inspector.*

P. S. Both of these streams flow into the Spring Gardens.

BALTIMORE, June 26th, 1894.

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore, Md.

MY DEAR SIR:—I enclose reports of analyses of water sampled by G. R. Godman at the abattoir, and also report an analyses of water from Hagerstown and letter from T. W. Simmons, M. D., in regard to same.

Yours very truly,

W. B. D. PENNIMAN, *Analyst.*

BALTIMORE, June 26, 1894.

Waters drawn by G. R. Godman, Inspector, June 23, 1894.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

SOURCE OF SAMPLE.	Gwynn's Falls B. & B. Abattoir	Claremont Gwynn's falls	Gwynn's Falls Wilkins' Hair Factory
Color.....	cloudy	cloudy	cloudy
Odor.....	bad	none	bad
Reaction.....	neutral	neutral	neutral
Total residue at 230° F.....	767.	117.	819.
Ignited residue.....	374.	64.	512.
Volatile residue.....	393.	53.	307.
Am't of chlorine.....	122.	6.1	165.
“ “ “ “ “ nitrogen as free ammonia..	1.82	.444	1.43
“ “ “ “ “ albumenoid “ ..	1.25	.278	.714
“ “ “ “ “ nitrates.....	none	.4	11.64
“ “ “ “ “ nitrites.....	none	.074	1.

All of the waters are in very bad condition, and unfit for drinking purposes.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

REPORT ON SANITARY EXAMINATION OF WATER.

From L. Cecil, Willersville.—Drawn by L Cecil, Esq.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.

Color	clear.
Odor.....	none.
Reaction...	neutral.
Total residue at 230° F....	50.00
Ignited residue.....	42.00
Volatile residue.....	8.00
Amt. of chlorine.....	5.40
“ “ nitrogen as free ammonia..	none.
“ “ “ albumenoid ammonia...	none.
“ “ “ nitrates.....	5.37
“ “ “ nitrites.....	none.
Character of water.....	good.

This sample of water, in spite of the excess of nitrates is evidently in good condition.

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

Sept. 10, 1895.

BALTIMORE, January 2, 1895.

Waters from W. H. Baltzell, M. D., Buckeystown, Md.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	Samples Nos.		
	1,	2,	3.
Color.....	none	none	none
Odor.....	none	none	none
Reaction.....	neutral	neutral	neutral
1. Total residue at 230° F.....	109.	46.	362.
2. Ignited residue.....	68.	28.	207.
3. Volatile residue.....	41.	18.	155.
4. Amount of chlorine.....	2.	2.	23.6
5. Amount of nitrogen as free ammonia.....	0.102	trace	trace
6. Amount of nitrogen as albumenoid ammonia.....	0.198	0.13	.075
7. Amount of nitrogen as nitrates.	2.95	.45	8.00
8. Amount of nitrogen as nitrites..	trace	none	trace
9. Earthy bases calculated as oxides.	.....	.....	105.
10. Condition of water.....	bad	suspicious	bad

W. B. D. PENNIMAN, *Analyst S. B. of H.*

REPORT ON SANITARY EXAMINATION OF WATER.

From Dr. Wm. H. Baltzell, Thurmont—Drawn by Dr. Jas. K. Waters.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.	1.	2.
Color.....	clear	clear
Odor.....	none	none
Reaction.....	neutral	neutral
1. Total residue at 230° F....	228.00	204.00
2. Ignited residue.....	128.00	124.00
3. Volatile residue.....	100.00	80.00
4. Amount of chlorine.....	27.60	28.80
5. Amount of nitrogen as free ammonia.	none	none
6. Amount of nitrogen as albumenoid ammonia.....	none	none
7. Amount of nitrogen as nitrates....	8.33	7.35
8. " " nitrites.....	none.	none.
9. " earthy bases calculated..	.....	.....
10. " sulphates calculated as SO	.....	.....
11. Character of water.....	bad.	bad.

NOTES 1 and 2—*Supra.*

As will be seen from a comparison of the results of the analysis with the standards, these samples of water show unquestionable signs of contamination. If they are boiled however they will be fit for drinking purposes, but as the preparation and purification of water in this way is often left to servants or others, unskilled and ignorant of its importance, in order to make a water healthy, it is advisable, if possible, that another source be used.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

September 16, 1895.

REPORT ON SANITARY CONDITION OF WATER.

Waters from J. C. Kinear, St. George's P. O.

CHEMICAL ANALYSIS.

(Figures in parts per Million.)

CONSTITUENTS.	Well No. 1	Well No. 2	Well No. 3	Well No. 4
Color.....	none	none	none	none
Odor.....	none	none	none	none
Reaction.....	neutral	neutral	neutral	neutral

1. Total Residue at 230° F.	203.	47.	189.	45.
2. Ignited Residue.....	53.	17.	71.	20.
3. Volatile Residue.....	150.	30.	118.	25.
4. Amount of Chlorine...	16.6	1.8	15.	1.7
5. Amount of Nitrogen as Free Ammonia.....	0.77	trace	trace	none
6. Amount of Nitrogen as Albumenoid Ammonia.	0.194	trace	1.25	trace
7. Amount of Nitrogen as Nitrates.....	16.13	1.75	16.75	2.85
8. Amount of Nitrogen as Nitrites.....	trace	none	trace	none
9. Character of water....	Bad	Good	Bad	Good

Sample No. 1 drawn by Dr. James Gore, July 31, 1894; No. 2, by J. C. Kinear, August 17th, 1894; No. 3, by Inspector S. B. of H., May 28, 1895; No. 4, by J. C. Kinear, June 17th. 1895.

BALTIMORE, *July 31st, 1894.*

DR. JAMES A. STEUART,

Secretary State Board of Health, Baltimore.

DEAR SIR:—Attached please find analytical report upon sample of water brought here yesterday by Mr. J. C. Kinear, of St. George's, Baltimore County. This water is badly contaminated, and is totally unfit for household purposes.

Yours very truly,

W. B. D. PENNIMAN, *Analyst S. B. of H.*

BALTIMORE, *July 31, 1894.*

Analysis of Water from St. George's, Baltimore County, Md.

(Figures in parts per Million.)

CONSTITUENTS.	Drawn by Dr. James Gore.
Color.....	none
Odor.....	none
Reaction.....	neutral
Total residue at 230°.....	103.
Ignited residue.....	53.
Solatile residue.....	150.
Amount of chlorine.....	16.6
“ nitrogen as “free ammonia”.....	.77
“ “ “albumenoid ammonia”....	.194
“ “ nitrates.....	16.13
“ “ nitrites.....	trace

This water is contaminated and totally unfit for drinking purposes.

W. B. D. PENNIMAN, *Analyst S. B. of H.*

ST. GEORGE'S HALL, *June 17th, 1895.*

MR. W. B. D. PENNIMAN,

DEAR SIR:—Mr. Kinear has filled out the blanks; I do not know of anything much to add, except that the water from well No. 2 has been used for watering the cows and horses, and it is only lately that we have used it for the household—since last August. Though at times, when the pump near the house had to be repaired, we have used it. The only contagious diseases have been scarlet fever, measles, etc., never more than two cases, directly traceable to those who brought it here. I have never seen or nursed a case of diphtheria or typhoid fever. With 20 or 25 boys in winter, and a house full, 50 or 60 people, in summer, I consider that we have had a remarkably healthy household all these years.

Dr. James Gore, of Reisterstown, has been our physician in all these years, and he agrees with me about the health of the household generally. As I wrote you, there have been no changes in the surroundings of well No. 2. If there should be any change in the water, it must be from a distance. Mr. Johnston saw this well also.

Yours, very truly,

MRS. J. C. KINEAR.

BALTIMORE, *June 21st, 1895.*

DR. JAMES A. STEUART,

Sec'y State Board of Health.

MY DEAR SIR:—I enclose analysis of Well No. 2, from property of Mrs. J. C. Kinear, St. George's, Maryland, the blank filled out by Mr. Kinear, and a letter from Mrs. Kinear to me. It would be well, I think, to have Mr. Johnston visit St. George's before a certificate of health is given, to see that the old well is absolutely closed.

Yours very truly,

W. B. D. PENNIMAN, *Analyst S. B. of H.*

1. Sample from (give owner of property, tenant, town, county and post office.) Mary B. Kinear, owner of property at St. George's, St. George's Station, W. M. R. R., Baltimore county, Maryland.

2. Sample taken (date). June 17, 1895, by Mary B. Kinear.

3. Source of supply (well, river, creek, canal, pond, lake, spring,) giving proper name, if it has any. A well, known as No. 2.

4. State if water changes in appearance or taste at different seasons, after violent storms or any other supposed cause. Water never changes in color, odor or taste.

5. State if sample presents usual appearance of water. Yes.

6. If from well, give diameter ($4\frac{1}{2}$ ft.); depth (35 ff.) State character of soil, sub-soil and water-bearing stratum. Micacious and clayey.

7. State distance of well, or spring, from all possible sources of contamination, and their nature, such as cesspools, sewers, privies, stables, stock yards, slaughtering houses, rendering establishments, tanneries, distilleries, fertilizer manufacturies, gas, glue, soap and bleaching works. Nothing near to contaminate; a small barn is about 75 yards from well, very much below the level of well, privy about same distance, boxes used in privy and nothing gets into ground. On northeast and northwest no building of any kind nearer than 400 yards. The wall on lower ground 100 yards from well.

9. Have any contagious diseases occurred among those using the water, if so, of what character and number of cases. Give details under this head. No contagious disease of any kind has ever occurred from this water.

10. Any other information that will, in your judgment, be of interest and importance. We have lived here twenty years and none of our family, or household has ever been affected by this water. We have had no sickness, except what was brought here from city, and this not contagious, as Dr. Gore, our physician here, can testify.

REPORT ON SANITARY EXAMINATION OF WATER.

From J. C. Kinear, Esq., St. George, Balto. Co. Md.—Drawn by Mrs Kinear.

CHEMICAL ANALYSIS.

(Figures in parts per million.)

CONSTITUENTS.

Color	none.
Odor.....	none.
Reaction.....	neutral.
Total residue at 230° F.....	45.00
Ignited residue.....	20.00
Volatile residue.....	25.00
Amount of chlorine.....	1.70
Amount of nitrogen as free ammonia.....	none.
Amount of nitrogen as albumenoid ammonia.....	trace.
Amount of nitrogen as nitrates.....	2 85
Amount of nitrogen as nitrites.....	none.
Character of water.....	very good.

This analysis was made as an additional precaution to show beyond a doubt that the water used at present is pure. No better water can be found anywhere, and the supply is remarkable for its purity and freedom from injurious ingredients of mineral or vegetable origin. No possible danger or harm can be experienced by those using this water.

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

June 20, 1895.

REPORT ON SANITARY EXAMINATION OF WATER.

*From Property of J. C. Kinear, Esq., St. Georges, Md.—Drawn
by Inspector State Board of Health.*

CHEMICAL ANALYSIS.

(Figures in Parts per Million.)

CONSTITUENTS.	1. May, 1895.	2a. July, 1894.	3. Aug., 1894.
Color.....	none	none	none
Odor.....	none	none	none
Reaction.....	neutral	neutral	neutral
1. Total residue at 230° F.....	189.	203.	47.
2. Ignited residue.....	71.	53.	17.
3. Volatile residue.....	118.	150.	30.
4. Amt. of chlorine.....	15.00	16.60	1.80
5. " " nitrogen as free ammonia.	trace	0.77	trace
6. " " " " albumenoid ammonia.....	1.25	0.194	trace
7. Amt. of nitrogen as nitrates.....	16.75	16.13	1.75
8. " " " " nitrites.....	trace	trace	none
9. " " earthy bases calculated...	.....	.....	.....
10. " " sulphates calculated as SO ₃.....	.....	.....	.....
11. Character of water.....	Bad.	Bad.	Good.

Notes 1 and 2—Supra.

Analyses marked 1 and 1a are from the same well which was examined by us last year. Analysis 2 is from another well which is located at some distance from the house. The dates of examination are noted.

There can be no question but what the well now in use, which is near the house, is very badly contaminated with sewage, and should be *closed absolutely*.

The other well is perfectly pure, and the water fit for use; although, as a matter of additional precaution, it would be best to have another analysis made, to secure protection to Mrs. Kinear and her guests.

W. B. D. PENNIMAN,
Analyst S. B. of H.

BALTIMORE, *October 26th*, 1895.

DR. JAMES A. STEUART,

Secretary State Board of Health.

MY DEAR SIR:—With reference to the enclosed letter, which is an extract from a report of Mr. Napier, a sanitary engineer of New York, I beg to state that I have been over the ground mentioned very carefully, and have the following report to make.

The gardner's cottage is part of Evergreen, the Garrett estate, and any improvements that they desire certainly lie in their own hands. The surface privy of this cottage is not, as far as can be seen, a source of danger, as there is no direct connection between it and the spring. Any pollution of this spring, if it is contaminated, is of an underground nature, and can only be determined by a chemical analysis.

The rubbish pile consists of old scrap iron, tin cans, etc., which were thrown there by the employees of this estate. The same is true of the manure heaps. These are eye-sores, nothing more, and do not call for any interference on the part of the Board of Health.

The two houses with surface privies, complained of in this letter, are on the Brundage estate, adjoining Evergreen. The privies have pits about eighteen inches deep, and are fully 300 yards from the Evergreen spring. They are not in my opinion a menace to the health of the neighborhood.

The tin hopper spoken of comes from one of these houses, and projects over the fence into the Garrett property. It delivers nothing but dirty water, no solid matter, etc., and is, in my opinion a trespass, pure and simple, with which the Board of Health has nothing to do.

The next matter is the brook, which has its origin on the Perine property, and flows south through the grounds of Notre Dame. In November, 1893, I made an inspection of this stream, since then, improvements have been made for the disposal of the drainage from Notre Dame, and the following is a brief outline of the system now in use.

The entire drainage, wash water, overflow from bath rooms and water closets, is piped into an old well and then drawn off by pipes to an open paved ditch, about 1,000 feet in length; this ditch has a number of gratings across it to catch any solid matter or paper that may escape from the well. From this ditch it is piped to a settling box of brick, and here again are gratings. From this box it is piped into the stream about 200 yards above "Evergreen." The stream is damned across, below this point, thus allowing of further settling.

The whole length of pipes and ditch is fully a quarter of mile. The water emptying into the stream at the time of this inspection is odorless. There is no drainage into the stream from the gashouse. There can be no question as to the contamination of this stream, but as it is not used for drinking purposes and is therefore not a menace to health, nor a nuisance such as it is the duty of the Board of Health to abate, the matter becomes, in my opinion, simply one for the courts of justice to decide. (See "Pollution of Sources of Water Supply," Rev. Code, art. 27, chap. 6, 1888.

Finally, as to the condition of the spring. This spring lies in the bottom of a valley which undoubtedly receives all the drainage from the York road on one side and Charles Street avenue on the other. As this neighborhood is thickly populated, I should very much question the purity of the water. I would very strongly recommend that the owners of this property have the spring analyzed if they intend to use it for drinking purposes.

There has been no sickness at Evergreen which can in any way be connected with this spring or to the stream.

Yours respectfully,

ARTHUR LEE BROWN, *Inspector*.

Extract from a Daily Newspaper of this City.

POISONED CANDY.

William H. Johnson, aged 3, of 40 E. Fort avenue, is ill from the effects of poisoned candy. Yesterday, however, Dr. Bell pronounced him out of danger. Several other children in the neighborhood have been made sick in the same way. The taffy is deep red in color, and a small piece in a tumbler of water will color it like red ink.

BALTIMORE, *May 12, 1894.*

DR. J. A. STEUART,

Sec'y State Board of Health, Baltimore, Md.

DEAR SIR:—With reference to *The Baltimore News* extract, (April 21st, 1894), I would state that I procured a sample of the candy and have submitted it to Prof. W. B. D. Penniman for analysis.

This candy was bought at a small confectionery store in the neighborhood of Fort avenue (Crawford's, 1505 Light street) by a young girl named Myrtle Durham, and given by her to the Johnson child.

Upon inquiry at Crawford's store I learned that the candy was made by a man named Ritterhoff, who keeps a candy store at 1115 Light street. I was unable to get any of the candy from

him, as he evidently had heard of the sickness and was therefore upon his guard. The sample of candy submitted for analysis was bought by me at Crawford's.

The Johnson child was not the only person affected by the candy, several older children were made sick by eating it. The symptoms of the Johnson child were very violent intestinal pains, and the older children were seized with violent vomiting. A daughter of Police Officer Owens was one of the children who ate this candy and were made sick by it.

I send you herewith the piece of candy taken from the Johnson child by his mother and given by her to me.

Yours respectfully,

ARTHUR LEE BROWNE, *Inspector S. B. of H.*

BALTIMORE, *May 12th*, 1894.

DR. JAMES A. STEUART,

Secretary State Board of Health.

MY DEAR SIR:—Enclosed please find report of Mr. Arthur Lee Browne, Inspector, in reference to candy which has caused sickness of some children who have partaken of it. Mr. Browne gave me the candy for analysis on May 1st. After a very considerable amount of investigation, I have succeeded in obtaining the constituents as follows:

ANALYSIS.

Water.....	5.94
Glucon.....	26.11
Cane sugar (by difference).....	66.0643
Magenta dye.	.15
Ash.....	1.73
Arsenious acid.....	.0057

100.0000

The candy contains then a trace of arsenious oxide. The amount in one ounce of candy is .025 grains of white arsenic, (As_2O_3 .)

Wormley in his work on the Micro-Chemistry of Poisons says in regard to the fatal doses of this substance, the following: "According to the observations of Prof. Lachise of Angers, a dose of from one to two grains of arsenious oxide may prove fatal to a healthy adult; a dose of from a quarter to a half a grain may induce symptoms of poisoning; and one-eighth of a grain may prove injurious." In a case reported by Dr. Taylor, two grains of the poison, in the form of Fowler's solution, taken

in divided doses during a period of five days, destroyed the life of a woman.

I find no reference to the amount which would prove injurious to a child, but it would be of course very much less in amount, particularly if taken on an empty stomach.

The next question, and as no very serious illness was caused by the consumption of this candy, the most important question is in regard to the way this arsenic found its way into the candy exposed for sale. My suspicions were very naturally drawn to the coloring matter (dye,) used to make it attractive. After some considerable expenditure of time, I have identified this dye as magenta, known under the various names, magenta, fuchsine, roseine, rubeine, azaleine, aniline red, etc., the chemical name being rosaniline. It is formed by treating aniline oil with an oxidising agent, commercially, arsenic acid. A very large quantity of arsenic acid is necessary to effect this change, and although most of it is removed, it is sometimes found in considerable amount as an impurity, $6\frac{1}{2}$ per cent. having been met with. In the sample examined the amount of pure magenta is ascertained. The actual amount of commercial dye added was greater, in all probability, as it almost certainly contained inert substances as a make-weight.

It is so difficult to remove the last trace of arsenic from the dye, that the use of it for coloring wines or confectionery is forbidden in some countries, although the pure dye is harmless.

It may be concluded that the maker of the candy was ignorant of its impurity, and should be warned of the danger of using impure dyes or other substances, the properties of which he is not informed.

The glucose in the candy may have been added directly or may have been an adulteration of the cheap sugar used.

Yours very truly,

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

FINANCIAL REPORT FOR FISCAL YEAR ENDING SEPTEMBER 30TH, 1894.

Dec. 30, 1893.	First quarter of fiscal year, expended October, November and December, 1893.....	\$ 1,874 16
March 31, 1894.	Second quarter of fiscal year, expended January, February and March.....	1,553 20
June 30, 1894.	Third quarter of fiscal year, expended April, May and June.....	1,460 52
Sept. 30, 1894.	Fourth quarter of fiscal year, expended July, August and September.....	1,078 93
		\$ 5,965 71

Vouchers for every item of expenditure are filed with the Comptroller of the State, and duplicates in the hands of the Secretary of the Board.

JAMES A. STEURT, *Secretary & Executive Officer.*

FINANCIAL REPORT FOR FISCAL YEAR ENDING SEPTEMBER 30, 1895.

Dec. 30, 1894.	First quarter fiscal year, expended for October, November and December.....	\$747 70
Mar. 31, 1895.	Second quarter fiscal year, expended for January, February and March.....	560 05
June 30, "	Third quarter fiscal year, expended for April, May and June.....	1,163 43
Sep. 30, "	Fourth quarter fiscal year, expended for July, August and September.....	1,306 60
Total.....		<u>\$3,777 78</u>

Vouchers for every item of expenditure are filed with the Comptroller of the State, and duplicates as well in the hands of the Secretary of the State Board.

JAMES A. STEUART, *Secretary, &c.*

Analyses of Water Sup

LAKE ROLAND

Figures in "Parts per Million."

CONSTITUENTS.	1894. January 6th.	January 11th.	January 18th.	January 25th.	February 1st.	February 7th.	February 14th.	February 21st.	February 28th.	March 7th.	March 14th.	March 21st.	March 28th.	April 4th.	April 11th.	April 21st.	April 25th.	May 2d.	May 9th.	May 16th.	May 23d.	May 30th.	June 6th.
1. Total Residue at 230° F.....	87.	111.	116.	99.	100.	95.	103.	100.	97.	95.	127.	86.	96.	88.	116.	93.	100.	99.	91.	105.	112.	103.	102.
2. Ignited Residue.....	69.	68.	82.	69.	65.	55.	65.	60.	60.	57.	100.	54.	47.	50.	77.	57.	62.	58.	59.	69.	69.	63.	61.
3. Volatile Residue.....	18.	43.	34.	30.	35.	40.	38.	40.	37.	38.	27.	32.	49.	38.	39.	36.	38.	41.	32.	36.	43.	40.	41.
4. Amount of Chlorine.....	4.1	3.25	3.2	3.3	3.15	3.1	3.1	3.1	3.1	3.1	3.	3.1	3.	3.	3.1	3.1	3.1	3.1	3.1	3.	3.	3.	3.
5. Amount of Nitrogen as Free Ammonia.....	.026	.018	none.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.
6. Amount of Nitrogen as Albumenoid Ammonia...	.108	.127	.09	.068	.068	.077	.092	.097	.087	.054	.056	.048	.069	.054	.054	.063	.062	.054	.048	.071	.09	.063	.09
7. Amount of Nitrogen as Nitrates.....	1.15	.65	.75	.65	.65	.65	.75	.7	.75	.7	.7	.75	.8	.75	.75	.7	.6	.7	.048	.071	.09	.063	.09
8. Amount of Nitrogen as Nitrites.....																							
9. Character of Water.....	fair	fair	good	good	good	good	good	good	good	good	good	good	good	good	good	good	good	good	good	good	good	good	good

CONSTITUENTS.	1895. January 4th.	January 11th.	January 18th.	January 25th.	January 31st.	February 7th.	February 14th.	February 21st.	February 28th.	March 7th.	March 14th.	March 22d.	March 29th.	April 4th.	April 11th.	April 18th.	April 26th.	May 2d.	May 9th.	May 16th.	May 23d.	May 31st.	June 6th.
Residue at 230° F.....	109.	113.	97.	104.	106.	103.	107.	93.	104.	100.	94.	93.	85.	88.	115.	93.	111.	86.	94.	92.	92.	106.	81.
Residue.....	71.	64.	70.	64.	66.	55.	67.	58.	62.	63.	54.	64.	62.	62.	68.	65.	56.	50.	46.	70.	84.	76.	61.
Residue.....	38.	49.	27.	40.	40.	48.	40.	35.	42.	37.	40.	29.	23.	26.	47.	27.	55.	36.	48.	22.	8.	30.	20.
f Chlorine.....	3.3	3.3	3.5	3.9	3.6	3.2	3.	3.1	3.	3.1	3.1	3.1	3.1	2.8	3.2	3.2	3.1	3.3	3.	2.9	3.	2.9	2.9
Nitrogen as Free Ammonia.....	trace.	.015	.013	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.
Nitrogen as Albumenoid Ammonia...	.095	.096	.098	.109	.108	.118	.08	.09	.078	.09	.096	.111	.08	.105	.15	.088	.13	.042	.134	.098	.085	.084	.15
Nitrogen as Nitrates.....	.9	1.6	1.45	2.05	1.7	1.9	1.55	2.	1.65	1.65	1.55	1.55	1.2	1.25	1.05	1.3	1.25	2.45	1.00	.90	.75	.75	.6
Nitrogen as Nitrites.....																							
Water.....	fair	fair	fair	fair	fair	fair	fair	fair	good	good	good	fair	good	good	fair	good	fair	good	fair	good	good	good	fair

ROLAND SUPPLY.

W. B. D. PENNIMAN, *Analyst, S. B. of H.*

[illegible][illegible]

Analyses of Water Supply

LOCH RAVEN

Figures in "Parts per Million."

CONSTITUENTS.	1894. January 6th.	January 11th.	January 18th.	January 25th.	February 1st.	February 7th.	February 14th.	February 21st.	February 28th.	March 7th.	March 14th.	March 21st.	March 28th.	April 4th.	April 11th.	April 21st.	April 28th.	May 2d.	May 9th.	May 16th.	May 23d.	May 30th.	June 6th.
1. Total Residue at 230° F.....	89.	79.	94.	85.	78.	73.	76.	63.	86.	75.	109.	68.	66.	66.	102.	67.	72.	79.	62.	78.	71.	64.	64.
2. Ignited Residue.....	66.	66.	69.	64.	54.	42.	49.	30.	52.	38.	81.	38.	30.	33.	68.	38.	38.	43.	39.	52.	42.	23.	36.
3. Volatile Residue.....	23.	13.	25.	21.	24.	31.	28.	33.	34.	37.	28.	30.	36.	33.	34.	29.	34.	36.	23.	26.	29.	31.	28.
4. Amount of Chlorine.....	2.7	2.7	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.5	2.4	2.4	2.4	2.4
5. Amount of Nitrogen as Free Ammonia.....	.05	.04	none.	trace.	.032	trace.	.02	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.
6. Amount of Nitrogen as Albumenoid Ammonia...	.123	.109	.097	.065	.083	.105	.108	.103	.129	.097	.092	.068	.087	.093	.187	.083	.084	.081	.063	.072	.065	.057	.078
7. Amount of Nitrogen as Nitrates.....	.8	.8	.7	.8	.6	.6	.7	.75	.7	.7	.75	.7	.55	.7	.7	.6	.4	.65	.6	.75	.65	.7	.7
8. Amount of Nitrogen as Nitrites.....	none.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
9. Character of Water.....	fair	fair	good	good	good	good	good	good	good	good	good	good	good	good	fair	good	good	good	good	good	good	good	good

CONSTITUENTS.	1895. January 4th.	January 11th.	January 18th.	January 25th.	January 31st.	February 7th.	February 14th.	February 21st.	February 28th.	March 7th.	March 14th.	March 22d.	March 29th.	April 4th.	April 11th.	April 18th.	April 26th.	May 2d.	May 9th.	May 16th.	May 23d.	May 31st.	June 6th.	June 14th.
1. Total Residue at 230° F.....	69.	70.	68.	75.	70.	70.	79.	75.	65.	71.	68.	79.	67.	70.	74.	72.	73.	78.	84.	90.	70.	80.	61.	61.
2. Ignited Residue.....	41.	37.	43.	37.	42.	38.	46.	40.	42.	40.	39.	38.	30.	39.	32.	35.	32.	47.	38.	56.	44.	55.	33.	41.
3. Volatile Residue.....	27.	33.	25.	38.	28.	32.	33.	35.	23.	31.	29.	41.	37.	31.	42.	37.	41.	31.	46.	34.	26.	25.	28.	28.
4. Amount of Chlorine.....	2.6	2.6	2.7	2.7	2.5	2.3	2.4	2.4	2.3	2.2	2.4	2.5	2.4	2.1	2.5	2.5	2.4	2.2	2.2	2.2	2.0	2.0	2.3	2.1
5. Amount of Nitrogen as Free Ammonia.....	trace.	.013	.01	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.	trace.
6. Amount of Nitrogen as Albumenoid Ammonia...	.106	.108	.11	.102	.089	.093	.092	.02	.103	.115	.123	.124	.092	.083	.077	.085	.12	.06	.101	.096	.15	.082	.12	.08
7. Amount of Nitrogen as Nitrates.....	.75	1.05	1.10	1.4	1.45	1.55	1.8	1.6	1.45	1.4	1.35	1.15	1.00	1.05	.85	1.10	1.05	2.15	.85	.06	.55	.65	.5	.5
8. Amount of Nitrogen as Nitrites.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
9. Character of Water.....	fair	fair	fair	fair	good	fair	fair	fair	fair	fair	fair	fair	good	good	good	good	fair	good	good	good	fair	good	fair	go

