issued with the culture tubes. Of course, some of them get spoiled by careless handling, but we cannot suppose that the practitioners of this country are one whit behind our American colleagues in intelligence, or less competent to execute these simple manœuvres.

By the courtesy of Dr. Hermann Biggs, the bacteriological director in New York, we are enabled to publish a description of the plan adopted in that city. It is simple from the reports presented to the Sanitary Board, and which we shall publish later in this Journal, is undoubtedly effective, and there is no earthly reason why a similar plan should not be adopted in this country. It might be limited in its operation in the first instance to London until the success of the experiment was assured. But it will be a reproach to the profession and the sanitary authorities of this country if we do not take some steps to render diagnosis of the anomalous forms of sore throat on the border-land of diphtheria more accurate, the treatment more effective, and the spread of the disease more readily checked, and we can only hope that the British Laryngological Association, which has been the first body to take up this matter, will lose no time in pressing the subject upon the attention of the Local Government Board, with the object of getting some such scheme adopted as is now in full practice in New York.

**REPORT to the NEW YORK CITY HEALTH DEPARTMENT
on the use of BACTERIOLOGICAL EXAMINATION
for the DIAGNOSIS OF DIPHTHERIA.¹**

By HERMANN M. BIGGS, M.D.,

Pathologist and Director of the Bacteriological Laboratory.

EARLY in January, 1893, a communication was addressed to the Health Board recommending the systematic and routine employment of the Health Department of bacteriological examinations for the diagnosis of suspected cases of diphtheria, and the appointment of Dr. William H. Park was suggested as a special inspector for this work.

This recommendation was made in view of the following considerations :—

1. The practical differentiation of diphtheria from other diseases affecting the upper air-passages is of great sanitary importance.
2. It is admitted by all clinicians of experience in this disease that it is often impossible, either from the clinical history or the anatomical lesions, to make an accurate diagnosis of diphtheria. There are no constant differences in either of these respects which separate clearly the simple non-contagious forms of inflammation from the diphtheritic and communicable types, and it is only in a rather small proportion of cases that an early and reliable diagnosis can be arrived at from these data. The records of the work of the New York City Health Department have shown this in

¹ A paper read at the Congress of the British Institute of Public Health, held in London, August, 1894.

a very striking way. In the cases of diphtheria at the Willard Parker Hospital, where the diagnosis has been made by one of the Department inspectors, and has been confirmed by a Department diagnostician before removal to the hospital, subsequent bacteriological examinations have shown that from thirty to fifty per cent. of these cases are not diphtheria, but are cases of pseudo-diphtheria.

3. All recent bacteriological investigations made with relation to the value of such examinations for diagnosis of diphtheria are in accord in stating positively that reliable conclusions may be reached by this method in from twelve to twenty-four hours. These investigations include those made by Baginsky in Berlin, Martin in Paris, and Koplik and Park in New York. The results arrived at in these investigations have been confirmed by the subsequent histories in the cases examined. In those cases in which bacteriological examination has shown the absence of the Klebs-Loeffler bacillus the mortality has varied from one to five per cent., and the cause of death has been usually broncho-pneumonia, and not the local disease; while in those cases in which bacteriological examinations have shown the presence of the Klebs-Loeffler bacillus the mortality has varied from twenty to nearly fifty per cent. Further, it has been demonstrated that in the cases in which the Klebs-Loeffler bacillus is not found, no matter how closely they resemble diphtheria in their anatomical appearances or their clinical histories, there is little danger of the transmission of the disease to others; while from the cases of true diphtheria (as shown by bacteriological examinations), even when the disease is of the mildest type, frequent and numerous instances of infection are recorded.

4. The use of bacteriological examinations for the diagnosis of diphtheria would have an important influence on the work of the Department. Bacteriological investigations in diphtheria have shown that accurate conclusions can be arrived at, as to the nature of the disease, in most cases in twelve hours. Investigations made by Dr. Park at the Willard Parker Hospital show that the Department has provided for the maintenance and treatment of a large number of cases of pseudo-diphtheria. This has been done at a large unnecessary annual cost, and the facilities of this Department for the treatment of cases of true diphtheria have been thereby limited. In addition to this, under the present regulations of the Department, a very large number of cases of pseudo-diphtheria must be repeatedly visited by inspectors, and the rooms, clothing, etc., after convalescence, thoroughly disinfected. This is at a further large cost to the Department, and the expenditure of much valuable time. If the Department was prepared to avail itself at once in all cases of means for the bacteriological diagnosis of diphtheria, as this can be completed in a short time, any definite action could, as a rule, be held in abeyance until a conclusion as to the nature of the disease had been reached. In those cases in which the results showed that the disease was pseudo-diphtheria, the Department would be at once relieved from further action.

During the year 1891, four thousand eight hundred and seventy-four cases of diphtheria were reported to this Board, and, so far as can be

judged from the data at hand, at least one-third, and perhaps more, of these cases were not diphtheria.

5. The resort to bacteriological examinations for the differentiation of true diphtheria from pseudo-diphtheria would constitute an important step in advance.

The New York Health Department has already put itself on record, very justly, as depending solely upon bacteriological examinations for the diagnosis of Asiatic cholera. So far as I am aware, no sanitary board has as yet officially utilized bacteriological examinations for the diagnosis of diphtheria, but practically these are of far greater importance than the bacteriological examinations in cholera, because of the greater prevalence and constant presence of diphtheria in this city. The formal recognition of this method by the Board would be received by the profession as an important indication of the determination of the Board to keep the work of the Department thoroughly abreast of the most recent discoveries of scientific medicine.

6. In addition to the work on the diagnosis of diphtheria, there would also be included investigations as to disinfection, and as to the best methods to prevent the extension of the disease.

In the report just quoted from, the appointment of Dr. William H. Park as bacteriological diagnostician and inspector of diphtheria was recommended because of the special investigations that had been carried on by Dr. Park during the previous year in the hospitals under the control of the Health Department, and because his special training and fitness for this position had been thoroughly demonstrated.

After some unavoidable delay, early in May, 1893, Dr. Park was appointed, in accordance with the previous recommendation, "bacteriological diagnostician and inspector of diphtheria."

The Department at that time determined to make use of bacteriological examinations for the diagnosis, not only in all cases admitted to the hospital wards, but also of all cases of suspected diphtheria occurring in the city where the co-operation or consent of the attending physician could be obtained. This action was determined on with a view to giving precision to the work of the Department in the prevention of this disease.

During the first weeks the number of cases examined weekly was comparatively small, but they have continually increased until, during the last few months, a large proportion of all the cases of suspected diphtheria occurring in the city have been subjected to bacteriological examination.

As the scope and extent of the work increased, it was found that it would be impossible for Dr. Park to perform all of the actual bacteriological work, and Mr. Alfred L. Beebe, inspector of bacteriology in this Department, was assigned to assist in the work.

From the beginning those in charge of the work had little doubt of its ultimate success, but they appreciated the importance of the change that was thus introduced in the sanitary management of this disease, and did not feel certain as to how rapidly and how completely the physicians of this city would make use of the opportunities that were thus afforded to them.

At first, as far as possible, the inspector of diphtheria, or special inspectors assigned to this duty, visited physicians who reported cases of diphtheria or requested that cultures be made, and explained to them the purposes of the work, and made inoculations from the cases reported.

After a short trial, however, it was evident that a large majority of the physicians of New York would be glad to avail themselves of the aid thus proffered by the Department. Then a further step was taken to place the opportunities for such examinations more readily at the command of physicians. A number of depôts were established throughout the city (these now number about forty), where culture tubes and the directions required for making the inoculations could be obtained by physicians without charge.

These depôts were generally established at drug stores, at convenient points, and arrangements were made for the collection of the tubes left at these depôts by Department collectors late in the afternoon of each day. For convenience and safety in transporting the tubes, small wooden boxes were furnished at each of the depôts. Each box contained all that is required for making a culture, *i.e.*, a culture tube, a swab for inoculating it, and a blank for recording the name, address, etc., of the patient—constituting “a culture outfit.”

Cards giving directions for making the cultures and the addresses of the depôts where tubes could be obtained were also supplied with the tubes (see below).

Form 20 L, 1894.

2055.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology and Disinfection,
Bacteriological Laboratory—White, Centre, Elm and Franklin Streets.

Directions for making Cultures in Suspected Cases of Diphtheria.

The patient should be placed in a good light, and, if a child, properly held. In cases where it is possible to get a good view of the throat, depress the tongue and rub the cotton swab gently, but freely, against any visible exudate.

In other cases, including those in which the exudate is confined to the larynx, avoiding the tongue, pass the swab far back, and rub it freely against the mucous membrane of the pharynx and tonsils. Without laying the swab down, withdraw the cotton plug from the culture tube, insert the swab, and rub that portion of it which has touched the exudate gently but thoroughly back and forth all over the surface of the blood serum. Do not push the swab into the blood serum, nor break the surface in any way. Then replace the swab in its own tube, plug both tubes, put them in the box, and return the culture outfit at once to the station from which it was obtained.

A report will be forwarded the following morning by mail, or can be obtained by telephone, after 12 noon.

Culture Outfits can be obtained from the following Stations free of cost—

EAST SIDE.

712 Tremont Avenue	Eichwort
138th St. and 3d Ave.	Fraser
125th St. and Madison Ave.....	Marsh
116th St. and 3d Ave.	Engelhardt

115th St. and 1st Ave.	New
110th St. and Madison Ave.	Barnes
105th St. and 3d Ave.	Aaronstam
86th St. and Park Ave.	Falkenrecht
67th St. and 3d Ave.	Hoykendorff
45th St. and 3d Ave.	Goetting
42d St. and Park Ave.	Schoonmaker
41st St. and Park Ave.	Van Horn & Ellison
29th St. and 4th Ave.	Bagoe
12th St. and 2d Ave.	Proben
11th St. and Avenue A	Montesser
Spring St. and Bowery	Minor

WEST SIDE.

135th St. and 7th Ave.	Breen
125th St. and 8th Ave.	Spear
122d St. and 7th Ave.	Heinemann
98th St. and Columbus Ave.	Rosenson
93d St. and Columbus Ave.	Dorn
72d St. and Boulevard	Kerley
72d St. and Columbus Ave.	Cassabeer
411 West 59th St.	Dougherty
46th St. and 5th Ave.	Bartlett & Liell
36th St. and 9th Ave.	Rupp
29th St. and 5th Ave.	Frazer
22d St. and 9th Ave.	Smith
157 8th Ave.	Lins
148 8th Ave.	Utley
12th St. and 6th Ave.	Ridgeway
8th St. and 6th Ave.	Bigelow
283 Bleecker St.	McCord
172 Varick St.	Jennsen

Form of blank with each "culture outfit."

21 L., 1894.

Return Swab and both Tubes.

2058.

DIPHTHERIA.

Name of Maker of Culture
 Date
 Name of Patient
 Address
 Att. Phys.
 Duration of Disease
 How Contracted
 Can Case be Isolated?
 Location of Membrane
 Was Inoculation Satisfactory?
 Clinical Diagnosis

Time

Age

Address

Return Swab and both Tubes.

The diagnosticians, and later the medical inspectors of the Department, were supplied with leather pocket cases containing culture tubes and swabs, and were given instructions regarding the methods of making the

inoculations. These arrangements being completed the following circular was delivered by special messengers at the office of every physician in this city.

23 Form L.

(4422)

HEALTH DEPARTMENT.

New York, July, 1893.

Circular of Information Concerning the Use of Bacterial Cultures for the Diagnosis of Diphtheria.

Recent bacterial investigations have shown that a considerable proportion of the cases of pseudo-membranous and exudative inflammations of the throat and upper air-passages, commonly considered as diphtheria, and having the anatomical appearances found in diphtheria, are not true diphtheria. These cases may be called pseudo or false diphtheria.

It has also been shown that a considerable number of cases which are apparently false diphtheria, prove on bacterial examination to be true diphtheria. While in true diphtheria the mortality is very high, and the danger of transmission to others is great, in false diphtheria the mortality is low, and the danger of infection slight. The differential diagnosis between true and false diphtheria can be made by bacteriological examination within twelve hours, while without this the differentiation is difficult or impossible.

The Health Department is now prepared to make use of bacterial cultures for diagnosis in all cases of suspected diphtheria occurring in the city, and desires that in every case either the physicians should themselves make the inoculations, or should authorize an inspector to make them. They should be made in every suspicious case at the earliest possible moment, for during convalescence the specific organisms often disappear from the throat, and the full benefit of a positive diagnosis is not obtained unless it is made early in the disease.

The inoculations are made by gently rubbing a cotton swab against the throat, and then drawing it over the surface of the culture-medium. When the physician desires to himself make the culture (and this is usually the better plan, for it can be done earlier and is more agreeable to the family), he can obtain, free of cost, a culture tube and swab, and the simple directions necessary for their use, at any one of the druggists whose addresses are given below. After the inoculation the tubes are to be returned at once to the druggist from whom they were obtained. The tubes will be collected by the department every evening.

In cases where an inoculation has not been made by the attending physician, the medical inspector will make one, unless for any reason the physician requests that none be made when he notifies the department of the case.

The diagnosis will be ready by noon of the following day. The attending physician can obtain this immediately by telephoning to the laboratory, or when this is not done, he will be notified by mail. Cases which prove to be false diphtheria will not be visited by the Health Department inspectors. Cases, on the other hand, which prove to be true diphtheria, will be subjected to the usual rules and regulations covering contagious diseases.

The materials required for making inoculations can be obtained from the following druggists free of cost :

Fraser, 138th Street and Third Avenue.
Breen, 135th Street and Seventh Avenue.
Spear, 125th Street and Eighth Avenue.
Dorn, 93d Street and Ninth Avenue.
Dougherty, 411, West 59th Street

Fraser & Co., 29th Street and Fifth Avenue.
Bigelow, Eighth Street and Sixth Avenue.
Marsh, 125th Street and Madison Avenue.
Barnes, 110th Street and Madison Avenue.
Hoykendorf, 67th Street and Third Avenue.
Schoonmaker, 42d Street and Park Avenue.
Proben, 12th Street and Second Avenue.
Rupp, 36th Street and Ninth Avenue.
Miner, Bowery and Spring Street.

All communications on this subject should be addressed to Dr. Hermann M. Biggs, Chief Inspector Pathology, Bacteriology, and Disinfection, No. 42, Bleecker Street (Telephone "1191 Spring").

By order of the Board of Health,

CHARLES G. WILSON, President.

EMMONS CLARK, Secretary.

As soon as it was possible to still further enlarge the work, a new investigation was instituted, namely, the determination by bacteriological examination of secondary cultures from the throats of convalescent cases of diphtheria how long the bacilli of diphtheria persist during convalescence.

After a sufficient number of examinations had been made to draw accurate conclusions, the following circular was printed and ordered to be sent to physicians in every case with the report of the result of the bacteriological examination of the first culture. In it the important announcement is made that in the future no case will be considered free of the contagion of diphtheria until it has been so established by culture test:—

Form 31 L.

HEALTH DEPARTMENT.

No. 301, Mott Street,
New York, , 189 .

Division of Pathology, Bacteriology and Disinfection, No. 42, Bleecker Street.

(Telephone, 1191 Spring.)

To Dr.

Sir,—During the last few months a series of investigations have been made in the bacteriological laboratory of the Health Department to determine how long the Loeffler bacilli remain in the throat after the disappearance of all false membrane in cases of diphtheria. The results obtained are extremely significant, and have caused the Department to establish a new rule regarding the discharge from observation of patients who have suffered from diphtheria, and regarding the time of disinfection of the premises.

During the past three months four hundred and five cases of true diphtheria have been subjected to repeated bacteriological examinations performed at short intervals during the course of the disease and during convalescence. In all of these cases cultures were made at the beginning of the disease, again after the lapse of three or four days, and finally at short periods after the complete disappearance of the false membrane, until the throat was found to be free from the diphtheria bacillus. In two hundred and forty-five of these four hundred and five cases the

diphtheria bacilli disappeared within three days after the complete separation of the false membrane; in one hundred and sixty cases the diphtheria bacilli persisted for a longer time—namely, in one hundred and three cases for seven days; in thirty-four cases for twelve days; in sixteen cases for fifteen days; in four for three weeks, and in three for five weeks after the time when the exudation had completely disappeared from the upper air-passages. In many of these cases the patients were apparently well many days before the infectious agent had disappeared from the throat. These results show that in a considerable proportion of cases persons who have had diphtheria continue to carry the germs of the disease in their throats for many days after all signs and symptoms of the disease have disappeared. No doubt the disease is largely disseminated by these persons who are apparently well, and who mingle with others while their throat secretions still contain the diphtheria bacilli.

These experiments have led the Health Department to adopt the rule, that no person who has suffered from diphtheria shall be considered free from contagion until it has been shown by bacteriological examination, made after the disappearance of the membrane from the throat, that the throat secretions no longer contain the diphtheria bacilli, and that until such examinations have shown such absence all cases in boarding houses, hotels and tenement houses must remain isolated and under observation. Disinfection of the premises, therefore, will not be performed by the Department until examination has shown the absence of the organisms.

Secondary cultures, as in the case of primary cultures, may be made by the attending physician, if he so desires; otherwise they will be made by the inspector of the district in which the case occurs. This applies only to cases occurring in boarding houses, hotels and tenement houses—not to those in private houses.

In this connection an interesting observation has been made, showing that in diphtheria cases which have been subjected to frequent irrigation with antiseptic solutions from the beginning of the disease the bacilli disappear far more rapidly than in those in which such irrigations have not been employed. The Department would feel grateful for any data which the physicians of this city may furnish as to the treatment employed in each case, in order that more reliable conclusions may be reached as to the best mode of treatment.

It has been also noticed that occasionally when culture tubes are inoculated immediately after irrigation of the throat with antiseptic solutions the cultures do not show any Loeffler bacilli, although subsequent examinations may demonstrate their presence. This observation should be noted in making inoculations.

Very respectfully,

HERMANN M. BIGGS, M.D.,

Chief Inspector of Pathology, Bacteriology, and Disinfection.

Approved by the Board of Health.

CHARLES G. WILSON, President.

EMMONS CLARK, Secretary.

Blank to be filled out and returned with secondary cultures.

26 L., 1894.

2057.

Return Swab and both Tubes.

DIPHTHERIA. — Later Cultures.

Number of Culture, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th.

Date

Inspector or Physician

Name of Patient

Laboratory Number

Address

Duration of Disease

Is the place ready for disinfection if the culture is found free from diphtheria bacilli?

During the first few months, in order to test the results of the examinations and to make the liability to error as slight as possible, the following plan was adopted :—

All cases which yielded no diphtheria bacilli were turned over to special inspectors, who made, if possible in every case, a second culture, and followed up the case for some time after its recovery.

By means of the information thus secured, the bacteriologists of the Department were able to decide more and more surely how far they could base an absolute diagnosis upon the examination of a culture. Many physicians, as well as the inspectors, gradually became so skilled that it was possible to certainly rely upon the results arrived at from the examination of their cultures, while, on the other hand, caution was found to be necessary in accepting the inoculations of others; when it seemed desirable a second culture was requested.

The amount of reliance which can be placed on a culture in making a diagnosis will be considered in the general laboratory report.

In the circular given above, the Health Board announced that cases which proved to be false diphtheria would not be kept under the observation of the Department. Some physicians, who heartily approved of the work of the Department in its treatment of diphtheria, believed that in this step it had proceeded too far, and that the false cases, though less contagious than the true, are yet sufficiently so to render isolation and supervision necessary. From a large experience, the Department believed that these cases were so rarely serious in their results, and were so little, if at all, contagious, that visiting by Department inspectors was unnecessary. Nevertheless, before issuing the circular, one hundred and fifty consecutive cases were investigated, all sources of contagion sought for, and the cases followed for two weeks after convalescence. In none of these was isolation or disinfection required. The evidence obtained so completely confirmed the previous experience, that the Department felt justified in concluding that it was unnecessary to exercise any sanitary supervision of cases of false diphtheria. Those who believe that they have met with cases of false diphtheria, which have been the cause of severe or fatal illness in others, have probably either mistaken the nature of the first case, or have been dealing with some other infectious disease, such as scarlet fever, in which the inflammation of the throat is merely a secondary lesion.

In order to make the possibility of error in the routine work as slight as possible for some months, a circular has been mailed to physicians with every report.

Depending upon the results after the examination of primary cultures, one of the following blanks is filled out and mailed to the attending physician before twelve o'clock of the day following that upon which the culture is received.

22 L, 1894.

2056.

Laboratory No.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—Centre, White, Elm and Franklin Sts.

New York, , 189 .

Dr.

Dear Sir,—The examination of the culture made by inoculating the tube with the exudation from the throat of on shows the presence of the diphtheria bacilli.

The case is therefore one of true diphtheria.

Chief Inspector.

Inspector of Diphtheria.

24, Form L.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—42, Bleecker Street.

New York, 189

Dr.

Dear Sir—The examination of the cultures made by inoculating the tubes with the exudation from the throat of on does not show the presence of any diphtheria bacilli.

The case is therefore not true diphtheria,¹ but pseudo or false diphtheria, and no further cognizance will be taken of it by the Department unless by the special request of the physician in attendance.

Chief Inspector.

Inspector of Diphtheria.

¹ This conclusion is based on the supposition that the directions have been properly carried out, and that the inoculation was made before the commencement of convalescence. After convalescence is established the bacilli often disappear from the exudate.

32, Form L.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—42, Bleecker Street.

New York, , 189 .

Dr.

Dear Sir,—The examination of the cultures made by inoculating the tube with the exudation from the throat of on does not admit of an exact bacteriological diagnosis, for the following reasons:—

A. The inoculation was made at so late a period in the disease that it is possible that the diphtheria bacilli, though now absent, were at an earlier time present.

B. The growth on the culture media was so scanty that it is probable that

the inoculation was not properly made, or that some antiseptic had been applied to the throat shortly before obtaining the material for inoculating the tube.

C. The culture media was badly contaminated.

D. The serum in the tube was too dry to permit of the growth of the diphtheria bacilli.

a. Another culture is requested.

b. The case will be treated as one of diphtheria.

c. The case will be treated as one of false diphtheria unless the physician in charge of the case requests otherwise.

Chief Inspector.

Inspector of Diphtheria.

After the examination of each secondary culture depending on the result of the examination, one of the following blanks is filled out and forwarded to the attending physician and to the chief inspector of disinfection.

28 L, 1894.

2061

Laboratory No.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory--Centre, White, Elm and Franklin Sts.

New York,

189

Dr.

Dear Sir,—The examination of the culture made by inoculating the tube from the throat of _____ on _____ does not show the presence of any diphtheria bacilli.

The case is therefore ready for disinfection, if the other circumstances allow.

Chief Inspector.

Inspector of Diphtheria.

27 L, 1894.

2060.

Laboratory No.

HEALTH DEPARTMENT.

Division of Pathology, Bacteriology, and Disinfection.

Bacteriological Laboratory—Centre, White, Elm and Franklin Sts.

New York,

189

Dr.

Dear Sir,—The examination of the culture made by inoculating the tube from the throat of _____ on _____ shows the presence of the diphtheria bacilli.

The case is therefore not yet ready for disinfection, but needs a further culture.

Chief Inspector.

Inspector of Diphtheria.

In the beginning of this work some of those familiar with bacteriological work feared that it was unwise to trust the inoculation of the culture tubes to physicians unskilled in bacteriological methods. The Department has found, however, that as a rule physicians can be relied

upon to carefully follow the simple directions found to be necessary in making satisfactory inoculations of culture tubes, and to safely make a diagnosis upon the bacteriological examinations of such tubes.

A communication was forwarded to the Health Board, in November, 1893, recommending the adoption of an amendment to the Sanitary Code, which should include so-called "membranous croup" with the contagious diseases, concerning which the Department requires reports from physicians. This recommendation was based on the results of the bacteriological examinations of a considerable number of cases of croup, which showed that about eighty per cent. of them were really cases of laryngeal diphtheria.

The detailed results of the work for the first year, both as to the bacteriological examinations of suspected cases of diphtheria and the experimental work on questions allied to this, are contained in the appended report* from the bacteriological laboratory, made by Dr. William H. Park, Bacteriological Diagnostician and Inspector of Diphtheria, and Mr. Alfred L. Beebe, Inspector of Bacteriology.

The question is naturally and properly asked as to what influence this work has had upon the prevalence of diphtheria in this city, and in reply to this it can only be said that the periodic appearance of this disease in epidemic form was due in 1893, and the weekly number of cases had begun to increase before the initiation of this work.

A considerably larger number of cases of diphtheria have occurred during the past year than during the preceding year, but how much more serious this epidemic would have proved to be without the work which has been carried on by the Department it is impossible to say. The apparent number of cases has been unquestionably increased by the more universal reporting of cases by physicians, and the inability of the Department to completely control the spread of the disease will be readily understood by reference to the description of the methods of dissemination of the disease contained in the detailed report from the bacteriological laboratory which is appended.

It may be said in conclusion that the success of this new departure of the New York City Health Department has far exceeded all anticipation. The Health Board was the first sanitary board in the world to officially adopt and provide for the making of such bacteriological examinations, and the course of the board in this matter has been carefully watched by sanitary authorities in various parts of the world. Constant inquiries have been made as to the conduct of the work, and many requests for circulars and for information as to the manner in which the work is carried on have been received. Numerous representatives of other health departments have been instructed in the bacteriological laboratory, in methods, and the plan of work, as devised by this Department, has been adopted without modification by the health authorities of many other cities, and I believe that the Health Board should be congratulated upon the advanced step which it took in the initiation of this work.

* [This report will be published in the October issue of this Journal.—ED.]