"Lost historical data keep coming into our ken." Unless further evidence is produced, this paper establishes April 15, 1894, as the date when the work of the first State board of health diagnostic bacteriological laboratory was begun—in Louisiana at New Orleans. Minnesota can claim credit for having established the first State board of health chemical laboratory—in 1873.

The First State Board of Health Laboratories in the United States

By BEN FREEDMAN, M.D., M.P.H.

ALTHOUGH no truly comprehensive and detailed history of public health in the United States has been compiled, much has been sporadically written. Important dates have been recorded; famous personalities have been eulogized and their contributions set forth in historical perspective; and the origin and development of major movements have been traced in the light of our social growth. But the writing of history is never finished. The past is continually being perceived through new eyes, and lost historical data keep coming into our ken. The research behind this study concerning the establishment of State board of health bacteriological and chemical laboratories in the United States emphasizes the fact that much more collective effort will be required before a satisfactory history of public health will be written.

Perhaps this study may help alert us to some of the deficiencies in our published historical compilations and may stimulate the various health departments over the country to examine their histories in greater detail and to compile in comprehensive form the important events in their development. A reliable history of public health in the United States can be accomplished only by such collective effort. The need for such history is important only to the extent that history in general is important: first of all, as an instrument of the scholar and student, and second, as a source of inspiration to achievement for public health workers by the creation and maintenance of the highly charged professional esprit de corps which is necessary for far-sighted, progressive, forward movement.

The significance of the circumstances that leads to the establishment of a new institution is often forgotten after the innovation becomes

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firmly rooted in social practice. Those who record such events as observers or participants on the scene of action usually have perspectives quite different from those of later historians who see the events in the stream of social movement. Those with no developed sense of history scarcely comprehend existing institutions but merely take them for granted in the routine of living and working. The circumstances which led to the establishment of board of health chemical and bacteriological laboratories are the point in question.

The revolution in medical and public health sciences ushered in by Pasteur's discoveries after the midmark of the 19th century was turbulent and contentious for many years. The pioneers who actively carried the torch of the science of bacteriology were the exceptional men of their time. Their intellectual and emotional struggles occasioned by staking their reputations and livelihoods in supporting this unpopular movement have been amply recounted.

"Firsts"—Municipal Laboratories

Winslow (*1*) has affectionately related the vexing problems encountered by the great Dr. Hermann Biggs in establishing the first public health diagnostic bacteriological laboratory in the United States, in New York City on May 4, 1893, consequent to his appointment on September 15, 1892, as chief of the newly created division of pathology, bacteriology, and disinfection of the New York City Board of Health. This epoch-making event has been further described in detail in Oliver's biography (*2*) of Dr. William Hallock Park, the first director of this laboratory. This achievement by a municipal board of health has become a landmark in American public health development.

Although the New York City Board of Health bacteriological laboratory has been accepted as the first such laboratory in the United States with diagnostic functions, it was not the first municipal bacteriological laboratory in our country.

According to Gorham (*3*), "The first municipal laboratory in this country was established in Providence in 1888 by Dr. G. T. Swarts, who was then medical inspector under Dr. C. V. Chapin. At first, this laboratory undertook only the study of water supplies and filters, and made an investigation of a typhoid epidemic caused by a polluted water supply, but later developed the general diagnosis work of a public health laboratory."

Chapin (*4*) himself makes the following statement:

"A bacteriological laboratory was set up in Providence by Dr. Swarts in 1888, which was utilized in the study of the typhoid outbreak of that year. The first diagnostic laboratory, however, was that of New York City, where Dr. Biggs offered to assist in the diagnosis of diphtheria in 1893."

Rhode Island's Early Start

The establishment of the first State board of health bacteriological laboratory with diagnostic functions has, in the past, been credited to Rhode Island. Recognized for his important contributions as a worker on the staff of the Providence Board of Health, Dr. Swarts, Gorham reports (*3*), "was later elected secretary of the Rhode Island Board of Health, and on September 1, 1894, he established the first state laboratory."

In the 1894 report of the Rhode Island State Board of Health (*5*), the following statement appears (p. 3):

"The free examination of sputum for physicians, in doubtful cases of tuberculosis, was commenced, as also the examination of secretions from the throats in cases of diphtheria."

In describing the action of the board at its regular January meeting in 1894, the same report relates (p. 4):

"In the near future it is the desire of the Board to establish regular and systematic bacteriological analyses in different forms of contagious diseases, and to have at their command a ready means of establishing a diagnosis by that means in such diseases as diphtheria, typhoid fever, tuberculosis and cholera. It will, therefore, be necessary to have in constant working order a properly equipped laboratory for this purpose. Such a laboratory could be equipped at a small expense."

At the regular July 1894 meeting of the

board, the secretary, Dr. Swarts, was authorized to use some of a $1,000 fund which had been appropriated by the State legislature (*5*, p. 147) in January 1894 to make a study of "Tuberculosis in Man" for the "examination of sputum for physicians in establishing a diagnosis of the disease . . ." (*5*, pp. 5–6). Thus, the money became available for establishing a bacteriological diagnostic laboratory.

A short span of time elapsed between making the funds available and the actual establishment of the laboratory. At the quarterly meeting of the board of health in October, the secretary reported that "he had prepared and sent to all the physicians in the State, circulars of explanation of the intentions and desires of the Board, and asking for their cooperation in reporting cases of consumption or tuberculosis. A circular was also sent giving suggestions as to the care of the sputum, and one explaining the best method for collecting the same, and also blank reports in two forms, one for cases where the sputum was to be examined and to accompany the sample when sent in, and also one for cases when only the history of the case was necessary" (*5*, p. 6). The latter circulars were sent to the physicians on September 1, 1894 (*5*, pp. 148–9). This is the date for the establishment of the Rhode Island State Board of Health diagnostic bacteriological laboratory given by Gorham in his history of bacteriology, published as a chapter in A Half Century of Public Health (*3*).

In the 1894 report, the Rhode Island State Board of Health gave full credit to the diagnostic laboratory program of New York City and stated that it patterned its report forms after those used in New York City (*5*, pp. 6, 8).

Winslow states that "by the end of 1894, Brooklyn, Boston, Washington, Philadelphia, St. Louis, New Orleans, Albany, Newark, Buffalo, Rochester, and Hartford had followed New York in employing the bacteriological diagnosis of diphtheria." This statement (*1*, p. 110) illustrates what a powerful influence Hermann Biggs had all over the country in the practice of public health. It also implies that the boards of health of the variously mentioned cities were the agents which established these laboratories, and that is true for all the cities mentioned except New Orleans.

Louisiana, the Pioneer

New Orleans had no permanently established board of health until 1898. Before this, New Orleans had no municipal board of health for about a half century, depending entirely for public health counsel during this interval on the Louisiana State Board of Health, which had been established in 1855 (*6*) and which had been domiciled in New Orleans since its establishment. New Orleans was the capital of Louisiana up to 1849 and has continued to domicile some State agencies down to the present time.

What then, were the circumstances that led to the establishment of a diagnostic bacteriological laboratory in New Orleans?

The Louisiana State Board of Health appointed a "laboratory committee" in 1892 with Dr. Felix Formento as chairman for the specific purpose of creating a bacteriological laboratory. Dr. Formento had for many years been a very active member of the American Public Health Association (he was its president in 1892), and he was a pioneer in pushing bacteriological knowledge to the fore.

On January 12, 1893, the laboratory committee reported (*7a*, pp. 76–77):

"The establishment of a bacteriological laboratory, such as we now urge, will still further enhance the value of the scientific work undertaken by this board and will be of immense benefit to the public health. It has become indispensable. Its cost and maintenance will be trifling in comparison to the immense advantage to be derived from it."

Concerning the prospect of establishing the laboratory, Dr. S. R. Olliphant, president of the Louisiana State Board of Health, wrote (*7a*, p. 74):

"With the view of making more certain the diagnosis of such cases [diphtheria], as well as suspicious cases of other infectious diseases, the Board of Health has decided to institute a system of bacteriological research by the establishment of a bacteriological laboratory, where, through the medium of microscopical examination of cultures made from secretions of diseased persons, a correct diagnosis can be reached. The work is now in process of arrangement and will shortly be far enough advanced to enable

the Board of Health to determine through its bacteriologist a positive diagnosis in all cases which may be submitted by the attending physician."

The members of the State board of health were thoroughly acquainted with the bacteriological progress being made in Europe and America and with Dr. Biggs' organizing efforts in New York City. Some of its members traveled extensively to gain information in these matters. (Dr. Formento in 1882 presided at one of the important sessions of the International Hygiene Congress in Geneva as one of the presidents d'honneur.) This is exemplified by the report dated January 12, 1893, by Dr. Formento and Dr. G. Farrar Patton, who composed the laboratory committee of the board. "We were surprised during our late visit to Mexico, to see that even municipal boards of health, such as those of Puebla, San Luis Potosi, and similar localities, were provided with well organized and fully equipped bacteriological laboratories, under the charge of scientific men of great talent" (*7a*, p. 76).

Not the City of New Orleans

During this period, public health organization and administration were still in a formative and fluid stage of development. Some misconceptions in these matters were widespread. The laboratory committee appeared to be just as unclear about the organizational relationships between the boards of health of other large cities in the United States and their corresponding State boards of health as other public health officials were unclear about the organizational relationship of the Louisiana State Board of Health and the city government of New Orleans.

As Winslow points out (*1*), a number of boards of health of large cities had followed the example of the New York City Board of Health and had established municipal bacteriological laboratories by 1894. But it was the Louisiana State Board of Health and not the city of New Orleans which established the bacteriological laboratory in New Orleans, the city where the State board of health was legally domiciled and which contained a large portion of the State's population. Just as Winslow misconstrued the New Orleans laboratory to be a municipal creation, so the laboratory committee of the Louisiana State Board of Health in its January 12, 1893, report misconstrued the municipal laboratories, such as mentioned above, as being creations of State boards of health.

This is evident from the following quotation of the laboratory committee in its report (*7a*, p. 76) of the year previous to the establishment of its laboratory:

"The Louisiana State Board of Health is perhaps the only State board in the United States which does not possess such a laboratory. Is it not time, full time, we should place ourselves on the level of smaller and far less important organizations? Should New Orleans remain any longer in the rear rank among the progressive and enlightened cities of our country?"

The State board of health laboratory committee was speaking of creating its "State" laboratory in New Orleans. As mentioned before, the city had no board of health at that time to act in such matters.

In the biennial report of the Louisiana State Board of Health for 1894–95, which was written early in 1896, the following was recorded by the president, Dr. S. R. Olliphant (*7b*, p. 77):

"In the last report [1892–93] of the Board of Health the early establishment of a Bacteriological Laboratory was promised. This laboratory has now been in practical operation two years, and under the able management of Dr. P. E. Archinard has been of great benefit to the medical profession and to the public."

The report contains Archinard's report on the laboratory, which recounts the history of bacteriological discoveries relating to diphtheria, and then states (*7b*, p. 121):

"With the knowledge and appreciation of those recent discoveries and investigations at the suggestion and owing to the energetic efforts of Dr. F. W. Parham, then chief sanitary inspector, and Dr. Felix Formento, chairman of the laboratory committee, the Louisiana State Board of Health decided, in February, 1894, to establish a bacteriological laboratory. . . . Owing to the lack of funds, the regular work of this laboratory was inaugurated only on the 15th of April, 1894, and the amount

of material sent and submitted to us for examination since then serves to testify better than words as to the usefulness of this measure."

Thus, it is quite clear that the Louisiana State Board of Health established a diagnostic bacteriological laboratory 4½ months prior to the one established by the Rhode Island State Board of Health.

Archinard was well acquainted with the work of Hermann Biggs and William Hallock Park in New York City. Realizing the need for further observation and experience, Archinard requested, and was granted, in November 1894, a 6 months' leave of absence from the Louisiana State Board of Health so that at his own expense he might visit the centers of Europe, study the effects of diphtheria antitoxin, and report as to its value. After leaving New Orleans, he visited New York and then Paris, Berlin, and Höchst near Frankfurt. His report to the board on his return is a concise statement of the knowledge concerning diphtheria antitoxin known to that date.

Because it lacked funds and facilities, the laboratory served only New Orleans and the surrounding area in its first few years of existence. After the 1898 reorganization of the Louisiana State Board of Health, it extended its services statewide.

Minnesota and Dr. Hewitt

The preceding facts having come to light, it seemed reasonable to question whether other States may have "hidden" histories of their laboratories which might elucidate the subject. Therefore, to every State health department, queries were sent requesting information about the dates of the establishment of their diagnostic bacteriological laboratories and also about the dates of the establishment of their chemical laboratories. All States and the District of Columbia replied, some with excellent elaboration of the history of their laboratories. The accompanying table summarizes the results of the answers received.

The response from Minnesota was very revealing. It threw a new light on the early history of public health laboratories in the United States.

From information provided by Dr. Henry Bauer, director of the division of medical laboratories in the Minnesota State Health Department, there appears to be some unclarified but intriguing events in the history of the Minnesota State Board of Health concerning the matter of the establishment of its laboratories. Upon examining the biennial reports of the Minnesota State Board of Health between 1884 and 1902, many of the events relating to the establishment of its laboratories became clear. These events centered around Dr. Charles N. Hewitt, undoubtedly a great man, whose pioneering work has not found its way to the fore in the historical literature of public health in the United States.

Dr. Hewitt fathered the establishment of the Minnesota State Board of Health and served as its secretary for the first quarter century (1872–97) of its existence. It appears that he was the first professor of public health in the United States, having been appointed to that chair at the University of Minnesota in 1873 (*8b*, p. 18; *9*), 8 years after Pettenkofer's appointment (*10*) in Munich (1865), and 13 years after Parkes' appointment (*11*) in England (1860). According to Hewitt, he set up a laboratory (*8a*, p. 18) in 1873 for the purpose of making chemical examinations of water supplies and foods. This appears to be the first such State board of health laboratory in the United States. He was president of the American Public Health Association in 1888. He was an energetic, brilliant, farsighted leader in the public health movement in our country. He states that he had requested "permission" from his board in 1873 to allow him to set up a laboratory in his office for doing various types of chemical analyses of water and food (*8a*, p. 18).

As was the practice of most scientists in the United States in those days who were interested in bacteriological work, Hewitt took leave between November 1889 and June 1890 to visit many of the famous European bacteriological laboratories and actually to work in some of them. The main functions of his laboratory consisted of chemical analysis of water supplies, foods, and other products, and microscopic examination of water for the presence of "low forms of animal and vegetable life." Some microscopic diagnosis of trichinosis was done, and some bacteriological investigations

were made, the nature of which Hewitt did not state, and the number of which was apparently small and sporadic.

Hewitt wrote the following in the 1893–94 biennial report (*8b*, p. 18):

"Early in the work of the State and local boards of Health, the secretary [Hewitt] was frequently called upon for the chemical analysis of suspected water supplies, and by permission of the Board, established [in 1873] a small laboratory in his office. . . . Thus the chemical laboratory became a very important help in the every day work of the secretary's office. A few years ago, when the causes of many diseases were found to be associated with bacteria . . . it became necessary to apply the results of bacteriological study to discovery and diagnosis of disease. The work of this department has increased more rapidly than the chemical. . . . In 1893, he [Hewitt] was permitted to add these laboratories to this department, and in 1894, the office of the board was removed to St. Paul [from Red Wing]. In the same year the University [at Minneapolis] gave him permission to fit up some unfinished rooms, one of which has been assigned to use of the laboratories. . . . At this date, December 31, 1894, the laboratories are doing . . . regular work . . . [in] the examination of membranes or secretions of persons suspected to have diphtheria, by cultivation, staining and the microscope . . . [and in the] examination of sputa or tissue for diagnosis of tuberculosis."

Hewitt elaborates further on his bacteriological diagnostic work and the status of the bacteriological laboratory in the following year's report (*8c*, p. 13):

"I [Hewitt] began these [laboratory] examinations in October 1894, and continued them until the establishment of the bacteriological laboratory under Dr. Westbrook. During that time I examined 709 specimens for diphtheria; found the Klebs-Loeffler in 244, mixed cultures in 28, no Klebs-Loeffler in 79, and cocci only in 160. These samples were from sixty-two localities and forty-one counties.

"From October 1894 to April 1896, I made 208 examinations of tubercular sputa from forty-one localities and twenty-seven counties. Found the bacillus tuberculosis in sixty-two samples, none in 105, and the rest doubtful.

"Since the establishment of the bacteriological laboratory all specimens have been sent there."

The First Official Bacteriologist

Although Dr. Hewitt's initiative, energy, and vision brought him into the position as the first bacteriologist for his board, the first "official" bacteriologist was not appointed until 1896 (*8d*, p. 119):

"In 1896, Dr. F. F. Westbrook, of Minneapolis, was made a member of the board, and in April of the same year he was elected to serve as bacteriologist. At this time the bacteriological work of the board was transferred from Dr. Hewitt's laboratory to rooms assigned for this special work in the laboratory building of the Medical Department of the University. The Chemical work of the board was continued under Dr. Hewitt's direction."

Dr. F. F. Westbrook, the director of the new laboratory, wrote in the First Annual Report of the Bacteriological Laboratory of the Minnesota State Board of Health (1896), which appeared as a chapter in the 1895–96 biennial report (*8c*, p. 33):

"As the board is aware, although the appointment of a bacteriologist was made at the last annual meeting, it was not until the April [1896] meeting that any steps were taken toward furnishing or equipping a laboratory. At the meeting in April, plans were submitted and approved for certain furnishings, which were, however, subsequently modified so as to prepare only a part of the large room placed at the board's disposal by the state university for use. It was impossible to obtain at this or any subsequent meeting an expression of opinion as regards the scope of the work to be performed in the laboratory. On this account no official announcement could be made as to what the laboratory was prepared to do and the work, therefore, has consisted in doing whatever came at hand. . . .

"It was found that the laboratory with these materials [equipment] from Dr. Hewitt's chemical laboratory was so far from equipped that, at the meeting in July [1896], a requisition was brought before the board for further supplies in the way of apparatus. This was passed and the materials ordered.

"Up to this time, very little work had been attempted, and the little accomplished was done in the laboratory of pathology and bacteriology of the University of Minnesota."

Thus, Dr. Westbrook continued (*8c*, pp. 34–35), "Dependent upon the reasons previously stated, work was not properly begun until July [1896], so that the list given below represents at most not more than six months' actual work . . ." The following is a summary of the examinations Dr. Westbrook reported as having been made before January 1, 1897:

Month	*Examinations*
May	12
June	12
July	38
August	46
September	59
October	160
November	284
December	312
Total	925

The date which the Minnesota State Board of Health fixes as the date for the establishment of its bacteriological diagnostic laboratory is April 1896. This was the date that Dr. Hewitt ceased doing this work for the board. The following month, May, was the first date that the first annual report lists as the beginning of its services. It was early in this year, 1896, that the bacteriologist and director of the laboratory, Dr. Westbrook, was employed. Yet there is no doubt that Dr. Hewitt began to do diagnostic bacteriological work for the board in October 1894 in the chemical laboratory that he established in 1873. The official date recognized by the Minnesota Board of Health, as recorded in the index of its 1901–2 biennial report, is therefore a year and a half later than the actual date when Dr. Hewitt began this work for the board.

Some Questions for Answering

Further research on the development of the Minnesota laboratories is in need of being done. This can best be accomplished in Minnesota by the State health department or the State university where records generally not available outside the State may exist. The following are some of the questions which need answering:

Was the Minnesota State Board of Health's "permission" to Hewitt to set up a chemical laboratory in his office an "official act" by the board in establishing a laboratory? If Hewitt's laboratory were official, and he began to do bacteriological work in this laboratory in October 1894, would this, rather than April 1896, be the correct official date of the establishment of its bacteriological diagnostic laboratory? In other words, did Hewitt's chemical laboratory also become a bacteriological diagnostic laboratory?

There is also a need, in the light of the above findings, to make further inquiry into the history of the establishment of municipal board of health laboratories to confirm the records as to the priority (1888) of Providence, R. I., in having established the first bacteriological laboratory.

This is indicated since there was an obvious need and pressure for establishing laboratories as adjuncts to public health practice prevalent among leaders in public health administration at the time of Providence's forward step in this direction. This need is illustrated by the fact that the New York State Board of Health established its chemical laboratory in 1881, that the Kansas State Board of Health bought a microscope in 1886 for laboratory work, that the Maryland State Board of Health appointed a chemical analyst in 1887, and that Dr. Victor Vaughan, as president of the Michigan State Board of Health, and with the cooperation of that board, requested in 1887 funds from the Michigan Legislature to establish at Michigan University a hygienic laboratory, which was opened in 1889. What was going on among municipal boards of health at that time?

Four Conclusions

From the foregoing it can be concluded that:

1. The Louisiana State Board of Health declared to create a diagnostic bacteriological laboratory in February 1894, but the regular work of the laboratory began on April 15, 1894. So far as the available records show, this was the first State board of health diagnostic bacteriological laboratory in the United States.

Dates of establishment of various State boards of health, their diagnostic bacteriological laboratories, and their chemical laboratories

State	Date of establishment of board of health	Date of establishment of diagnostic bacteriological laboratory	Date of establishment of chemical laboratory
Alabama	1875	1899	[1]
Arizona	1903	1912	1912
Arkansas	1913	1917	1917
California	1870	1905	1905
Colorado	1893	1921 [2]	[3] 1951
Connecticut	1878	1905 [4]	1905
Delaware	1879	1899	1899
District of Columbia	1871	1911	1893
Florida	1889	1902	[5]
Georgia	1903	1905	1910
Idaho	1907	1909	1909
Illinois	1877	1904	1917
Indiana	1881	1905	1905
Iowa	1880	1925 [6]	1925
Kansas	1885	1920	[7]
Kentucky	1878	1910	1910
Louisiana	1855	Apr. 15, 1894 [8]	1891
Maine	1885	1903	1903
Maryland	1874	1910 [9]	[10] 1910
Massachusetts	1869	1895	1891
Michigan	1873	1907	1907
Minnesota	1872	Dec. 31, 1894 [11]	1873
Mississippi	1877	1910	1937
Missouri	1883	1910 [12]	1936
Montana	1901	1917	1911
Nebraska	1891	1913	1913
Nevada	1893	1939 [13]	[14]
New Hampshire	1881	1901	1901
New Jersey	1877	1895	1895
New Mexico	1919	1920	1951
New York	1880	1901	1881
North Carolina	1877	1907	[15]
North Dakota	1889	1917	1917
Ohio	1886	1898	1898
Oklahoma	1890	1915 [16]	[17] 1915
Oregon	1903	1903	1927
Pennsylvania	1885	1906	1919
Rhode Island	1878	Sept. 1, 1894	1900
South Carolina	1878	1909	[18]
South Dakota	1895	1909	[19]
Tennessee	1877	1914 [20]	1944
Texas	1909	1912	1925
Utah	1898	1926	1941
Vermont	1886	1898	1898
Virginia	1872	1908	1908
Washington	1891	1907	1907
West Virginia	1881	1914	1914
Wisconsin	1876	1903	1903
Wyoming	1901	1939	[21]

[1] The Alabama State Department of Health has no chemical laboratory.

[2] A bacteriologist was appointed by the Colorado State Board of Health in 1899.

[3] A limited chemical laboratory was set up in 1946 for the occupational health section of the Colorado State Department of Health.

[4] On July 1, 1889, the Connecticut State Board of Health furnished funds to Yale University to carry on chemical, bacteriological, and microscopic analysis of water supplies as part of a water pollution investigation program. There is no evidence that this was a bacteriological, diagnostic laboratory.

[5] The chemical laboratory in Florida is under the State department of agriculture.

[6] A State bacteriological laboratory, which was required to carry out examinations requested by the State board of health, was established by legislative act at the College of Medicine, State University of Iowa, in 1903.

[7] In 1886, a food and drug laboratory, which was closely associated with the State board of health, was set up at the Kansas State College. The division of sanitation established a chemical laboratory in 1914 to do water analyses. In 1953, the State board of health laboratory became the official laboratory for food and drug work.

[8] The Louisiana State Board of Health bacteriological laboratory was officially declared as of the date February 1894, but because of lack of funds it was not set up until Apr. 15, 1894.

[9] In 1898, a legislative act provided the services of a bacteriologist.

[10] As early as 1887, a chemical analyst was provided by the Maryland State Board of Health.

[11] The exact date for the establishment of the diagnostic bacteriological service of the Minnesota laboratory is not clear. Early documents indicate that the date was in October 1894.

[12] A State bacteriologist was appointed in 1906, but the laboratory was not established until 1909.

[13] The Nevada State Hygienic Laboratory was established in 1909 and placed under the supervision of the State university.

[14] Chemical laboratory work is done at the State university laboratory.

[15] The chemical laboratory in North Carolina is in the State department of agriculture.

[16] A State bacteriologist was appointed in 1907.

[17] A State chemist was appointed in 1910.

[18] South Carolina State department of health has no chemical laboratory; it uses private laboratories.

[19] In South Dakota, the State chemical laboratory is in the State department of agriculture.

[20] On Jan. 5, 1897, the first Tennessee State Board of Health bacteriologist was appointed.

[21] In Wyoming, the State chemical laboratory is not in the State department of health; however, in 1945, the State legislature established an industrial hygiene service under the State board of health and set up a chemical laboratory in connection with this service.

2. Minnesota's own official records recognize the date of April 1896 as the time of the establishment of its diagnostic bacteriological laboratory, although Dr. Charles N. Hewitt actually began this work in his chemical laboratory in October 1894 as part of the laboratory's routine activities. The nature of Hewitt's laboratory must be further explored. Was his laboratory officially established by the State board of health for the purpose of doing diagnostic work, or was the diagnostic work in the laboratory developed by the industry, intelligence, and great vision of Hewitt before official action was taken by the board?

3. The fact that the Minnesota State Board of Health allowed the statements of the establishment of Hewitt's chemical laboratory to appear in its biennial reports of 1884–86 and 1893–94 will tentatively be interpreted as having been acknowledgment of official action by the board, and, therefore, until further evidence is produced, the Minnesota board should be credited with having been the first State board of health to have established a chemical laboratory in the year 1873.

4. There is need for the establishment of a committee on the history of public health in the United States and for the enlistment of the departments of health all over the country to cooperate in such a project.

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