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## POLIOMYELITIS (INFANTILE PARALYSIS).

### THE STATUS OF THE DISEASE IN NEW YORK CITY AND ELSEWHERE.

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The following notes are in continuation of previous reports. As before, the statements made must all be considered more or less provisional. As yet it is not possible to make final statements or to form definite conclusions with regard to the prevalence of poliomyelitis during the present year. Indeed, ultimately, corrections may be necessary in the statistical data supplied herewith and in previous reports. These corrections, however, will, in all likelihood, not be large enough to make any material difference with regard to the statements made.

In my last report (see Public Health Reports, Oct. 13, 1916, p. 2816), I stated that the epidemic in New York was sharply declining. Reference to Table 1 will serve to show that the epidemic in Greater New York is practically finished. As will be seen, the Borough of Manhattan continues to report a few cases, as do also, in a lesser degree, the Boroughs of Brooklyn, Queens, and The Bronx. The total number of cases for the entire city, however, it will be observed, has fallen to less than 40 per week, with a continued steady decline. The case-fatality rate of the epidemic shows very little change from my last report.

TABLE 1.—*Poliomyelitis—Cases and deaths—Greater New York and Boroughs.*<sup>1</sup>

	Cases.						Total deaths for the city.
	Total for the city.	Brooklyn.	Manhattan.	Richmond.	Queens.	Bronx.	
Week ended—							
Oct. 7.....	105	22	41	4	11	27	44
Oct. 14.....	72	10	31	0	13	18	29
Oct. 21.....	44	9	18	0	7	10	23
Oct. 28.....	37	6	20	0	4	7	11

<sup>1</sup> Continuation of Table 1 published in Public Health Reports Oct. 13, 1916, p. 2817.

The progress of the epidemic of poliomyelitis outside of New York City, but in the surrounding States, is shown in Table 2.

TABLE 2.—Cases of poliomyelitis by weeks.<sup>1</sup>

1916 population.....	5,602,800	4,670,575	2,948,017	1,244,479	3,719,156	614,315
Week ended.	New York City.	New York State (exclusive of New York City).	New Jersey.	Connecticut.	Massachusetts.	Rhode Island.
<i>October, 1916.</i>						
Total last report.....	9,100	3,468	3,671	760	988	157
Oct. 7.....	105	155	156	28	198	14
Oct. 14.....	72	129	75	11	167	15
Oct. 21.....	44	88	60	12	178	12
Oct. 28.....	37	66	37	10	122	8
Total.....	9,358	3,906	3,999	821	1,653	206

<sup>1</sup> Continuation of Table 2, published in Public Health Reports Oct. 13, 1916, p. 2818.

It will be observed that in Massachusetts, where the epidemic reached its crest later than in the other States, the disease is now steadily and sharply on the decline. At present there is little I can add concerning poliomyelitis in these States to what was said in my last report.

The general prevalence of poliomyelitis throughout the United States would seem to deserve a word of comment. In Table 3 I have assembled the reports from all over the United States, as published in Public Health Reports of October 27, 1916, pages 2986 and 2987, and arranged them in a somewhat different order. The incidence rate of the various States has been calculated per 100,000 population, and the States have been arranged in accordance with the incidence rate, beginning with the highest rate. The undue prevalence of this disease throughout the United States is quite strikingly shown in this arrangement. In addition to that, some idea may be gained as to the crest of the prevalence in the various States. This, however, is shown only by months. If it could be shown by weeks it would furnish very much more desirable information and allow us to fix more or less definitely the exact time of the highest prevalence of the disease in different localities. It probably may be safely asserted that in no State where poliomyelitis has prevailed to any extent was the crest of this prevalence reached later than September. It will be noticed, however, that returns from all of the States are incomplete for October, and in a few of them they are complete only to the end of September.

TABLE 3.—*Poliomyelitis—Cases and case rates by States—Geographic distribution.*

Group.	State.	July.	Aug.	Sept.	Oct.	Total cases.	Population, States. <sup>1</sup>	Case rate per 100,000.	Remarks.
1	New Jersey.....	640	2, 114	957	247	3, 958	2, 948, 017	134. 25	To Oct. 25.
1	New York (exclusive of New York City.....)	517	1, 527	1, 064	238	3, 346	4, 401, 232	76	To Oct. 16.
1	Connecticut.....	165	367	274	51	857	1, 244, 479	68. 89	To Oct. 21.
1	Massachusetts.....	107	253	623	611	1, 594	3, 719, 156	42. 88	Do.
2	Minnesota.....	142	373	186	133	834	2, 279, 603	36. 6	Do.
1	Delaware.....	1	11	36	19	67	213, 380	31. 4	Do.
1	Rhode Island.....	26	57	70	35	188	614, 315	33. 6	Do.
1	Pennsylvania.....	107	711	743	166	1, 727	5, 522, 017	20. 22	Do.
1	Maryland.....	10	64	109	97	271	1, 362, 807	19. 9	To Oct. 22.
2	Montana.....	11	28	33	8	80	459, 494	17. 4	To Oct. 21.
1	Maine.....	0	26	46	37	109	772, 489	14. 13	Do.
2	Wisconsin.....	20	173	158	351	2, 500, 350	14. 03	To Sept. 30.	
2	Michigan.....	51	163	166	48	428	3, 054, 854	14. 01	To Oct. 14.
1	New Hampshire.....	7	16	31	3	57	442, 506	12. 89	To Oct. 19.
2	Illinois.....	76	339	257	97	769	6, 152, 257	12. 5	To Oct. 21.
3	District of Columbia.....	8	18	6	5	37	363, 980	10. 16	To Oct. 17.
1	Vermont.....	1	8	23	3	35	363, 699	9. 623	To Oct. 7.
2	Iowa.....	30	82	66	36	204	2, 220, 321	9. 183	To Oct. 21.
2	Ohio.....	94	168	138	.....	400	5, 150, 356	7. 76	To Sept. 30.
3	South Carolina.....	20	58	24	10	112	1, 625, 475	6. 895	To Oct. 17.
3	Virginia.....	24	44	45	22	135	2, 192, 019	6. 155	To Oct. 21.
2	Indiana.....	27	38	65	31	161	2, 816, 817	5. 718	Do.
3	Alabama.....	77	62	12	.....	151	2, 332, 608	5. 649	To Sept. 25.
2	South Dakota.....	5	19	14	.....	38	698, 509	5. 44	Do.
3	Mississippi.....	57	31	14	3	105	1, 951, 674	5. 38	To Oct. 14.
3	Kansas.....	14	31	21	14	80	1, 829, 545	4. 373	To Oct. 21.
3	West Virginia.....	5	10	18	11	44	1, 386, 038	3. 172	Do.
3	North Dakota.....	0	2	16	.....	18	739, 201	2. 438	To Sept. 30.
3	Arizona.....	2	2	2	.....	6	255, 544	2. 35	To Sept. 25.
3	Wyoming.....	0	1	3	.....	4	179, 559	2. 228	To Sept. 30.
3	Idaho.....	0	4	3	2	9	428, 586	2. 1	To Oct. 7.
3	Louisiana.....	19	6	5	2	32	1, 823, 130	1. 75	To Oct. 21.
3	Tennessee.....	18	21	0	.....	39	2, 288, 004	1. 705	To Sept. 25.
3	California.....	12	18	13	7	50	2, 938, 654	1. 702	To Oct. 14.
3	Oregon.....	.....	.....	.....	11	14	835, 741	1. 677	Do.
3	Kentucky.....	15	19	1	.....	35	2, 379, 639	1. 47	To Sept. 28.
3	Texas.....	22	25	16	.....	63	4, 429, 566	1. 424	To Sept. 30.
3	Washington.....	5	2	10	4	21	1, 534, 221	1. 369	To Oct. 21.
3	Utah.....	.....	5	.....	.....	5	434, 083	1. 152	To Aug. 31.
3	Nebraska.....	1	7	6	.....	14	1, 271, 375	1. 101	To Sept. 28.
3	Oklahoma.....	12	10	2	.....	24	2, 202, 081	1. 09	To Sept. 27.
3	Colorado.....	1	2	4	3	10	962, 060	1. 04	To Oct. 27.
3	Florida.....	4	3	1	.....	8	893, 493	. 896	To Sept. 25.
3	Arkansas.....	5	1	0	.....	6	1, 739, 723	. 345	Do.
3	Missouri.....	4	3	4	.....	11	3, 410, 692	. 3227	Do.
3	Nevada.....	0	0	0	.....	0	106, 734	0	To Sept. 24.
3	New Mexico.....	0	0	0	.....	0	410, 283	0	To Sept. 25.
3	Georgia <sup>3</sup> .....	.....	.....	.....	.....	.....	.....	.....	.....
3	North Carolina <sup>3</sup> .....	.....	.....	.....	.....	.....	.....	.....	.....

<sup>1</sup> Estimated as of July 1, 1916, United States Census Bureau.<sup>2</sup> Population of New York City not included.<sup>3</sup> Disease present, but the number of cases is not known.

Looking at these States in a general way, it will be noticed that the States with the highest prevalence are grouped in a somewhat peculiar manner. If we will somewhat arbitrarily take all of the States which show a prevalence rate of over 5, we will find that they include, roughly speaking, three groups of States (indicated in the table as 1, 2, and 3). These groups are the New England and North Atlantic States, another group stretching west along the Great Lakes, and a third group skirting the South Atlantic and Gulf coast. These groups of States are in a general way arranged like a large inverted "Y," the base being formed by the New England States, one arm stretching west along the Great Lakes, and the other south along the Atlantic

coast. The prevalence of poliomyelitis in these States is distinctly and markedly above that of the rest of the country.

The relation between these groups of States is at the present time largely conjectural. It is conceivable, however, that they may represent three distinct foci of prevalence which have joined. There are some data which might support such a view to a limited extent. We might reasonably conceive that one focus, starting in New York City and vicinity, has stretched north through New England, west along the Great Lakes, say as far as Ohio, and south, say as far as Maryland or Virginia. Another focus, beginning with Minnesota, has stretched east toward Ohio and also somewhat west. A third focus might be conceived as originating in Mississippi or Alabama and stretching north along the coast to Virginia or Maryland. We lack as yet any data of consequence to support this view. We know, however, that poliomyelitis appeared in epidemic form in Minnesota about the time it appeared in New York City and its vicinity and that these two foci were not connected with each other so far as can be determined. It will be noted in Table 3 that the crest of the prevalence of this disease in Alabama and Mississippi distinctly antedates that of States farther north, like Virginia and Maryland. We have no reports from Georgia and North Carolina, but we know that the disease prevails in these States. The prevalence of the disease in the inland States, like Kentucky and Tennessee, is distinctly lower than in those along the coast, with the exception of Florida. As stated, these comments are largely conjectural, but if the groups of States mentioned above are marked out on a map, their arrangement will be found to be quite striking, whatever its meaning may be. It has been suggested that in this connection main lines of travel might receive consideration.

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## PUBLIC HEALTH ADMINISTRATION.

### CITY OF BIRMINGHAM AND COUNTY OF JEFFERSON, ALABAMA.

By CARROLL FOX, Surgeon, United States Public Health Service.

The following report gives the results of a study of health administration and organization in the city of Birmingham and the county of Jefferson. This study was carried on throughout a period of approximately three weeks.

The desirability of unifying the public-health systems of the city of Birmingham and the rest of the county of Jefferson soon became apparent, and the study was therefore made with that object in view.

Jefferson County has an area of 1,059 square miles and a population estimated at 103,999, of which 61,774 are white and 42,225 colored.

There are seven municipalities in the county. The largest, exclusive of Birmingham, is Bessemer, with an estimated population of 13,860. The smallest municipality has a population of but 350.

The principal industries of the county are mining, the manufacture of steel and iron and their products, and agricultural pursuits.

The city of Birmingham covers an area of 50 square miles, and has a population estimated at 174,108, of which 105,459 are white and 68,649 colored.

The principal industries of the city of Birmingham are the manufacture of steel and iron and their products.

For information and assistance received in the preparation of this report the writer is indebted to the officials of the city and the county health departments, to other officials, and to various other citizens interested in the public health.

#### COUNTY OF JEFFERSON.

The county medical society is, under the law, the county board of health, as well as the board of health for the municipalities within the county boundaries.

The board of censors of the county medical society acts as the board of health ad interim.

This board of health appoints both county and city health officers. The law provides for both full-time and part-time county health officers, and specifies that the county health officer may also act as city health officer.

In the case of the full-time county health officer, the law specifies the salary that shall be paid. The amount of this salary is based upon the population.

In Jefferson County the health officer was appointed as a part-time official, but at present is practically a full-time health officer. He receives \$3,000 per annum and is provided with a clerk and three sanitary inspectors.

*Powers and duties of the full-time county health officer.*—To visit as far as practical all cases of communicable diseases for the purposes of enforcing measures to prevent the spread; to make especial efforts to locate all cases of tuberculosis and pellagra for the purpose of urging prompt treatment or to give instructions to prevent the spread of the disease; to inspect the schools and school children of the county at least once annually; to educate the people and the dealers in food products of the importance of protecting food from dust and insects; to disseminate information by lectures, newspaper articles, demonstrations, etc.; to instruct the people how to maintain sanitary conditions, to provide themselves with pure drinking water, pure milk, and sanitary closets; to make the necessary reports; to attend meetings of the court or board of revenue for the purpose of giving such court or board information as affects the public-health interests of the county; and to discharge such other duties as may be required by law.

*Discussion.*—During the course of the study the following places were visited: The municipalities of Bessemer and Leeds; Maxine, a mining camp; several camps operated by the Tennessee Coal, Iron & Railroad Co.; and two penal camps. During these visits the opportunity was taken to look superficially into rural conditions.

With the exception of the camps operated by the Tennessee Coal, Iron & Railroad Co., it must be said that conditions were found to be bad and preventable diseases prevalent, including typhoid fever, malaria, hookworm, pellagra, and tuberculosis.

According to figures received from the office of the county health officer, there occurred in the county of Jefferson, exclusive of the city of Birmingham, during the 12 months period ended June 30, 1916, 1,018 deaths. There was, therefore, a crude death rate of 9.78 per 1,000. Among the white population there were 412 deaths, giving a death rate of 6.5 per 1,000, and among the colored population there were 616 deaths, giving a death rate of 14.58 per 1,000.

It can be assumed that these low rates do not indicate the true conditions, and it must, therefore, be concluded that the deaths occurring in the county are not all reported.

During the same period there was reported a total of 2,077 births, of which 1,453 occurred among the white population and 624 among the colored population, making a total birth rate of 19.97—a white birth rate of 23.52 and a colored birth rate of 14.77 per 1,000.

The number of cases of and the deaths from certain of the communicable diseases reported during the same period were as follows:

	Cases.	Deaths.		Cases.	Deaths.
Pulmonary tuberculosis.....	43	143	Smallpox.....	5	0
Typhoid fever.....	157	34	Diphtheria.....	21	7
Malaria.....	39	9	Scarlet fever.....	25	3
Pellagra.....	47	34			

The county of Jefferson offers magnificent opportunities to carry on intensive work along the line of preventive medicine, which should be productive of great benefit to the communities concerned. Communicable diseases existing in the county may be readily introduced into the cities, and vice versa, and it would seem futile to perform the preventive work unless it was carried on in the county and the cities simultaneously. For this reason the suggestion that the health departments of the cities and the county be combined and placed under one controlling head would seem highly desirable.

Such an organization should, in fact, be considered ideal. The arrangement would contemplate a full-time executive officer, occupying the dual position of health officer for the county and the municipalities included within its boundaries. He should have under him

two assistants, each in charge of a subdepartment, one the health department of the city of Birmingham and the other the health department of the county and other municipalities.

The two assistants appointed to aid the executive officer should be relieved of all executive or administrative work, and should be required to assume charge of the field operations of the subdepartments. They would be essentially epidemiologists of their respective departments, and would also render the professional services at the child welfare, antituberculosis, or other public-health dispensary operated by the health department.

The amount required to maintain a health department for the county capable of performing the work required to place it in a sanitary condition and to eradicate disease among the people would be \$30,870.

The assessed valuation of the property in the county amounts to \$147,000,000. On this there is levied a tax of 7 mills, which produces an income of \$1,029,000; \$30,870 represents 3 per cent of this amount, and is little enough to spend in the interest of the public health.

It should be expended about as follows:

1 county health officer and health officer for the cities, not less than	\$3, 500
1 assistant health officer for county, not less than	2, 500
1 sanitary engineer, not less than	2, 000
1 clerk and registrar	1, 200
5 public-health nurses, at \$75 per month	4, 500
5 sanitary inspectors, at \$80 per month	4, 800
1 bacteriologist	2, 100
1 laboratory assistant	840
	21, 440
Transportation, lanterns and slides, office and laboratory supplies, printing, etc	9, 430
	30, 870

The city of Bessemer receives an income for general expenditures of approximately \$100,000. Five per cent of this amount, or \$5,000, should be set aside for the employment of a force of workers in and around the city of Bessemer and to supplement the force employed by the county.

This sum would be sufficient to employ a man trained in sanitary science as assistant health officer, one sanitary inspector, and two public-health nurses.

Upon the completion of an organization as contemplated above the county should be divided into five districts, exclusive of the cities of Birmingham and Bessemer, in each of which there should be placed a public-health nurse and a sanitary inspector, with facilities for transportation. An office should then be opened and a portable laboratory established at a convenient point in each of these dis-

tricts consecutively and an intensive survey carried on, together with an energetic campaign of education.

**ADMINISTRATION AND ORGANIZATION IN THE CITY OF BIRMINGHAM.**

In accordance with the statute the board of health has appointed a health officer for the city of Birmingham. He is a part-time official and receives at present a salary of \$600 per annum. This health officer also acts as city physician, receiving an additional salary of \$75 per month for his services in that capacity.

In all questions involving health and sanitation the health officer acts under the direction of the county board of health and the board of city commissioners.

*Powers and duties of health officer of city of Birmingham.*—To keep a record of births, deaths, and reportable diseases; to exercise general supervision over the public health of his community; to investigate cases of communicable diseases and report results to the board of commissioners, the committee of public health of the county board of health, and to the State health officer; to keep on hand a supply of vaccine virus and to vaccinate all indigent persons applying for vaccination; to inspect the municipality once each month as well as the municipal prisons, charitable institutions, etc., within the city once each month relative to ventilation, sewage disposal, etc.; to make reports required by law; to attend conferences of health officers when summoned by the State health officer; and to perform such other duties as may be required.

*Personnel.*—The following is a list of the employees of the city health department, together with their annual salaries:

1 health officer.....	\$600
1 registrar of vital statistics.....	960
1 clerk.....	840
1 chief sanitary inspector.....	1, 800
7 sanitary inspectors, at \$960.....	6, 720
1 communicable-disease nurse.....	900
1 chief meat and milk inspector and bacteriologist.....	2, 100
1 assistant milk inspector.....	1, 140
1 assistant meat inspector.....	1, 140
1 assistant meat inspector.....	960
2 food inspectors, at \$900.....	1, 800
1 physician to pesthouse (part time).....	600

15, 560

In addition to the above there is one communicable-disease nurse loaned and paid for by the children's hospital for emergency work in connection with typhoid fever.

There is also one infant-welfare nurse, employed by private philanthropy, who works under the supervision of the health department, and there are loaned for emergency purposes by the police department eight patrolmen, who act as sanitary inspectors.



*Sanitary inspectors.*—There are seven sanitary inspectors, who work under the supervision of a chief inspector. They are required to perform, in addition to sanitary work, certain epidemiological duties which should devolve upon a corps of employees having greater technical knowledge. As in many other cities, much of their time is given over to the investigation of complaints, many of which have little bearing upon the public health.

There are six matters which have an important bearing on the public health and to which sanitary inspectors should give special attention. If their entire time were taken up in this way they would be doing extremely important work.

• These things are as follows: The abolition of surface privies, the elimination of the surface well, the proper disposal of manure, the proper garbage receptacle, the elimination of stagnant water breeding mosquitoes, and the regulation of housing conditions. The proper regulation of all these matters would go far to insure a healthy city.

*Transportation.*—The health department maintains three automobiles—one for the use of the chief sanitary inspector, one for the use of the chief meat and milk inspector, and one for the dairy inspector.

In addition to these the sanitary inspectors are furnished with two motorcycles and three bicycles.

The inspectors of the health department receive free transportation on the street railway.

*Office hours of department.*—The health department is open from 8 a. m. to 5 p. m. daily. The Sunday hours are from 9.30 a. m. to 10.30 a. m. One hour is allowed each employee for lunch. On Saturday the office closes at 12 o'clock, except for two employees, who remain to perform emergency work. Ten days' vacation is allowed each employee annually with pay.

### REGISTRATION OF BIRTHS AND DEATHS.

The registration of births and deaths is provided for by statute. The city of Birmingham is in the registration area for cities. The law does not provide for reimbursement for certificates of births and deaths registered by local registrars.

*Registration of deaths.*—In computing the following statistical information figures for the 12-month period ended June 30, 1916, were used. During this time there were recorded in the health department 2,528 deaths (exclusive of stillbirths), which, in a population of 174,108, gave a crude death rate per 1,000 of 14.5. The death rate among the white population was 10.6, while the colored

death rate was 20.4 per 1,000. There were reported during this period 295 stillbirths.

*Preventable diseases.*—There were reported to the health department during the same period 1,507 deaths from causes that might be classed as preventable, or 59.6 per cent of the total deaths recorded.

These causes are given more in detail in the following table, which also shows the death rate per 100,000 and other pertinent information:

Disease.	Number of cases reported.	Number of deaths (all ages).	Death rate per 100,000.	Case fatality rate per 100.	Number of deaths in children under 1 year.
				<i>Per cent.</i>	
Tuberculosis, pulmonary.....	514	294	168.8	57.2	3
Tuberculosis, other forms.....		60	31.4		5
Typhoid fever.....	528	58	33.2	10.9	0
Diphtheria.....	137	14	8.0	10.2	2
Smallpox.....	3	0			0
Whooping cough.....	48	8	4.3		2
Measles.....	95	1			0
Scarlet fever.....	110	2			0
Pellagra.....	79	86	49.3		0
Malaria.....		16	9.1		0
Influenza.....		41	23.5		2
Tetanus.....		6	3.4		2
Dysentery.....		7			1
Septicemia (including puerpera).....		25			0
Syphilis.....		55			14
Gonorrhoea.....		1			0
Pneumonia.....		216	121.0		34
Diarrhea and enteritis.....		120	68.9		68
Cerebrospinal meningitis.....		8	4.5		0
Bronchitis.....		20			5
Malignant growths.....		91	52.2		1
Accidental deaths.....		190			8
Premature births.....		87			87
Congenital deformity.....		36			36
Other causes peculiar to early infancy.....		65			65
<b>Total.....</b>		<b>1,507</b>			<b>335</b>

*Infant mortality.*—The infant mortality rate in the city during the 12 months' period ended June 30, 1916, was 107 per 1,000 births, there having been 335 deaths in infants under 1 year of age. For practical purposes all of these deaths can be considered preventable. The infant mortality rate among the white population was 81.1, while among the negroes it was 166.6. The above table gives the causes of death under 1 year in detail.

*Registration of births.*—There were registered with the health department during the 12 months' period ended June 30, 1916, 3,128 births, giving a birth rate of 17 per 1,000. The number of births among the white population was 2,144, making a birth rate of 20.3, while among the colored population there were 984 births reported, giving a birth rate of 14.3 per 1,000.

## EPIDEMIOLOGICAL ACTIVITIES.

### The Report of Diseases.

*Requirements of law.*—In accordance with State law the following diseases must be reported promptly by physicians to the health officer. Heads of families are also required to report such diseases when no physician is in attendance.

Actinomycosis.	Pellagra.
Anthrax.	Plague.
Beriberi.	Poliomyelitis (infantile paralysis).
Chicken-pox.	Scarlet fever.
Cholera (Asiatic).	Smallpox.
Diphtheria (membranous group).	Tetanus.
German measles (Rueheln).	Trachoma.
Glanders.	Tichinosis.
Hydrophobia.	Tuberculosis (pulmonary).
Leprosy.	Typhoid fever.
Malaria.	Typhus fever.
Measles.	Whooping cough.
Meningitis (epidemic cerebrospinal).	Yellow fever.
Mumps.	
Ophthalmia neonatorum (conjunctivitis of new-born children).	

Persons suffering with a communicable disease must not be removed or brought into the city.

Wherever quarantine has been established at any room, apartment, or premises it is unlawful for any person under 15 years of age to leave the same without a permit from the health officer.

Wherever any case of communicable disease is being treated in any room or apartment that exposes the people of the immediate vicinity to the danger of contracting the disease, the health officer may remove the case to another room or apartment where the danger of communication is less likely to occur.

The quarantining of bacillus carriers is authorized.

The use of the common towel and the common drinking cup is prohibited in any hotel or passenger railway station in the city of Birmingham.

Whenever smallpox is declared by the commission likely to become epidemic it is the duty of all citizens to cause themselves to be vaccinated until the operation proves effective, and to have all children under their care vaccinated. A certificate of immunity may be accepted in lieu of vaccination.

Whenever the health officer believes that any person has been exposed to smallpox he is granted authority to order that such person be vaccinated, and it is the duty of said person after such order is received to be vaccinated within 24 hours.

No child is allowed to enter any of the public schools of the city who has not been vaccinated. Each child applying to enter any of the schools must be vaccinated or present a certificate from a reputable physician that he or she has been successfully vaccinated.

Ordinances also provide for the disinfection of apartments after death or removal of a case of tuberculosis and for the removal of a patient to a suitable place, where it is deemed necessary by the health officer to prevent the spread of the disease, and they prohibit the attendance at school of pupils or instructors who are suffering from tuberculosis, etc.

In addition to the above there are other ordinances granting authority to the city commission to establish quarantine if necessary and regulating the hold-

ing of public funerals of persons dead of certain of the communicable diseases, etc.

*Methods of procedure.*—In reporting diseases physicians make use of the telephone in the majority of instances. Blank forms are provided for the purpose of reporting, but, except in the case of tuberculosis, are rarely utilized. In the case of all diseases, except tuberculosis, the information obtained by telephone is entered upon a card devised for that purpose as well as in a register. A separate book is used to register cases of tuberculosis. A monthly report is made to the county health officer of all cases reported to the city health department.

#### Control of Diseases.

*Requirements of law.*—The most important ordinances relating to the control of diseases are summarized as follows:

When authorized by the commission to incur the expense, the city health officer is required to take charge of the necessary measures to combat any communicable disease.

The city health officer is authorized under certain restrictions to remove any person not in his own home suffering from a communicable disease to such place as may be provided for the purpose.

It is forbidden to conceal any case of communicable disease.

It is forbidden for any person suffering from any communicable disease to leave the premises without permission. The same restriction applies to the nurse or attendant upon the sick person.

It is the duty of any person owning or occupying premises where a case of communicable disease has been, to thoroughly cleanse and disinfect the same.

*Methods of procedure.*—The card upon which is entered the report of a disease is also used to note the information obtained after epidemiological investigation. Such investigation is made by the sanitary inspectors, and is more or less complete in the case of typhoid fever. In the case of scarlet fever and diphtheria, the information is obtained only as to the source of the milk supply and the history of contact. The methods of handling the common communicable diseases are shown in the table which follows later on.

The sanitary inspectors placard houses and perform the necessary disinfection.

There is no hospital for the isolation of any communicable disease except smallpox.

*Typhoid fever.*—Typhoid fever is endemic in the city of Birmingham and very recently has assumed the proportions of an epidemic. There were reported during the 12 months' period ended June 30, 1916, 528 cases of typhoid fever and 58 deaths. The death rate during that period was 332 per 100,000 and the case fatality rate was 10.9 per cent.

An annual death rate of 33.2 is not unusual in Birmingham. It is not unlikely, judging from the case-fatality rate, that there are

a number of cases of typhoid fever which are not reported to the health department.

The city water supply of Birmingham is excellent. There are, however, a number of conditions existing in the city which account for the continued prevalence of typhoid fever.

The principal of these causes are the insanitary privy and the great number of flies. To this may be added the opportunity of infection through direct contact with cases or carriers.

*Tuberculosis.*—There were reported to the health department during the 12 months' period ended June 30, 1916, 514 cases of and 294 deaths from pulmonary tuberculosis. There was, therefore, a death rate during that period of 168.8 per 100,000 and a case-fatality rate of 57.2 per cent.

It is obvious that this high death rate calls for some active work on the part of the health department. The high case-fatality rate shows conclusively that there are many cases of tuberculosis not reported.

*Antituberculosis activities.*—The antituberculosis activities of the city and county are carried on by the county antituberculosis association.

There are employed in the work two nurses, one of whom is colored, and the necessary physicians who give their services free of charge.

A sanatorium with a capacity of 34 beds is maintained. In this sanatorium are taken both advanced and incipient cases. A dispensary operated by the society is open twice a week under the supervision of a physician. Here the necessary professional work required in the diagnosis of tuberculosis is performed.

The nurses are engaged in the usual work connected with such activities, both within the city and to some extent in the county. Sputum cups and napkins are furnished free of charge to patients as well as literature on the subject of the prevention and cure of tuberculosis.

The expenses of the society are defrayed by funds raised through private philanthropy and the sale of Red Cross stamps and by assistance from the county.

There has recently been inaugurated by the society an open-air school for children from tubercular families or children who are anemic, tubercular, or otherwise in need of the advantages offered by such an institution.

It is located in an unimproved city park. For protection against inclement weather there is provided a well-screened pavilion, open on all sides and furnished with roll curtains made of awning material. The toilet is of the pail type protected against the ingress of flies.

One meal a day is provided and milk is furnished three times a day. It is expected to continue this school throughout the winter months.

*The tuberculosis sanatorium.*—The tuberculosis sanatorium is pleasantly located just without the city limits. The expense of maintenance is borne by the antituberculosis association with some assistance from the county. It comprises a building in which is located the kitchen and mess hall, nurses' quarters, and two pavilions which will accommodate approximately 34 cases. Another pavilion is at present under construction.

Both incipient and advanced cases are taken. The latter are taken because there is no other place to care for them. Chickens and vegetables are raised at the institution. Milk is obtained from outside sources. Water is derived from the city water supply and sewage is disposed of by means of a septic tank.

*Smallpox.*—During the 12 months' period, ended June 30, 1916, there were but three cases of smallpox reported, all among the colored race.

The usual practice in combating this disease is to isolate the case in the county smallpox hospital and vaccinate all contacts, after which no quarantine is required. If for any reason the case can not be removed, contacts are vaccinated and placed under quarantine.

*Smallpox hospital.*—The smallpox hospital is owned and maintained by Jefferson County. It is located approximately 4 miles outside of the city limits.

It is built on the pavilion plan. All buildings are constructed of wood. There is a residence which is occupied by the caretaker of the hospital. There are four buildings used for the isolation of patients—two for white and two for colored. A small house is provided at each pavilion for the physician to change his clothing before seeing a case.

Sewage is disposed of by means of the insanitary surface closet. Water is obtained from a surface well and is not piped to the pavilions. Approximately 75 patients may be cared for at the smallpox hospital, and there is plenty of land on which to erect tents if necessary.

*Diphtheria.*—During the 12 months' period ended June 30, 1916, there were reported to the health department 137 cases of diphtheria and 14 deaths, giving a death rate of 8 per 100,000, and a case-fatality rate of 10.2 per cent. This case-fatality rate is too high if antitoxin is used promptly and in sufficient quantities. The State will furnish antitoxin free of charge to indigent cases.

Swabbings from throats of contacts is not performed as a routine measure, and contacts over 15 years of age may be permitted to carry on their vocation or attend school without having swabbings taken.

*Malaria.*—During the 12 months' period ended June 30, 1916, there were reported 16 deaths from malaria, making a death rate per

100,000 of 9.1. In this connection it may be said that it is an easy matter to find anopheline mosquitoes breeding within the city limits, as determined by personal observation.

*Infant mortality.*—During the 12 months' period ended June 30, 1916, there were reported to the health department 335 deaths in infants under 1 year of age, making an infant mortality rate of 107 per 1,000 births. The high infant mortality occurs in the colored race, being 166.6, while the white race showed a rate of 81.1.

*Infant welfare activities.*—The infant welfare activities are carried on by one nurse, who is paid out of funds raised by private philanthropy, and who works under the supervision of the health department.

The method of procedure is to follow up all births reported from certain districts and to give the necessary instruction by word of mouth and by practice, in the way to care for the infant, including bathing, feedings, and clothing. Information relating to the need of nursing care in specific instances is also received from the various free medical dispensaries in the city.

Some prenatal work is also performed, as well as work of a purely charitable nature. The latter is required because the activities previously carried on by the associated charities have recently been taken over by the city, and the new organization is not yet completed. Ice and milk are furnished in limited quantities where necessary, as well as drugs and commercial infant foods. The poor are also helped financially in other ways.

*Discussion.*—In studying the activities of the health department it is necessary to keep in mind two important matters—the work that is directly concerned with the environment and the work that is directly concerned with the individual.

In Birmingham the health department is fairly well equipped to care for the former, but very inadequately provided with means to supervise the health of the individual.

A proper supervision over the case and the carrier is considered, according to modern views, the important side of public health work, and therefore the important unit of the health department from this viewpoint is made up of the epidemiologist, the bacteriologist, and the public-health nurse.

In Birmingham an epidemiologist is not employed at all, and the nursing staff is inadequate in number. If the work of the nurses now employed by various bodies were properly correlated, it would be productive of better results.

It is therefore essential that a full-time physician versed in the science of preventive medicine be appointed in the health department to carry on the epidemiological work in connection with all cases of communicable diseases, but more especially in the cases of

typhoid fever, tuberculosis, diphtheria, and scarlet fever, and to furnish the professional services required at infant welfare stations and the antituberculosis dispensary, which should be maintained by the health department in certain sections of the city.

To assist the epidemiologist there should likewise be provided a corps of not less than 10 public-health nurses. The city should then be divided into 10 districts. In each there should be placed a nurse to perform within her district all of the public-health duties required; i. e., prenatal and infant welfare work, communicable disease nursing, including antituberculosis activities, and school nursing.

In order to bring this about it would be wise to combine the present public-health nursing forces of the city by placing them in the health department under the supervision of the epidemiologist. Such nurses should be paid by the health department.

This would make available moneys now collected through private charities to be used for purposes which are strictly charitable and not of a public-health nature.

It would seem advisable for the school authorities to enter into such an arrangement, turning their nurses over to the staff of the health department. They would then have for school work 10 nurses instead of 2, as at present.

It is recognized that to a large extent the common communicable diseases are disseminated through direct contact of a healthy person with one suffering from a communicable disease.

It is therefore essential to eliminate the focus of infection by isolating the patient or carrier in an institution constructed for that purpose. This means the erection of a hospital in the city of Birmingham to care for all cases of communicable diseases except tuberculosis. Such an institution should contain not less than 30 beds.

In the case of tuberculosis the same argument applies, and it is therefore necessary to have an institution where tuberculous patients who are discharging tubercle bacilli could be properly isolated, thus removing a focus of infection which is a menace to the community.

It is therefore desirable that the county of Jefferson erect a tuberculosis sanatorium, for which it already has the legal authority, to care for advanced cases of tuberculosis originating within its boundaries, including the city of Birmingham. Such an institution should contain not less than 100 beds. Proper ordinances should be enacted compelling advanced cases of tuberculosis to go to the sanatorium.

It would then be possible for private philanthropy to expend its funds in the maintenance of the present tuberculosis sanatorium, which could be used for incipient cases only.



*Tabulation of the methods used in Birmingham to prevent the spread of communicable diseases.*

Disease.	To be reported.	To be placarded.	Isolation of patient.	Quarantine of contacts.	Terminal fumigation.	Sale of dairy products.	Exclusion from school.		Special precautions.	Disinfection and discharges required.
							Patient.	Contacts.		
Diphtheria.....	Yes.....	Yes.....	Yes, until 2 consecutive negative cultures have been obtained.	Yes, of all under 15 years if patient adequately isolated.	Yes.....	Prohibited..	Yes... All under 15 years.	Isolation of bacillus carriers required.	None.	
Scarlet fever.....	Yes.....	Yes.....	Yes.....	Same.....	Yes.....	Same.....	Yes... Yes, of nonimmunes only.	None.....	None.	
Measles.....	Yes.....	Yes.....	Yes.....	Yes, except those who have had the disease.	None.....	Same.....	Yes... Yes, of nonimmunes only.	None.....	None.	
Smallpox.....	Yes.....	Yes, if not taken to isolation hospital.	Yes, in isolation hospital.	Contacts vaccinated but not quarantined.	Yes.....	Same.....	Yes... No.....	Vaccination of all contacts.	None.	
Typhoid fever.....	Yes.....	No.....	None.....	None.....	None.....	Same.....	Yes... No.....	Disinfection of bedding and clothing required before laundering.	Yes, of feces and urine.	
Tuberculosis.....	Yes.....	No.....	None.....	None.....	Yes.....	Same.....	No.....	Nurses of anti-tuberculosis society visit and instruct patient.	None.	
Whooping cough.	Yes.....	No.....	Patient permitted to leave premises and required to wear green cross on sleeve.	None.....	None.....	Not prohibited.	Yes... No.....	None.....	None.	
Chicken pox.....	Yes.....	Yes.....	Yes.....	Yes, of nonimmunes only.	None.....	Same.....	Yes... Yes, of nonimmunes only.	None.....	None.	

### The Diagnostic Laboratory.

The diagnostic laboratory is located in a large, well lighted, and ventilated room in the city hall. There are employed in the work one bacteriologist, who is also chief meat and milk inspector, and one clerk, who is engaged temporarily on account of the emergency which arose during the recent typhoid epidemic.

The routine work of the laboratory consists of the necessary examinations for the diagnosis of typhoid fever, tuberculosis, malaria, diphtheria, hookworm and other intestinal parasites, and gonorrhoea, and for the release of quarantine for diphtheria. Chemical analyses of milk are also made, and some water work is performed.

In order to submit blood specimens to be tested for the Widal reaction, Wright's capsules are furnished to the physicians. For the submission of specimens of sputum a small, wide-mouth bottle, with a cork stopper, is furnished. In the case of diphtheria the specimen outfit consists of a tube of Loeffler's blood serum and a sterile swab. In this connection it may be stated that smears are usually made from the inoculated swabs, with the result that a diagnosis may often be made before the culture has incubated.

With the exception of some of the Loeffler's blood serum, all culture media is manufactured in the laboratory.

The laboratory is equipped to perform all of the work that is ordinarily required, although some of the apparatus is worn out and should be replaced.

Data blanks are required to be furnished by the physicians with each specimen submitted for examination. These blanks are the same for all specimens, and contain spaces for date, name of patient, the disease to be determined, residence of patient, and physician's name. A daily record is kept of all examinations made. The report of the results of these examinations is made by telephone.

*Tabulation of examinations made in the diagnostic laboratory, year ended June 30, 1916.*

	Positive.	Negative.	Total.
Typhoid fever (Widal reaction).....	553	1,590	2,143
Malaria.....	8	258	266
Tuberculosis.....	219	827	1,046
Diphtheria.....	56	890	946
Gonorrhoea.....	29	103	132
Hookworm.....	1	69	70
Meningitis.....	1	6	7
Milk (chemical).....			1,550
Total.....	897	3,743	6,190

*Discussion.*—The desirability of establishing an organization which would care for the public health of both the county and the city has already been pointed out. Provision should be made for a

county laboratory which should be made available to the physicians and health officers of the county as well as of the municipalities. This would involve the transfer of the present city laboratory to the county.

There will be needed in the laboratory an attendant who could perform the duties of a nontechnical assistant, such as cleaning glassware, making culture media, reports, etc.

It would then be desirable to enlarge the scope of the laboratory, making it possible to have Wasserman reactions determined.

Distributing stations should be established and located at convenient points in the city and county so that physicians may secure mailing outfits with facility.

### MUNICIPAL ENGINEERING ACTIVITIES.

#### The City Water Supply.

The city water supply is owned by a private corporation, and is derived from two different sources—Five Mile Creek and the Cahaba River.

There are two purification plants at which the water from these sources is treated in practically the same way—namely, by sedimentation, coagulation with alum, filtration, and chlorination.

The smaller plant comprises 2 sedimentation and 1 clear-water basin, and 10 filters, each with a capacity of 500,000 gallons. Here hypochlorite is used as a disinfectant.

The larger plant comprises 2 sedimentations and 1 clear-water basin, and 38 filters, each with a capacity of 500,000 gallons. Here liquid chlorine is used as a disinfectant.

Close check is maintained on the quality of the water by a chemist employed by the company.

The methods pursued in securing a pure-water supply for the city are modern and efficacious, as may be seen from the following results obtained in the laboratory:

During the year 1915 the average count of 280 samples of raw water planted on agar and incubated at 20° C. was 3,358. After final treatment the count was 2.2, meaning an efficiency of 99.94 per cent.

During the same period the average count of 280 samples of raw water planted on agar and incubated at 38° C. was 2,091. After final treatment the count was 3.3, showing an efficiency of 99.84 per cent.

The colon bacillus was not found at all in 280 ten c. c. samples of purified water. These figures are for the North Birmingham plant, which has to deal with raw water somewhat more highly polluted than that of the other supply.

At the Cahaba plant during 1915 the average count of 193 samples of raw water planted on agar and incubated at 20° C. was 1,399. After final treatment the average count was 1, meaning an efficiency of 99.86 per cent.

On agar kept at 37° C. the count for 193 samples averaged 556, and after final treatment 1.4, meaning an efficiency of 99.74 per cent.

The bacillus coli was found but once (October) in 193 ten c. c. samples.

In addition to the check kept on the water at the plants there are frequent examinations made from taps in various parts of the city.

Of 1,106 samples collected in this way the average count on agar at 20° C. was 9.3, while the average count on agar at 38° C. was 7.3.

In 1,106 ten c. c. samples examined during the year 1915 but two showed the presence of colon bacilli—one in the month of June and one in the month of October.

It is estimated that approximately 90 per cent of the inhabitants of the city use city water, the rest deriving their water supply from surface wells and springs. This is a dangerous proceeding in a limestone country, as the chances for pollution are great. Therefore all wells and springs should be eliminated, and it should be compulsory for all persons within the city to supply themselves with city water.

#### Disposal of Sewage.

Sewers have been made available to about three-fourths of the population of Birmingham.

The sewage is disposed of by means of two plants, where it undergoes septic action and oxidation in contact beds.

The sewers located in the older part of the city are at present too small for the purpose, as they were planned and laid for a much smaller community.

In addition to the sanitary sewers there is also a system of storm-water sewers.

One of the greatest evils to be found in the city is the dry surface closet open to flies. There are approximately 8,000 of these closets in the city, which no doubt accounts to a large extent for the endemic typhoid fever.

It is essential that these surface closets be abolished without delay. Houses should be made to connect to the sewer where such is available. There is already sufficient law to compel sewer connections. Where there is no sewer the installation of a sanitary dry closet should be insisted upon. The necessary ordinance has already been enacted and the attention of the sanitary inspectors, as well as the patrolmen of the police department, should be concentrated on this matter. One inspection is quite enough to determine when the nui-

sance exists, and written orders to abate the same should be issued immediately. If in the time allotted reinspection shows that the approved type of closet has not been installed, the case should be brought to the attention of the court. This is an emergency measure that should be pushed to the limit.

The city collects night soil, charging the householder 35 cents per month for the service. The fecal matter is dumped into cans which are taken to a central point and the contents emptied into a sewer. The cans are then thoroughly washed.

#### Collection and Disposal of Garbage and Rubbish.

The collection and disposal of refuse is carried on by the city street department. The city owns its own wagons and horses and collects every day in the congested part of the city and from the residential districts once a week.

A city ordinance requires householders to maintain a properly covered garbage tin in which to place garbage and rubbish other than ashes. A separate receptacle must be provided for ashes.

There are four incinerators in the city, each of which is of an old type and capable of disposing of a part only of the refuse collected. In fact, they will not incinerate pure garbage at all without the addition of fuel. Therefore a large part of refuse including garbage is dumped—a proceeding not consistent with good sanitation, especially under the conditions existing in Birmingham. On the other hand, the use of rubbish free from organic matter as a fill in low-lying areas of the city is an excellent procedure, as material otherwise useless thus becomes valuable for reclaiming land and frequently results in the eradication of mosquito-breeding centers.

At present there are being recovered from the refuse certain products of some value as junk, as, for instance, rubber, paper, cans, bottles, etc. While ordinarily this would be a good plan, it becomes more or less objectionable in Birmingham because with this material is mixed a great deal of organic matter in the shape of garbage.

*Some statistics relative to garbage and rubbish collection during year 1915.*

#### GARBAGE AND RUBBISH.

Average number of loads daily-----	222
Weight per load (approximately)-----	1,500
Double teams used-----	37
Men employed:	
Paid labor-----	58
Convicts-----	42
Foremen employed-----	11

## COLLECTION OF NIGHT SOIL.

Single carts.....	16
Double teams.....	1
Men employed.....	18
Loads for the year, averaging 300 pounds per load.....	11, 923
Number of tons.....	1, 288
Total pay roll for both departments.....	\$42, 669. 70
In use July, 1916, to collect garbage and rubbish:	
Double teams.....	26
Single teams.....	1
Men employed.....	57
Foremen.....	6

## MILK AND FOOD INSPECTION.

## Control of the Milk Supply. .

There are at present engaged in this work the bacteriologist of the health department, who is the chief milk inspector, and one assistant to carry on in part the inspection of dairies, together with the inspection of milk depots and the collection of specimens where necessary.

Before any person may engage in the milk business he is required to secure a permit from the health department, which is issued free of charge after an inspection of the premises. There are two permits in use—one for milk-producing establishments and one for stores selling milk.

The ordinances providing for safe milk are adequate except that there is no requirement that milk be pasteurized except when used in the manufacture of ice cream. This ordinance was recently enacted because of the typhoid outbreak. Neither is there an ordinance requiring that all milk be sold in original packages. It is estimated, however, that 75 per cent of the milk sold in the city is delivered in that manner, an ordinance requiring that when so sold it must be bottled at the producing farm or milk depot.

Dairies are scored according to the methods used by the Department of Agriculture. An inspection of a few of these dairies showed that the health department, through educational means, has been making commendable efforts to improve the condition of the dairies, and that the dairymen were sufficiently progressive to profit by the instruction received. Dairy barns were clean, well lighted, and ventilated, and had clean wooden or concrete floors, with provision made for drainage. Cow yards were well drained; the small-top milk pail was in use; milk houses were separate from the barns and screened from flies. All producing farms inspected were provided with the pail system for the disposal of fecal matter. The method of application of this system, however, could be improved in several instances.

Provision was made for sterilizing, mostly by means of small steam boilers. Ice was used in every case and, in the majority of instances, milk cooled immediately and rapidly by an approved form of cooler through which ice water circulated.

Bottling and capping were done by hand in every instance. The character of the dairies makes it possible to produce a fairly clean milk provided the principles of cleanliness are applied.

Heretofore the tuberculin test has been applied to all the milch cattle, but because of the policy of retrenchment necessitated on the part of the city government, due to a lack of funds, the services of some necessary employees were discontinued, and the tuberculin test was therefore abandoned for the time being at least.

No bacterial counts of the market milk of Birmingham have been made in the laboratory for some time. The reason for this is the lack of the necessary assistance in the laboratory to perform the various duties required.

*Discussion.*—A majority of the producing farms supplying milk to the city of Birmingham (approximately 145 in number) are located within a radius of 7 miles of the city limits. With proper facilities for transportation it would be possible for one dairy inspector to visit each of these dairies sufficiently often within a yearly period to keep a fairly good check on the methods used. This, however, would be impossible if the same inspector were required to perform city milk work in addition to dairy inspection.

There is badly needed another employee in the milk division to act as city milk inspector for the inspection of milk depots and wagons and the collection of samples of milk delivered to the customers, and to have supervision over the pasteurizing plants in the city.

It would then be advisable to resume the bacteriological examinations of the milk furnished to the city in order to determine by bacterial count the quality of the milk sold. When this can be done in a systematized way it would likewise be advisable to publish the results of the examinations in the daily papers. Milk showing more than 500,000 bacteria per cubic centimeter should not be permitted to be sold, even after pasteurization.

Because of the personal element which enters into the production of milk, and of the great danger of introducing infection through the hands of the milker, flies, or the animals from which the milk is obtained, it would seem advisable to require that all milk used in the city of Birmingham be pasteurized by the holding method, such milk to be held at a temperature of 145° for not less than 25 minutes, the pasteurizing machine to be provided with a temperature recorder and a thermoregulator. This does not mean that the efforts

to maintain cleanliness on the producing farm should be relaxed, but merely offers an additional precaution that will effectually nullify the evil effects of any accidental infection that may be introduced into the milk.

*Tabulation of information relative to the milk supply of the city of Birmingham.*

Number of dairies supplying milk to the city-----	180
Longest haul-----miles	240
Shortest haul-----do	.2
Number of dairies located within a radius of 7 miles of city-----	145
Daily consumption of milk-----gallons	9, 443
Daily consumption of buttermilk-----do	3, 229
Daily consumption of cream-----do	380
Number of chemical analyses made in laboratory-----	1, 550
Number of times dairies scored-----	1, 045
Number of dairies scored-----	151

Class.	Number.	Percentage.
50 to 60.....	3	1.93
60 to 70.....	16	10.63
70 to 80.....	107	70.87
80 to 90.....	20	13.25
Above 90.....	5	3.32
	151	100.00

**Inspection of Meat and Other Food.**

*Meat inspection.*—There are two men engaged in the inspection of meat, one of whom is a veterinarian, who makes the necessary ante and post mortem inspections of animals killed in the two local slaughterhouses. The other inspector passes upon imported meats from animals that have been killed under Federal supervision in slaughterhouses located elsewhere.

A number of animals are slaughtered—a few at a time—by farmers and others outside of the city limits and the carcasses brought into the city for sale. This meat must be inspected. It would be wise to arrange by ordinance to prohibit this procedure and to require that all such animals be slaughtered at one of the regular slaughterhouses, so that they can be given a thorough ante and post mortem inspection. An adequate inspection is not feasible under the present arrangement.

*Other foods.*—There are two inspectors engaged in the inspection of foods other than meat and milk, and in the inspection of restaurants, bakeries, confectioneries, or other place where food is manufactured or sold. Adequate ordinances to cover the subject have been enacted.

This class of work is comparatively new in the city of Birmingham, but has already produced some excellent results in improving sanitary conditions. All such places are scored, similar cards being



used in each instance. This seems to be a simple and satisfactory procedure. The scores are published monthly.

### HEALTH SUPERVISION OF SCHOOLS.

The health supervision of schools is carried on by the board of education.

There are engaged in the work one physician, who receives \$1,500 a year for his services, and others who are employed temporarily at the beginning of the school year to make the necessary examinations.

In addition there are also employed two nurses, who work during the school term. One of these nurses is colored and works in the colored schools.

At the beginning of the school year an intensive inspection is held of all school children who are enrolled. This has for its purpose primarily the detection of communicable diseases, including such conditions as diphtheria, scabies, pediculosis, etc. During this inspection swabbings are taken from the throats and noses of all children who show evidence of having any inflammatory reaction or discharge from the nose or throat. Following this inspection, the work is more especially concerned with detecting those physical defects that are known to retard the advancement of the child during its school life. Attention is also given to the condition of the environment.

The school nurses are engaged in work similar to that of school nurses elsewhere—following up children who have been found defective in the school, by visits to the homes, in an effort to induce the parents to have the defect corrected, at the same time acting as educators to improve sanitary conditions in and about the homes.

### EXPENDITURES AND APPROPRIATIONS.

There was expended during the year 1915 the sum of \$28,005.22.

There has been appropriated to the health department for the year 1916 the sum of \$20,250.

The income of the city from all sources during the year 1915 was \$1,838,392, of which \$943,423 was obtained through general taxation.

The amount which is available to the city government to defray its ordinary maintenance expenses for the year 1916 is \$919,398. This sum represents the total income minus certain funds which are required to pay the interest on bonds, etc.

Computing the amount that should be appropriated to the health department on a basis of 5 per cent of the total available revenues, there should be allowed for public-health purposes the sum of \$45,000, as against \$20,250, the amount actually received by the

health department to carry on its work during the year 1916. This latter figure represents but 2.2 per cent of the total available revenues.

As a comparison it may be stated that there has been appropriated for the year 1916 to the fire department \$192,180, or 20.9 per cent; to the police department, \$141,210, or 15.3 per cent; to public schools, \$248,000, or 26.9 per cent. In addition to the latter amount appropriated to the public schools, there is also received \$242,760 from the State and county and \$50,000 from fees charged to pupils. Thus, there is a total of \$541,000 available for public-school purposes.

In asking for an increase in appropriation for the health department it need not be inferred that an increase in the tax levy is necessarily required. All that is suggested is a more equal and equitable distribution of revenues at the time they are apportioned to the various departments.

In addition to the sum of \$45,000 for public-health purposes, there should be allowed for the collection of garbage and rubbish not less than 10 per cent of the city's revenues, which in the case of Birmingham would approximate \$91,939. This amount should be sufficient to enable the city to collect and dispose of all garbage and other refuse in an efficient manner.

#### RECOMMENDATIONS.

As a result of the foregoing study, and after careful consideration of conditions, certain definite conclusions have been reached which have been made the basis for the following recommendations:

1. That a full-time physician skilled in the science of preventive medicine be appointed in the dual capacity of health officer for the county and for the municipalities within the county; that he hold office during efficiency, and that he receive a salary of not less than \$3,500 per annum, to be paid by the county; that he be required to perform all of the executive and administrative work, and such field work as may be necessary to supervise the operations of his department.

2. That the health organization over which the above-named official shall preside be divided into two subdepartments—the department of health for the city of Birmingham and the department of health for the county of Jefferson, including all other municipalities.

3. That there be appointed a full-time assistant physician skilled in the science of preventive medicine, who shall be located in the city of Birmingham, and who shall hold office during efficiency and receive a salary of not less than \$2,500 per annum, to be paid by the city of Birmingham, and that his duties be concerned with the field activities being carried on by the health department of the city.

4. That there be appointed a full-time assistant physician, skilled in the science of preventive medicine, who shall be located in the county of Jefferson and who shall hold office during efficiency and receive a salary of not less than \$2,500 per annum, to be paid by the county. That his duties be concerned with the field activities being carried on by the health department of the county.

5. That there be appointed as an assistant to the county and municipal health officer, for work both in the county and the cities, a full-time sanitary engineer, who shall receive a salary of not less than \$2,000 per annum, to be paid from county funds, and who shall hold office during efficiency.

6. That there be installed and maintained by the county a well-equipped laboratory by transfer of the present city laboratory to the county health organization, and that the facilities of this laboratory be made available to the physicians and health officers of the entire county.

7. That there be employed for work in the laboratory a full-time bacteriologist at \$2,100 per annum. This figure is mentioned because it is the salary of the present bacteriologist, who has occupied the position for 10 years.

8. That the laboratory staff be increased by the addition of one laboratory attendant at a salary of \$840 per annum.

9. That the city of Bessemer set aside \$5,000 to defray the expenses of a health organization, to include a full-time assistant health officer trained in sanitary science, a sanitary inspector, and two public-health nurses.

10. That the county of Jefferson, exclusive of the cities of Birmingham and Bessemer, be divided into five districts; that in each there be placed a public-health nurse and a sanitary inspector; that each nurse receive not less than \$75 per month and each inspector not less than \$80 per month, together with the necessary traveling expenses; that the salaries and expenses of this force be paid by the county.

That adequate transportation be furnished to the field employees of the county in the shape of inexpensive two-passenger automobiles or motorcycles, thus making it possible to cover the territory adequately, economically, and effectively.

11. That as soon as the organization in the county is completed, a sanitary station to include a portable laboratory be opened in each district consecutively from which to carry on intensive work looking toward the eradication of malaria, typhoid fever, hookworm, pellagra, tuberculosis, etc., and that at the same time an energetic educational campaign be entered into including lectures with lantern slides, demonstrations, etc.

12. That pupils of public and private schools in the county and the municipalities be required to be successfully vaccinated against smallpox before admission.

13. That not less than \$30,870 be appropriated by the county for the support of the county health department, to be expended approximately as follows:

1 county health officer and health officer for the cities, not less than-----	\$3, 500
1 assistant health officer for county, not less than-----	2, 500
1 sanitary engineer, not less than-----	2, 000
1 clerk and registrar-----	1, 200
5 public health nurses at \$75 per month-----	4, 500
5 sanitary inspectors at \$80 per month-----	4, 800
1 bacteriologist-----	2, 100
1 laboratory attendant-----	840
	21, 440
Transportation, lanterns and slides, office and laboratory supplies, printing, etc.-----	9, 430
	30, 870

14. That the salaries for the new positions mentioned herein be considered as minimum salaries and increased from time to time, in the judgment of the board of health, after the official concerned has demonstrated his efficiency.

15. That for purposes of administration the health department of the city of Birmingham be divided into four parts—a division of epidemiology, a division of sanitation, a division of milk and food inspection, and a division of vital statistics.

16. That the assistant health officer located in the city of Birmingham be placed in immediate control of the division of epidemiology.

17. That the activities of the division of epidemiology be made to include all epidemiological work and all work in which the public health nurses are engaged, namely, the activities concerned with communicable-disease nursing, child welfare, and prenatal work, and school nursing.

18. That at least one infant welfare station and one antituberculosis dispensary be operated by the health department.

19. That the assistant health officer of the city of Birmingham be required to render the necessary professional services at the child-welfare station and antituberculosis dispensary.

20. That the nursing force of the health department of the city of Birmingham be increased to 10 nurses, whose duties shall be those concerned with prenatal and child-welfare work, communicable-disease nursing, including antituberculosis activities, and school nursing.

**That all public health nursing of this nature now carried on by other bodies be discontinued.**

21. That the city be divided into 10 districts, and that in each district there be placed a public-health nurse to perform within that district all of the duties required of such an official.

22. That the work of the milk and food division be made to include all of the work required in the control of the food supply, including the inspection of dairies, milk, meats, and other foods, restaurants, bakeries, etc.

23. That a chief of the division of milk and foods be appointed at a salary of not less than \$1,500 to hold office during efficiency.

24. That in order to more adequately control the milk supply of the city of Birmingham, an additional milk inspector be employed.

25. That all milk supplied to the city of Birmingham be pasteurized.

26. That all meats used in Birmingham be obtained from animals slaughtered at a central point located within the city, or from animals slaughtered under United States Government supervision.

27. That all physicians of the city and county cooperate with the health department in promptly reporting the notifiable diseases under their care, as well as births and deaths.

28. That sewers be extended to all parts of the city, and that householders on a sewer line be compelled to connect without delay.

29. That all insanitary privies be abolished, and where no sewer is available that a sanitary closet be installed.

30. That the work of the sanitary inspectors be especially directed against the abolition of the insanitary closet, the elimination of surface wells, the prevention of fly breeding through the proper disposal of manure, and the requirement that all householders be provided with proper garbage tins.

31. That a survey be made of the mosquito-breeding centers of the city, and that where filling or draining is not possible an emergency oiling squad be employed during the mosquito-breeding season and placed under the charge of a sanitary inspector.

32. That adequate housing ordinances be adopted in order that the overcrowded conditions so common in many cities may be avoided.

33. That the present police force of the city be required to cooperate with the sanitary inspectors of the health department in noting and remedying insanitary conditions, and that until the insanitary privy has been abolished the present arrangement whereby six policemen are detailed for work in the health department be continued.

34. That weekly public-health articles of an educational nature be published by the health department in the newspapers of the city, and that these articles be issued in printed form and used as the weekly lesson in the public schools, a copy of the lesson to be given each child to take home.

35. That all of the ordinances relating to public health be gathered together and published in pamphlet form for the use of the employees of the department and others concerned.

36. That rules governing the operations of the health department be published for the information of the employees carrying out such operations.

37. That the ordinances relative to refuse be amended so that garbage alone will be kept in one receptacle, made of metal, water-tight, and with a tight-fitting lid, and that another receptacle be provided for rubbish, including ashes, paper, bottles, cans, etc.

38. That the number of wagons used in the collection of refuse be increased so that it will be possible in addition to the daily collection in the congested district to make a collection of garbage in the residential sections at least twice a week.

39. That the type of refuse wagon be such that it may be used for rubbish and garbage alternately.

40. That all garbage be incinerated.

41. That rubbish be used for filling in low-lying, mosquito-breeding areas.

42. That an amount not less than \$45,000 be appropriated by the city commission annually to defray the expenses of the health department, this sum to be spent approximately as follows:

1 assistant health officer.....	\$2, 500
1 registrar of vital statistics.....	960
1 clerk.....	840
1 chief sanitary inspector.....	1, 800
7 assistant sanitary inspectors, at \$960.....	6, 720
1 chief of milk and food division.....	1, 500
1 assistant milk inspector.....	1, 140
1 assistant milk inspector.....	960
1 meat inspector.....	1, 140
1 meat inspector.....	960
2 food inspectors, at \$900.....	1, 800
10 public-health nurses, at \$900.....	9, 000
	<hr/>
	29, 320
Printing transportation, emergency services, supplies, maintenance, of dispensaries, etc.....	15, 680
	<hr/>
	45, 000

43. That health officers not be required to perform the work of city or county physician or police surgeon.

44. That the accounts be kept so that the executive officer can determine without delay the cost of operating his department at any time, or the cost of any activity being carried on by his department.

45. That all officials employed in the health department after its reorganization receive at first a probationary appointment only, in order to determine personality and qualifications for public-health work before giving them a permanent position.

46. That the city of Birmingham construct a hospital in which to isolate persons suffering with communicable diseases, with the exception of tuberculosis, such hospital to contain not less than 30 beds.

47. That the county of Jefferson construct, as soon as possible, a sanatorium in which to isolate open cases of tuberculosis. Such hospital to contain not less than 100 beds.

48. That the necessary laws be enacted authorizing the health officer to isolate cases of communicable diseases in hospital when in his opinion it is advisable.

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## THE LABORATORY DIAGNOSIS OF DIPHTHERIA.

By NEWTON E. WAYSON, Assistant Surgeon, United States Public Health Service.

During the winter months of 1915-16, two diphtheria epidemics, one in West Virginia and one in a reformatory school for boys, in Washington, D. C., together with the consequent school surveys, afforded material for tests of current practice and belief with reference to diphtheria diagnosis.

Three points were studied in some detail, namely:

1. The relation between morphology and virulence for guinea pigs.
2. The relative value of pure and mixed cultures for virulence tests on guinea pigs.
3. The effect on morphologic diagnosis of 24 hours' interval, at room temperature, between making and incubating the culture, as contrasted with that of immediate incubation.

### The Relation Between Morphology and Virulence for Guinea Pigs.

The relation between morphology and virulence for guinea pigs resolves itself practically into the question of the virulence of the solid-staining types of organism. The avirulent granular types occur relatively seldom in the throat and nose, even in convalescents from infection with virulent granular types.

The literature reveals a difference of opinion, based on the tinctorial classification of Westbrook, among laboratory diagnosticians

concerning the clinical virulence and guinea-pig virulence of these solid-staining types, as is shown in the following table:

	A	A <sub>1</sub>	A <sub>2</sub>	B	B <sub>1</sub>	B <sub>2</sub>	C	C <sub>1</sub>	C <sub>2</sub>	D
1. A. P. H. A. (1911) <sup>1</sup> .....	+	±					+	+		+
2. Rickards (1908) <sup>2</sup> .....	+	+	±		±	±	+	±	±	+
3. Boston (city) (1900-1903) <sup>3</sup> .....	+	±	±		±	±	+	±	±	+
4. Hill (1907) <sup>4</sup> .....	+						+			+
5. Kolmer (1912) <sup>5</sup> .....	+	±	±	+	±	±	+	±	±	+
6. Westbrook (1905).....	+						+			+
7. Westbrook (1900).....							+	+		+
8. Graham-Smith (1913).....	+	+	±	+	±	±	+	+	±	+

  

	D <sub>1</sub>	D <sub>2</sub>	E	E <sub>1</sub>	E <sub>2</sub>	F	F <sub>2</sub>	G	G <sub>2</sub>
1. A. P. H. A. (1911) <sup>1</sup> .....	±		±	±				±	
2. Rickards (1908) <sup>2</sup> .....			±	±					
3. Boston (city) (1900-1903) <sup>3</sup> .....			±	±					
4. Hill (1907) <sup>4</sup> .....									
5. Kolmer (1912) <sup>5</sup> .....	±	±	+	—	—	—	—	—	
6. Westbrook (1905).....									
7. Westbrook (1900).....	+					+			
8. Graham-Smith (1913).....	+	+	+	+	±	±	±		

<sup>1</sup> Opinion of majority. One member includes E<sub>2</sub> and other solid types brilliantly stained.

<sup>2</sup> A, C, D in small numbers are doubtful, often clear up clinically.

<sup>3</sup> Other forms negative or atypical.

<sup>4</sup> A, B, C, D, E significant. A, B, C, D doubtful.

<sup>5</sup> A<sub>2</sub>, B<sub>2</sub>, C<sub>2</sub>, D<sub>2</sub> doubtful: request second culture.

<sup>6</sup> A, C, D virulent. Repetition of examinations in suspicious findings is important.

+ Found pathogenic for guinea pigs.

± Doubtful, or unknown pathogenicity.

— Nonpathogenic for guinea pigs.

Some of the conflicting views are caused by the change, or at least apparent change, from the solid to the granular forms in subculture; and from granular to solid-staining types in direct throat cultures, with the progression of the convalescence of the patient. The following objections have been raised to this alleged change in the staining characteristics: (a) That the granular forms are present in the original culture, but are missed in making the smear, or become the predominant type with further growth; and (b) that ordinarily the organisms constantly breed true to morphologic type, through several generations on artificial-culture media. However, practically all workers seem to agree on the fact that young cultures are frequently solid staining, later becoming granular, and most of them concede that even *B. hoffmanni* frequently presents granular involution forms in old cultures; further, this organism exhibits considerable pleomorphism in size, thus suggesting that, as a criterion of the virulence of the diphtheria bacillus, morphologic or tinctorial characteristics are uncertain.

The control of the spread of diphtheria is, practically, the control of those persons harboring virulent diphtheria bacilli. The only (approximate) test of virulence practicable in the laboratory is the guinea-pig test.

In this study, staining was done with the standard Löffler's methylene blue, allowing it to act a few seconds, a method which



affords a good definition of the granules. Wesbrook's tinctorial classification was used as a guide, and the identification of types of the original culture was, in most instances, checked by a second worker.

Of the cultures from 37 cases tested for virulence during the study, 23 were of the solid-staining varieties of organism, only 3 of which were virulent to guinea pigs. Two of these three which were virulent had, subsequent to the original throat culture, become granular staining in subcultures, and remained granular staining when isolated in pure culture. The third culture remained solid staining and was virulent.

Table showing relation of morphology to virulence, and results, by death or survival of guinea pigs, after inoculation with mixed and pure cultures of *B. diphtherie*.

Culture No.	Type diagnosis.	Mixed culture + slant.	Subsequent diagnosis.	Pure cultures.		Remarks.
				1 oese.	1 c. c. 48 hour br.	
2372.....	D <sub>2</sub>	S				
2372+A.....	D <sub>2</sub>	S				
2366.....	C	D	C	D	D	
2366+A.....	C	S	C	S	S	
2373.....	D <sub>2</sub>	S				
2373+A.....	D <sub>2</sub>	S				
2410.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2410+A.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2405.....	A, C, very few	S				
2405+A.....	A, C	S				
2406.....	D <sub>2</sub>	S	D <sub>2</sub>	S		
2406+A.....	D <sub>2</sub>	S	D <sub>2</sub>	S		
2408.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2408+A.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2400.....	C	D				
2400+A.....	C	S				
2432.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2432+A.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2413.....	C	D		D		
2413+A.....	C	S	C	S		
2469.....	D <sub>2</sub>	S				
2469+A.....	D <sub>2</sub>	S				
2448.....	D <sub>2</sub>	S	D <sub>2</sub>	S		
2448+A.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2450.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2450+A.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2456.....	D <sub>2</sub>	S				
2456+A.....	D <sub>2</sub>	S				
2455.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2455+A.....	D <sub>2</sub>	S	D <sub>2</sub>	S	S	
2524.....	C	D				
2524+A.....	C	S				
2510.....	D <sub>2</sub>	S	D <sub>2</sub>		S	
2510+A.....	D <sub>2</sub>	S	D <sub>2</sub>		S	
2522.....	D <sub>2</sub>	S				
2522+A.....	D <sub>2</sub>	S				
2530.....	C	D				
2530+A.....	C	S				
2527.....	D <sub>2</sub>	D				} Had been positive case, clinically C types.
2527+A.....	D <sub>2</sub>	D				
2521.....	C	D	C		D	} Sore throat (survey).
2521+A.....	C	S	C		S	
2529.....	C	S	C		D	} Release culture.
2529+A.....	C	S	C		S	
2525.....	C	D			D	} Bronchi sepsis. Release culture.
2525+A.....	C	S			DS	
2526.....	C	D	C		D	} Release culture.
2526+A.....	C	S	C		S	
2505.....	C	D			D	} Sore throat (survey).
2505+A.....	C	S			S	

Table showing relation of morphology to virulence, and results, by death or survival of guinea pigs, after inoculation with mixed and pure cultures of *B. diphtheriae*—Contd.

Culture No.	Type diagnosis.	Mixed culture 1+1 slant.	Subsequent diagnosis.	Pure cultures.		Remarks.
				1 oese.	1 c. c. 48 hour br.	
2523.....	D <sub>2</sub> .....	S.....				} Release culture.
2523+A.....	D <sub>2</sub> .....	S.....				
2528.....	A.C.D <sub>2</sub> .....	D.....				
2528+A.....	D <sub>2</sub> .....	S.....				
2507.....	D <sub>2</sub> .....	S.....				
2507+A.....	D <sub>2</sub> .....	S.....				} Poor findings. Post-mortem.
DC24.....	D <sub>2</sub> .....	D.....	C.....		D.....	
DC24+A.....	D <sub>2</sub> .....	D.....	C.....		S.....	
DC39.....	C.....	D.....	C.....		D.....	
DC39+A.....	C.....	S.....	C.....		S.....	
DC4.....	D <sub>2</sub> .....	D.....	C.....	D.....		} Release culture.
DC4+A.....	D <sub>2</sub> .....	S.....	C.....	S.....		
AP.....	C.....	D.....	C.....		D.....	
AP+A.....	C.....	D.....	C.....		S.....	
AP.....	C.....	D.....	C.....		D.....	
AP+A.....	C.....	D.....	C.....		D.....	} Broncho sepsis. On post-mortem.
2787.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2787+A.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2857.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2857+A.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2798.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	} Release culture.
2798+A.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2855.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2855+A.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2557.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	
2557+A.....	D <sub>2</sub> .....	S.....	D <sub>2</sub> .....		S.....	

Cultures Number + A=control with antitoxin.

Types are indicated according to Wesbrook's classification.

S=survived 10 days or more.

D=dead in less than 7 days.

AP culture killed control in mixed culture in 2 days and unprotected pig in 1 day, both with typical findings.

2525 culture, control dead with pure culture, but in 8 days complicated with an infection with *B. bronchisepticus*.

DC 24 control dead in 1 day, but not with post-mortem findings of diphtheria.

These results conform with the general consensus of opinion, that the solid-staining, Hoffmann-like, or Wesbrook D<sub>2</sub> types, are usually avirulent organisms. The importance of this fact is emphasized by the great frequency with which this type of organism is found in the throats and noses of children other than probable contacts. Further, the exact simulation in form of these organisms by virulent diphtheria bacilli, in many instances, especially in young cultures 5 to 15 hours old, and the apparent change to these types in convalescence, indicate that the virulence test is at present the most reliable means of determining whether the organism in question will produce diphtheria clinically.

Virulence is tested on guinea pigs of 200 to 400 grams weight, and the accepted method is the injection of a pure broth culture of the organism, after 48 hours' growth at 37° C.

The methods used in this study involve the second point to be considered:

### The Relative Value of Virulence Tests with Mixed Cultures, as Opposed to Pure Cultures.

This point was suggested by the practice in some diagnostic laboratories of injecting into a guinea pig, as a test of virulence, 24-hour mixed cultures washed from a slant, without using a control.

Twenty-five of the above-mentioned 37 cultures were studied in mixed and pure cultures.

The mixed cultures were incubated 24 hours on Löffler's blood serum mixture, and after the smear diagnosis was made, immediately suspended in 5 cc. of salt solution, of which 0.5 or 1 cc. was injected into each of two guinea pigs, one of which was protected with antitoxin. Or, for the sake of convenience, the culture was allowed to stand at a temperature of 15° C. for from 24 to 96 hours, and then transferred to the serum mixture, incubated for 24 hours, checked microscopically against the original smear findings, and injected into guinea pigs.

The control animals were injected intraperitoneally, or intracardially, with 200 to 350 units of antitoxin, an amount more than adequate for protection, either 24 hours, or 5 hours, previous to the injection of the cultures.

Pure cultures were isolated (*a*) by diluting in broth, carrying over to Löffler's serum mixture, incubating, and fishing colonies from the serum mixture; (*b*) by growing for 24 hours in a serum-water mixture, and, from the film, carrying over to Löffler's serum mixture, incubating, and fishing; or, (*c*) the simplest and seemingly the most efficient method by planting on Löffler's serum mixture from the film of the suspension remaining in the original mixed culture. This suspension should first be allowed to stand at room temperature overnight, a portion of it having been used to test the virulence of the mixed culture.

The cultures were tested for virulence by injecting 1 cc. of a suspension in salt solution, made from one oese of the growth on the Löffler's serum mixture; or, by injecting 1 cc. of a 48-hour, sugar-free, broth culture, into each of two guinea pigs, one of which was protected by antitoxin. The broth cultures were used only after the organism had become accustomed to grow in broth, producing either a good pellicle, a sediment, or, as occurred with several of the solid staining types, a diffuse cloudiness.

The comparison of the results of injecting mixed cultures or pure cultures showed practically no difference in their virulence reaction toward guinea pigs; the post-mortem findings in those dead of the mixed culture corresponding to those found in guinea pigs dead of a known diphtheria toxin. One culture of the 25 tested in pure and mixed culture killed in the former but not in the latter in-

stance, probably owing to the small dose of organisms in the mixed culture, a feature which could be avoided by enrichment.

Four sets of intradermic tests, using four tests to a pig, injecting 0.2 cc. of a suspension in 20 cc. of salt solution, of a 24-hour Löffler's serum mixture slant, showed that the method was not wholly satisfactory. In several instances, using pure cultures, redness and infiltration of the skin were obtained, the cultures subsequently proving avirulent. In one instance a culture producing a very slight skin reaction killed in subcutaneous injection, while the antitoxin control survived. The intensity of a skin reaction, as contrasted with the definite death of an animal, seems an unsafe test for virulence, although, in many instances, it may materially aid diagnosis and shorten the length of time necessary for a positive reaction. The skin reaction occurs in 24 to 48 hours, while the reaction of death of the guinea pig frequently requires from four to seven days. The intradermic reactions, with the use of mixed cultures, are complicated by the pyogenic organisms, ulceration occurring frequently.

The table presented above shows, on the one hand, the relation between types and virulence, and on the other, the virulence relations between mixed and pure cultures.

**Morphologic Diagnosis, After a 24-Hour Interval, at Room Temperature, Between Making and Incubating the Culture, and After Immediate Incubation.**

Since in the epidemic in West Virginia, by reason of transportation, the cultures examined stood for 24 hours on the media, an experiment was made to test the probable effect on positive diagnosis of this interval previous to incubation.

A set of cultures was made by inoculating Löffler's serum-mixture slants with swabs from 20 throats, allowing them to grow for 24 hours, and examining them carefully under the microscope for diphtheria or diphtheroid organisms. The growth of each tube was then suspended in salt solution, thoroughly mixed, and inoculated heavily on each of two Löffler serum slants, over which was flowed 0.2 cc. of a salt solution suspension of a 24-hour Löffler serum-slant growth of a typical diphtheria bacillus. These suspensions were diluted so as to represent doses of, approximately, 300,000, 30,000, and 300 diphtheria bacilli. One of the slants so treated was incubated at once, the other was left at room temperature for 24 hours and then incubated. Each set of tubes was incubated for, approximately, 17 hours at 37° C. just previous to examination by smear. The smears were made from most of the surface of the slant, and stained by Löffler's methylene blue.

Forty tubes, each with 300,000 diphtheria bacilli inoculation, and 40 with 30,000 were positive, both in the 20 tubes immediately incubated and in those allowed to stand for 24 hours before incubation.

Of 80 tubes inoculated with 300 bacilli, two series of 40 each showed 12 positive and 8 negative of those immediately incubated and 8 positive and 12 negative after 24 hours' standing; a second series showed 19 positive and 1 negative with immediate incubation and 18 positive and 2 negative after standing.

All of the tubes having the 300 organisms showed few organisms to the smear. The controls, made in each lot by inoculating a slant with the diphtheria bacillus only, showed in the first of the 300 series from 18 to 25 colonies, with a small coalescent growth at the bottom of the slant. In making the smears throughout these series, and to approximate more closely the usual swab method of inoculation, which was impracticable in these experiments, the growths at the bottom of the slants were avoided.

#### Conclusions.

The above findings suggest that the practice of making diagnoses from cultures 24 hours in transportation before incubation at 37° C. was not productive of great error.

The test of virulence by the injection of one-tenth to one-fifth of the 24-hour growth on blood-serum mixture of a mixed culture of the diphtheria bacillus into a guinea pig, controlled by a second injection into a pig protected by antitoxin, was in this series a reliable test. This method may offer a more practicable way of controlling carriers of organisms, morphologically diphtheria bacilli, in that it requires much less manipulation and less time for its execution. The factor of manipulation would be a tremendous saving to the laboratory, and the time element would facilitate quarantine.

The evidence from this study further substantiates the opinion that solid-staining types of the diphtheria bacillus are usually avirulent, and that morphology alone is an insufficient index of the virulence of the diphtheria bacillus.

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**PLAGUE-PREVENTION WORK.**

**CALIFORNIA.**

The following report of plague-prevention work in California for the week ended October 14, 1916, was received from Passed Asst. Surg. Williams; of the United States Public Health Service, in temporary charge of the work:

FEDERAL AND COUNTY INSPECTION SERVICE.

[For the enforcement of the law of June 7, 1913.]

Counties.	Number inspected.	Number re-inspected.	Acres inspected.	Acres re-inspected.	Acres treated.		Holes treated.
					Waste balls.	Grain.	
Contra Costa.....	3	75	1,295	21,617		3,800	
Alameda.....		104		28,456		3,209	
Stanislaus.....	25	63	10,391	21,128	940	14,488	1,700
Santa Cruz.....		9		6,830		803	
Merced.....	10	36	11,147	20,794		20,359	
Monterey.....	18	24	9,460	18,974		13,120	
San Benito.....	28	47	32,050	24,265	440	12,469	2,897
Santa Clara.....	30	15	10,572	9,501		5,650	
San Mateo.....	4	4	3,015	645		250	
Total.....	118	377	77,890	152,210	1,380	74,208	4,657

RATS COLLECTED AND EXAMINED FOR PLAGUE.

Cities.	Collected.	Examined.	Infected.
Oakland.....	40	40	None.
Richmond.....	22	22	None.
Antioch.....	8	8	None.
Total.....	70	70	None.

RECORD OF PLAGUE INFECTION.

Places in California.	Date of last case of human plague.	Date of last case of rat plague.	Date of last case squirrel plague.	Total number rodents found infected since May, 1907.
<b>Cities:</b>				
San Francisco.....	Jan. 30, 1908	Oct. 23, 1908	(1)	398 rats.
Oakland.....	Aug. 9, 1911	Dec. 1, 1908	(1)	126 rats.
Berkeley.....	Aug. 28, 1907	(1)	(1)	None.
Los Angeles.....	Aug. 11, 1908	(1)	Aug. 21, 1908	1 squirrel.
<b>Counties:</b>				
Alameda (exclusive of Oakland and Berkeley).	Sept. 24, 1909	Oct. 17, 1909 <sup>2</sup>	June 23, 1916	293 squirrels; 1 wood rat.
Contra Costa.....	July 13, 1915	(1)	June 28, 1916	1,629 squirrels.
Fresno.....	(1)	(1)	Oct. 27, 1911	1 squirrel.
Merced.....	(1)	(1)	May 12, 1916	7 squirrels.
Monterey.....	(1)	(1)	May 27, 1916	38 squirrels.
San Benito.....	June 4, 1913	(1)	July 1, 1946	72 squirrels.
San Joaquin.....	Sept. 18, 1911	(1)	Aug. 26, 1911	18 squirrels.
Santa Clara.....	Aug. 31, 1910	(1)	June 21, 1916	32 squirrels.
San Luis Obispo.....	(1)	(1)	Jan. 29, 1940	1 squirrel.
Santa Cruz.....	(1)	(1)	May 30, 1916	5 squirrels.
Stanislaus.....	(1)	(1)	June 2, 1911	18 squirrels.
San Mateo.....	(1)	(1)	June 21, 1916	1 squirrel.

<sup>1</sup> None.

<sup>2</sup> Wood rat.

The work is being carried on in the following-named counties: Alameda, Contra Costa, Stanislaus, Monterey, San Benito, Santa Cruz, Merced, Santa Clara, and San Mateo.

## OPERATIONS ON THE WATER FRONT.

Number of vessels inspected for rat guards...	26
Number of reinspections made on vessels...	5
Number of new rat guards procured.....	12
Rats trapped on water front.....	49
Rats trapped on vessels.....	23
Number of traps set on wharves and water front.....	293
Number of traps set on vessels.....	75
Number of vessels trapped on.....	22
Poisons placed on water front (pieces).....	3,600
Bait used on water front and vessels, bacon (pounds).....	6
Amount of bread used in poisoning water front (loaves).....	12
Number of pounds of poison used on water front.....	4

The following is a record of municipal work performed under the supervision of the Public Health Service:

## COOPERATIVE MUNICIPAL WORK.

Number of premises inspected.....	606
Number of nuisances abated.....	89

## COOPERATIVE MUNICIPAL WORK--continued.

Number of rats trapped.....	72
Number of rats examined.....	67
Number of poisons placed.....	12,300
Number of garbage cans stamped approved.....	300
Rats identified:	
<i>Mus norvegicus</i> .....	31
<i>Mus rattus</i> .....	25
<i>Mus alexandrinus</i> .....	16
WORK DONE ON OLD BUILDINGS.	
Wooden floors removed.....	14
Number of yards and passageways, planking removed.....	5
Cubic feet, new foundation walls installed.....	4,065
Concrete floors installed (square feet, 16,950).....	9
Number of basements concreted (square feet, 9,850).....	6
Yards and passageways, etc., concreted (square feet, 625).....	1
Total area concrete laid (square feet).....	27,425
Number floors rat proofed with wire cloth (square feet, 6,350).....	7
Buildings razed.....	8

## LOUISIANA--NEW ORLEANS--PLAGUE ERADICATION.

The following report of plague-eradication work at New Orleans for the week ended October 21, 1916, was received from Passed Asst. Surg. Simpson, of the United States Public Health Service, in charge of the work:

## OUTGOING QUARANTINE.

Number of vessels fumigated with sulphur.....	1
Number of vessels fumigated with cyanide gas.....	10
Pounds of sulphur used.....	120
Pounds of cyanide used in cyanide gas fumigation.....	546
Pints of sulphuric acid used in cyanide gas fumigation.....	834
Clean bills of health issued.....	23
Foul bills of health issued.....	5

## FIELD OPERATIONS.

Number of rodents trapped.....	8,909
Number of premises inspected.....	5,551
Notices served.....	259
Number of garbage cans installed.....	2

## BUILDINGS RAT PROOFED.

By elevation.....	85
By marginal concrete wall.....	73
By concrete floor and wall.....	96
By minor repairs.....	171
Total buildings rat proofed.....	430
Square yards of concrete laid.....	3,535
Number of premises, planking and shed flooring removed.....	40
Number of buildings demolished.....	76
Total buildings rat proofed to date (abated).....	129,505

## LABORATORY OPERATIONS.

Rodents received by species:	
<i>Mus rattus</i> .....	212
<i>Mus norvegicus</i> .....	916

## LABORATORY OPERATIONS--continued.

Rodents received by species--Continued.	
<i>Mus alexandrinus</i> .....	142
<i>Mus musculus</i> .....	7,292
Wood rats.....	77
Musk rats.....	7
Putrid.....	182
Total rodents received at laboratory.....	8,828
Rodents examined.....	1,657
Number of rats suspected of plague.....	31
Plague rats confirmed.....	2

## PLAGUE RATS.

Case No. 342: Found at Robin Street dock; captured Sept. 17, 1916; diagnosis confirmed Oct. 19, 1916.	
Case No. 343: Found on British steamship Eggford; captured Sept. 22, 1916; diagnosis confirmed Oct. 20, 1916.	

## PLAGUE STATUS TO OCT. 21, 1916.

Last case of human plague, Sept. 8, 1915.	
Last case of rodent plague, Sept. 22, 1916.	
Total number of rodents captured to Oct. 21.....	891,674
Total number of rodents examined to Oct. 21.....	390,349
Total cases of rodent plague to Oct. 21, by species:	
<i>Mus musculus</i> .....	6
<i>Mus rattus</i> .....	22
<i>Mus alexandrinus</i> .....	18
<i>Mus norvegicus</i> .....	297
Total rodent cases to Oct. 21, 1916.....	343

<sup>1</sup> Indicates the number of rodents the tissues of which were inoculated into guinea pigs. Most of them showed on necropsy only evidence of recent inflammatory process; practically none presented gross lesions characteristic of plague infection.

**WASHINGTON—SEATTLE—PLAGUE ERADICATION.**

The following report of plague-eradication work at Seattle for the week ended October 14, 1916, was received from Surg. Lloyd, of the United States Public Health Service, in charge of the work:

<b>RAT PROOFING.</b>	
New buildings reinspected.....	51
Basements concreted, new buildings (square feet, 20,675).....	12
Floors concreted, new buildings (square feet, 10,875).....	6
Yards, etc., concreted, new structures (square feet, 1,365).....	8
Sidewalks concreted (square feet).....	7,270
Total concrete laid, new structures (square feet).....	40,185
New buildings elevated.....	4
New premises rat proofed, concrete.....	18
Old buildings inspected.....	3
Premises rat proofed, concrete, old buildings.....	3
Floors concreted, old buildings (square feet, 3,285).....	3
Wooden floors removed, old buildings.....	3
Buildings razed.....	4
<b>LABORATORY AND RODENT OPERATIONS.</b>	
Dead rodents received.....	35
Rodents trapped and killed.....	314
Rodents recovered after fumigation.....	9
<b>Total.....</b>	<b>358</b>
Rodents examined for plague infection.....	260
Rodents proven plague infected.....	None.
Poison distributed, pounds.....	13
Bodies examined for plague infection.....	3
Bodies found plague infected.....	None.
<b>CLASSIFICATION OF RODENTS.</b>	
Mus rattus.....	35
Mus alexandrinus.....	96
Mus norvegicus.....	164
Mus musculus.....	63
<b>WATER FRONT.</b>	
Vessels inspected and histories recorded....	17
Vessels fumigated.....	1

<b>WATER FRONT—continued.</b>	
Sulphur used, pounds.....	800
New rat guards installed.....	8
Defective rat guards repaired.....	17
Fumigation certificates issued.....	1
Port sanitary statements issued.....	34
The usual day and night patrol was maintained to enforce rat guarding and fending.	
<b>MISCELLANEOUS WORK.</b>	
Rat-proofing notices sent to contractors, new buildings.....	20
Letters sent in re rat complaints.....	5
<b>RODENTS EXAMINED IN EVERETT.</b>	
Mus norvegicus trapped.....	68
Mus norvegicus found dead.....	4
Mus musculus trapped.....	3
<b>Total.....</b>	<b>75</b>
Rodents examined for plague infection.....	69
Rodents proved plague infected.....	0
<b>RAT-PROOFING OPERATIONS IN EVERETT.</b>	
New buildings inspected.....	2
New buildings reinspected.....	3
New buildings, floors concreted (square feet, 384).....	1
New buildings, yards concreted (square feet, 420).....	1
Total concrete laid, new buildings (square feet).....	804
<b>RODENTS EXAMINED IN TACOMA.</b>	
Mus norvegicus trapped.....	177
Mus rattus trapped.....	1
Mus alexandrinus trapped.....	3
Mus musculus trapped.....	3
<b>Total.....</b>	<b>184</b>
Rodents examined for plague infection.....	180
Rodents proved plague infected.....	0

**HAWAII—PLAGUE PREVENTION.**

**Honolulu.**

The following report of plague-prevention work at Honolulu was received from Surg. Trotter of the United States Public Health Service:

Total rats and mongoose taken.....	372
Rats trapped.....	353
Mongoose trapped.....	5
Rats killed by sulphur dioxide.....	14
Examined microscopically.....	311
Examined macroscopically.....	61
Showing plague infection.....	None.
Classification of rats trapped:	
Mus alexandrinus.....	155
Mus musculus.....	115
Mus norvegicus.....	55
Mus rattus.....	28

Classification of rats killed by sulphur dioxide:	
Mus alexandrinus.....	5
Mus rattus.....	9
Average number of traps set daily.....	984
Cost per rat destroyed.....	21 cents.
Last case rat plague Aiea, 9 miles from Honolulu, Apr. 12, 1910.	
Last case human plague Honolulu, July 12, 1910.	
Last case rat plague Paauhau, Hawaii, Jan. 18, 1916.	
Last case human plague Paauhau Plantation, Hawaii, Dec. 16, 1915.	



# PREVALENCE OF DISEASE.

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.*

## UNITED STATES.

### CEREBROSPINAL MENINGITIS.

City Reports for Week Ended Oct. 21, 1916.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Baltimore, Md.....	1	.....	New York, N. Y.....	2	2
Bridgeport, Conn.....	1	1	Orange, N. J.....	1	.....
Buffalo, N. Y.....	1	.....	Providence, R. I.....	.....	1
Chicago, Ill.....	2	.....	St. Louis, Mo.....	2	.....
Cleveland, Ohio.....	1	.....	St. Paul, Minn.....	1	.....
Clinton, Mass.....	1	.....			

### DIPHTHERIA.

Georgia—Rome—Cave Spring.

Asst. Surg. Slaughter reported November 6 that 6 clinical cases of diphtheria were reported in Rome, Ga., during the week ending November 4, making a total of 24 clinical cases with 1 death. The clinical cases are in quarantine. Out of 350 high school pupils examined bacteriologically 12 per cent were found to be carriers. The high school was reopened with carriers excluded. The attendance of children at public gatherings is being discouraged.

He also reported that no clinical cases of diphtheria developed at the Georgia School for Deaf, Cave Spring, Ga., during the week ending November 4, 1916. Twelve clinical cases have been reported in the institution during preceding weeks. There were 106 carriers reported which are in isolation as well as the clinical cases. The institution is still under quarantine.

See also Diphtheria, measles, scarlet fever, and tuberculosis, page 3132.

**ERYSIPELAS.**

**City Reports for Week Ended Oct. 21, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Buffalo, N. Y.	5	2	Milwaukee, Wis.	2	1
Chicago, Ill.	13	1	New York, N. Y.	1	1
Cincinnati, Ohio.	2	1	Oklahoma, Okla.	1	1
Cleveland, Ohio.	1	1	Omaha, Nebr.	2	1
Denver, Colo.	1	1	Philadelphia, Pa.	1	1
Detroit, Mich.	4	1	Pittsburgh, Pa.	4	1
Seattle, Wash.	1	1	Sacramento, Cal.	2	1
Flint, Mich.	1	1	St. Louis, Mo.	6	1
Jackson, Mich.	1	1	St. Paul, Minn.	1	1
Jersey City, N. J.	1	2	San Francisco, Cal.	1	1
Kalamazoo, Mich.	1	1	Topeka, Kans.	1	1
Los Angeles, Cal.	1	1	Woburn, Mass.	1	1

**LEPROSY.**

**Wisconsin—Milwaukee.**

Senior Surg. Banks reported a case of leprosy in Milwaukee, Wis., November 2, 1916. The patient is a Greek, aged 22 years; was born in Turkey and came to the United States six years ago. He developed the first symptoms of the disease nearly a year ago.

**MALARIA.**

**City Reports for Week Ended Oct. 21, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Baltimore, Md.	1	1	New Orleans, La.	11	1
Birmingham, Ala.	1	1	New York, N. Y.	1	1
Cairo, Ill.	1	1	Norfolk, Va.	1	1
Fall River, Mass.	2	1	Philadelphia, Pa.	1	1
Hartford, Conn.	3	1	Providence, R. I.	1	1
Long Beach, Cal.	1	1	Richmond, Va.	1	1
Mobile, Ala.	1	1			

**MEASLES.**

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3132.

**PELLAGRA.**

**City Reports for Week Ended Oct. 21, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Birmingham, Ala.	1	1	New York, N. Y.	1	1
Charleston, S. C.	1	1	Richmond, Va.	1	1
Mobile, Ala.	1	1	Washington, D. C.	1	1
New Orleans, La.	1	1	Wilmington, N. C.	3	1

## PNEUMONIA.

## City Reports for Week Ended Oct. 21, 1916.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Beaver Falls, Pa. ....	1	.....	New Castle, Pa. ....	2	.....
Binghamton, N. Y. ....	5	2	Norfolk, Va. ....	1	1
Chicago, Ill. ....	144	42	Pawtucket, R. I. ....	1	1
Cleveland, Ohio ....	20	9	Philadelphia, Pa. ....	24	15
Detroit, Mich. ....	5	9	Pittsburgh, Pa. ....	18	13
Grand Rapids, Mich. ....	1	.....	Rochester, N. Y. ....	6	2
Jackson, Mich. ....	1	.....	San Francisco, Cal. ....	5	6
Kalamazoo, Mich. ....	6	1	San Jose, Cal. ....	1	.....
Kansas City, Mo. ....	4	6	Schenectady, N. Y. ....	2	.....
Los Angeles, Cal. ....	1	2	Springfield, Ohio. ....	1	.....
McKeesport, Pa. ....	2	.....	York, Pa. ....	1	.....

## POLIOMYELITIS (INFANTILE PARALYSIS).

## Cases Reported by States.

The following tabular statement shows the number of cases of poliomyelitis reported to the United States Public Health Service by State health authorities during the periods shown:

	Total cases reported.		Total cases reported.
Alabama:		Florida:	
July 1 to 31. ....	77	July 1 to 31. ....	4
Aug. 1 to 31. ....	62	Aug. 1 to 31. ....	3
Sept. 1 to 25. ....	12	Sept. 1 to 25. ....	1
	151		8
Arizona:		Georgia: .....	( <sup>2</sup> )
July 1 to 31. ....	2	Idaho:	
Aug. 1 to 31. ....	2	Aug. 1 to 31. ....	4
Sept. 1 to 25. ....	2	Sept. 1 to 30. ....	3
	6	Oct. 1 to 7. ....	2
Arkansas:			9
July 1 to 31. ....	5	Illinois:	
Aug. 1 to 31. ....	1	July 1 to 31. ....	76
Sept. 1 to 25. ....	0	Aug. 1 to 31. ....	339
	6	Sept. 1 to 30. ....	257
California:		Oct. 1 to Nov. 4. ....	133
July 1 to 31. ....	12		805
Aug. 1 to 31. ....	18	Indiana:	
Sept. 1 to 30. ....	13	July 1 to 31. ....	27
Oct. 1 to 28. ....	19	Aug. 1 to 31. ....	38
	62	Sept. 1 to 30. ....	67
Colorado:		Oct. 1 to Nov. 4. ....	45
July 1 to 31. ....	1		177
Aug. 1 to 31. ....	2	Iowa:	
Sept. 1 to 30. ....	4	July 1 to 31. ....	30
Oct. 1 to Nov. 4. ....	5	Aug. 1 to 31. ....	82
	12	Sept. 1 to 30. ....	66
Connecticut:		Oct. 1 to Nov. 4. ....	34
July 1 to 31. ....	165		212
Aug. 1 to 31. ....	367	Kansas:	
Sept. 1 to 30. ....	274	July 1 to 31. ....	14
Oct. 1 to 31. ....	65	Aug. 1 to 31. ....	31
Nov. 1 to 4. ....	10	Sept. 1 to 30. ....	19
	881	Oct. 1 to Nov. 4. ....	23
Delaware:			87
July 1 to 31. ....	1	Kentucky:	
Aug. 1 to 31. ....	11	July 1 to 31. ....	15
Sept. 1 to 30. ....	36	Aug. 1 to 31. ....	19
Oct. 1 to Nov. 2. ....	24	Sept. 1 to 28. ....	1
	72		35
District of Columbia:		Louisiana:	
July 1 to 31. ....	8	July 1 to 31. ....	19
Aug. 1 to 31. ....	18	Aug. 1 to 31. ....	6
Sept. 1 to 30. ....	6	Sept. 1 to 30. ....	5
Oct. 1 to 31. ....	14	Oct. 1 to Nov. 4. ....	3
	36		33

<sup>1</sup> Corrected figures. Later report than figures previously published.

<sup>2</sup> Disease present, but the number of cases is not known.

**POLIOMYELITIS (INFANTILE PARALYSIS)—Continued.**

**Cases Reported by States—(Continued.)**

	Total cases reported.		Total cases reported.
<b>Maine:</b>		<b>New York (exclusive of New York City):</b>	
July 1 to 31.....	0	July 1 to 31.....	517
Aug. 1 to 31.....	26	Aug. 1 to 31.....	1,527
Sept. 1 to 30.....	46	Sept. 1 to 30.....	1,064
Oct. 1 to Nov. 4.....	42	Oct. 3 to 16.....	238
	114		3,346
<b>Maryland:</b>		<b>North Carolina:</b>	( <sup>2</sup> )
July 1 to 31.....	10	North Dakota:	
Aug. 1 to 31.....	64	July 1 to 31.....	0
Sept. 1 to 30.....	100	Aug. 1 to 31.....	2
Oct. 1 to 31.....	120	Sept. 1 to 30.....	16
Nov. 1 to 9.....	15		18
	309	<b>Ohio:</b>	
<b>Massachusetts:</b>		July 1 to 31.....	94
July 1 to 31.....	107	Aug. 1 to 31.....	168
Aug. 1 to 31.....	253	Sept. 1 to 30.....	138
Sept. 1 to 30.....	623		400
Oct. 1 to 31.....	1,704	<b>Oklahoma:</b>	
Nov. 1 to 9.....	85	July 1 to 31.....	12
	1,771	Aug. 1 to 31.....	10
<b>Michigan:</b>		Sept. 1 to 25.....	2
July 1 to 31.....	51		24
Aug. 1 to 31.....	163	<b>Oregon:</b>	
Sept. 1 to 30.....	166	Sept. 1 to 30.....	3
Oct. 1 to 23.....	69	Oct. 1 to 31.....	128
	449		31
<b>Minnesota:</b>		<b>Pennsylvania:</b>	
July 1 to 31.....	142	July 1 to 31.....	107
Aug. 1 to 31.....	373	Aug. 1 to 31.....	711
Sept. 1 to 30.....	186	Sept. 1 to 30.....	743
Oct. 1 to 31.....	148	Oct. 8 to 28.....	229
	849		1,790
<b>Mississippi:</b>		<b>Rhode Island:</b>	
July 1 to 31.....	57	July 1 to 31.....	26
Aug. 1 to 31.....	31	Aug. 1 to 31.....	57
Sept. 1 to 30.....	14	Sept. 1 to 30.....	70
Oct. 1 to 14.....	3	Oct. 1 to Nov. 4.....	53
	105		206
<b>Missouri:</b>		<b>South Carolina:</b>	
July 1 to 31.....	4	July 1 to 31.....	20
Aug. 1 to 31.....	3	Aug. 1 to 31.....	58
Sept. 1 to 25.....	4	Sept. 1 to 30.....	24
	11	Oct. 1 to 31.....	11
<b>Montana:</b>			113
July 1 to 31.....	11	<b>South Dakota:</b>	
Aug. 1 to 31.....	28	July 1 to 31.....	5
Sept. 1 to 30.....	33	Aug. 1 to 31.....	19
Oct. 1 to Nov. 4.....	10	Sept. 1 to 25.....	14
	82		39
<b>Nebraska:</b>		<b>Tennessee:</b>	
July 1 to 31.....	1	July 1 to 31.....	18
Aug. 1 to 31.....	7	Aug. 1 to 31.....	21
Sept. 1 to 28.....	6	Sept. 1 to 25.....	0
	14		39
<b>Nevada:</b>		<b>Texas:</b>	
July 1 to Sept. 24.....	0	July 1 to 31.....	22
<b>New Hampshire:</b>		Aug. 1 to 31.....	25
July 1 to 31.....	7	Sept. 1 to 30.....	16
Aug. 1 to 31.....	16		63
Sept. 1 to 30.....	31	<b>Utah:</b>	
Oct. 1 to 19.....	3	Aug. 1 to 31.....	5
	57	<b>Vermont:</b>	
<b>New Jersey:</b>		July 1 to 31.....	1
July 1 to 31.....	640	Aug. 1 to 31.....	8
Aug. 1 to 31.....	2,114	Sept. 1 to 30.....	23
Sept. 1 to 30.....	957	Oct. 1 to 31.....	18
Oct. 1 to 31.....	269		50
Nov. 1 to 4.....	3		
	3,983		
<b>New Mexico:</b>			
July 1 to Sept. 25.....	0		

<sup>1</sup> Corrected figures. Later report than figures previously published.

<sup>2</sup> Not including cases on Crow Reservation.

<sup>3</sup> Disease present, but the number of cases is not known.

## POLIOMYELITIS (INFANTILE PARALYSIS)—Continued.

## Cases Reported by States—Continued.

	Total cases reported.	Total cases reported.
Virginia:		
July 1 to 31.....	24	
Aug. 1 to 31.....	44	
Sept. 1 to 30.....	164	
Oct. 1 to 21.....	22	
Washington:	154	
July 1 to 31.....	5	
Aug. 1 to 31.....	2	
Sept. 1 to 30.....	10	
Oct. 1 to Nov. 4.....	5	
West Virginia:	22	
July 1 to 31.....	5	
Aug. 1 to 31.....	10	
West Virginia—Continued.		
Sept. 1 to 30.....	18	
Oct. 1 to Nov. 4.....	16	
Wisconsin:		49
July 1 to 31.....	20	
Aug. 1 to 31.....	173	
Sept. 1 to 30.....	158	
Wyoming:		351
July 1 to 31.....	0	
Aug. 1 to 31.....	1	
Sept. 1 to 30.....	3	
		4

<sup>1</sup> Corrected figures. Later report than figures previously published.

## City Reports—August 6 to November 4, 1916.

The following table shows the number of cases of poliomyelitis reported to the United States Public Health Service by the health departments of the cities which reported five or more cases in any one week:

City.	Cases reported for week ended—												
	Aug. 12.	Aug. 19.	Aug. 26.	Sept. 2.	Sept. 9.	Sept. 16.	Sept. 23.	Sept. 30.	Oct. 7.	Oct. 14.	Oct. 21.	Oct. 28.	Nov. 4.
Akron, Ohio.....			1	3	5	5	1						
Atlantic City, N. J.....	7	2	5	5		2							
Baltimore, Md.....	5	4	9	16	12	12	10	29	20	23	18	8	11
Bayonne, N. J.....	12	14	4	1	5	1							
Boston, Mass.....	8	4	8	13	22	38	55	52	77	54	53	36	
Bridgeport, Conn.....	6		3	3		7	2	2	3				
Brookline, Mass.....		1			1	2	1		1	5	5		1
Cambridge, Mass.....		2	2	1	2	5	4	5	11	6	11	4	
Camden, N. J.....	11	13	6	9	5	7	2	1	3				
Chicago, Ill.....	23	25	22	24	25	21	20	13	10	8	8	6	4
Cincinnati, Ohio.....	2	4	5	2	3	6	3	4	5	1	2	1	3
Cleveland, Ohio.....		1	2	5	2	3	1	1	2		1		1
Detroit, Mich.....	1		6	1	4	3	3	11	3	1	2		
East Orange, N. J.....	2	8	10	6	10	3	2	2				1	
Flint, Mich.....	3	3	8		4	4	4	2		2	1	4	
Grand Rapids, Mich.....		3	1	1	2	1	6	1		1	1	1	
Harrison, N. J.....	10	10	6	6									
Hartford, Conn.....			4	6	7	5	5	4	4		3	4	1
Haverhill, Mass.....		1	5		1	1	1	2				1	
Indianapolis, Ind.....					5	4	2	4	1		1		
Jersey City, N. J.....	22	27	16	22	9	6	8	11	2	5	2		
Kearny, N. J.....	7	4	5			3							
Long Branch, N. J.....	1	1	2	8		4	1	1					
Lynn, Mass.....			1	2	2	2	1	2	3	6	8	6	3
Malden, Mass.....		2				2	6	10	3	4	4	6	
Manchester, N. H.....				3	5	1	5						
Minneapolis, Minn.....	8	12	14	12	4	5		3		2	1	2	
Montclair, N. J.....	4	5	2	1	2	1			1	1	4	1	1
Newark, N. J.....	260	230	150	89	45	34	30	12	17	9		1	
Newburyport, Mass.....			2	2	5	1	7	2	1	3			
New York, N. Y.....	1,151	865	707	411	352	252	156	112	96	72	43	37	19
North Adams, Mass.....			2	2	2	1	4	1					
Northampton, Mass.....		5	5	1	1	1	1		1	1	4	1	1
Orange, N. J.....	9	8	10	15	1	1	2	1					
Perth Amboy, N. J.....	4	2	3	1	3	2							
Philadelphia, Pa.....	86	106	132	120	125	85	70	47	59	27	26	24	7
Pittsburgh, Pa.....	5	1	3	5	5	2	1	1	1	5	1	1	
Pittsfield, Mass.....	1	2	7	2	10	8	6	4	4	5	8	4	
Plainfield, N. J.....	2	6	10	1	6	1	4	2	3	1	3		
Portland, Oreg.....						1	1	1	3	4	5	1	

**POLIOMYELITIS (INFANTILE PARALYSIS)—Continued.**  
**City Reports—August 6 to November 4, 1916—Continued.**

City.	Cases reported for week ended—												
	Aug. 12.	Aug. 19.	Aug. 26.	Sept. 2.	Sept. 9.	Sept. 16.	Sept. 23.	Sept. 30.	Oct. 7.	Oct. 14.	Oct. 21.	Oct. 28.	Nov. 4.
Providence, R. I.....	4	3	2	10	7	10	17	9	9	7	3	9	8
Quincy, Mass.....						4	5	4					
St. Louis, Mo.....			5	2									
St. Paul, Minn.....	6	9	6	8	7	2	3	2	4		1		
Somerville, Mass.....		6	1	2	1	7			5	3	4	5	3
Springfield, Mass.....	2		5	5	9	12	8	9	5	3	4	2	3
Syracuse, N. Y.....	3	23	34	33	49	29	20	12	11	5		4	
Toledo, Ohio.....	16	10	10	7	11	1	2	3	1	2	1	1	
Trenton, N. J.....	4	7	11	7	11	14	23	34	20	8	12	4	1
Waltham, Mass.....						2			8	2	9	2	2
Washington, D. C.....	3	5	7	2	4		1	1	14				
West Hoboken, N. J.....	9	3	7										
Wilmington, Del.....			3	3	3	2	3	8	7	6	3	5	1

<sup>1</sup> Corrected figures. Later report than figures previously published.

**New York City.**

Surg. Lavinder reported that cases of poliomyelitis had been notified in New York City as follows: November 1, 2 cases; November 2, 2 cases; November 3, 5 cases; November 4, 2 cases; November 5, 2 cases; November 6, no case; November 7, 6 cases.

**Washington Report for September, 1916.**

Place.	New cases reported.	Place.	New cases reported.
Washington:		Washington—Continued.	
King County—		Thurston County.....	1
Seattle.....	6	Yakima County.....	1
Stevens County.....	1	Total.....	10
Spokane County.....	1		

**City Reports for Week Ended Oct. 21, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Auburn, N. Y.....	1	1	Montclair, N. J.....	4	
Baltimore, Md.....	18	3	New York, N. Y.....	43	23
Boston, Mass.....	53	21	Norristown, Pa.....	1	
Brookline, Mass.....	5	1	Northampton, Mass.....	4	
Cambridge, Mass.....	11		Oklahoma, Okla.....	1	
Chicago, Ill.....	8		Omaha, Nebr.....	2	
Chicopee, Mass.....	1		Philadelphia, Pa.....	26	10
Cincinnati, Ohio.....	2		Pittsburgh, Pa.....	1	2
Cleveland, Ohio.....	1		Pittsfield, Mass.....	8	1
Concord, N. H.....	1	1	Portland, Me.....	1	
Denver, Colo.....	1		Portland, Oreg.....	5	
Detroit, Mich.....	2		Providence, R. I.....	3	1
Evansville, Ind.....	1		Quincy, Mass.....	5	2
Everett, Mass.....	4		Reading, Pa.....	1	
Flint, Mich.....	1	1	Richmond, Va.....	3	
Grand Rapids, Mich.....	1		Rochester, N. Y.....	1	
Hagerstown, Md.....	1		Saginaw, Mich.....	1	
Hartford, Conn.....	3	1	St. Paul, Minn.....	1	
Indianapolis, Ind.....	1		San Francisco, Cal.....	3	1
Jersey City, N. J.....	2	2	Seattle, Wash.....	1	
Kalamazoo, Mich.....	1		Somerville, Mass.....	4	1
Kenosha, Wis.....	1		South Bend, Ind.....	1	
Lancaster, Pa.....	1		Springfield, Mass.....	4	1
Lowell, Mass.....	1		Toledo, Ohio.....	1	
Lynchburg, Va.....	1		Trenton, N. J.....	12	5
Lynn, Mass.....	8	3	Troy, N. Y.....	1	
Malden, Mass.....	4	1	Waltham, Mass.....	9	
Medford, Mass.....	1	1	Wilmington, Del.....	3	1
Milwaukee, Wis.....	1		Worcester, Mass.....	1	
Minneapolis, Minn.....	1				

**RABIES IN ANIMALS.****City Reports for Week Ended Oct. 21, 1916.**

During the week ended October 21, 1916, three cases of rabies in animals were reported in Buffalo, N. Y. and one case in Detroit, Mich.

**SCARLET FEVER.**

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3132.

**SMALLPOX.****Arkansas—Manila.**

The State health officer of Arkansas reported November 6, 1916, that 15 cases of smallpox had been notified at Manila, Ark.

**Minnesota.**

Collaborating Epidemiologist Bracken reported that during the week ended November 4, 1916, three new foci of smallpox infection were reported in Minnesota, one case having been notified in the village of Foreston, Mille Lacs County, one in the city of Fergus Falls, Ottertail County, and one in Big Lake village, Sherburne County.

**Miscellaneous State Reports.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Washington (Sept. 1 to 30):			Washington (Sept. 1 to 30)—		
Benton County.....	1	.....	Continued.		
Columbia County.....	1	.....	Spokane County—		
King County—			Spokane.....	8	.....
Seattle.....	6	.....	Whatcom County—		
Kittitas County.....	2	.....	Bellingham.....	1	.....
Klickitat County.....	3	.....	Whitman County.....	1	.....
Skagit County.....	1	.....	Total.....	24	.....

**City Reports for Week Ended Oct. 21, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Cleveland, Ohio.....	35	.....	New Orleans, La.....	2	.....
Denver, Colo.....	1	.....	Portland, Oreg.....	1	.....
Detroit, Mich.....	3	.....	Toledo, Ohio.....	6	.....
Duluth, Minn.....	1	.....	Topeka, Kans.....	1	.....

**TETANUS.****Illinois—Cumberland County.**

Asst. Surg. Witte reported November 2, 1916, that a fatal case of tetanus was notified in Cottonwood Township, Cumberland County, Ill.

**City Reports for Week Ended Oct. 21, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Chicago, Ill.....	2	2	Nanticoke, Pa.....	1	.....
Cincinnati, Ohio.....	1	1	New York, N. Y.....		1
Lawrence, Mass.....	1	.....	Providence, R. I.....		1
Los Angeles, Cal.....	1	1	Toledo, Ohio.....		1

**TUBERCULOSIS.**

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3132.

**TYPHOID FEVER.**

**Washington Report for September, 1916.**

Place.	New cases reported.	Place.	New cases reported.
<b>Washington:</b>		<b>Washington—Continued.</b>	
Benton County .....	6	Mason County .....	1
Chelan County .....	1	Okanogan County .....	1
Clallam County .....	1	Pacific County .....	3
Clarke County .....	2	Pierce County .....	1
Columbia County .....	3	Tacoma .....	2
Ferry County .....	1	Skagit County .....	10
Garfield County .....	2	Spokane County .....	1
Grant County .....	3	Spokane .....	1
Island County .....	2	Stevens County .....	8
King County—		Whatcom County—	
Seattle .....	9	Bellingham .....	4
Kittitas County .....	4	Whitman County .....	1
Klickitat County .....	1	Yakima County .....	19
Lewis County .....	1		
Lincoln County .....	2	Total .....	87

**City Reports for Week Ended Oct. 21, 1916.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Ann Arbor, Mich.	1		Lima, Ohio.	4	
Atlantic City, N. J.	2		Little Rock, Ark.	2	
Baltimore, Md.	26	4	Los Angeles, Cal.	1	
Bayonne, N. J.	1		Lynchburg, Va.	6	
Birmingham, Ala.	10	1	Lynn, Mass.	5	1
Boston, Mass.	7	3	McKeesport, Pa.	5	1
Brookline, Mass.	1		Malden, Mass.	1	
Buffalo, N. Y.	4	3	Manchester, N. H.		1
Butte, Mont.	3	1	Marinette, Wis.	1	
Cambridge, Mass.	1		Milwaukee, Wis.	3	1
Canton, Ohio.	4		Minneapolis, Minn.	4	
Charleston, S. C.	2	1	Mobile, Ala.	1	
Chelsea, Mass.	2		Nashville, Tenn.	3	
Chicago, Ill.	32	4	New Bedford, Mass.	3	
Cincinnati, Ohio.	7	1	New Castle, Pa.	4	
Cleveland, Ohio.	8	1	New Haven, Conn.	1	
Coffeyville, Kans.	1		New Orleans, La.	30	5
Columbus, Ohio.	5	1	Newport, Ky.	1	1
Covington, Ky.	1		New York, N. Y.	46	3
Cumberland, Md.	4		Norfolk, Va.	3	
Danville, Ill.	2		Norristown, Pa.	2	
Denver, Colo.	3		Northampton, Mass.	1	
Detroit, Mich.	13	1	Ogden, Utah.	1	
Duluth, Minn.	1		Omaha, Nebr.	1	1
Elgin, Ill.	4		Pawtucket, R. I.	1	
El Paso, Tex.		1	Philadelphia, Pa.	14	4
Erie, Pa.	3		Pittsburgh, Pa.	3	1
Evansville, Ind.	1		Portland, Oreg.	3	
Everett, Mass.	1		Portsmouth, Va.	1	
Fall River, Mass.	8		Providence, R. I.	1	
Flint, Mich.	5		Racine, Wis.		1
Fort Worth, Tex.		1	Reading, Pa.	7	
Grand Rapids, Mich.	2		Richmond, Va.	3	
Hagerstown, Md.	6		Roanoke, Va.	2	1
Harrisburg, Pa.	31	6	Rochester, N. Y.	5	
Hartford, Conn.	4		Saginaw, Mich.	1	
Indianapolis, Ind.	10		St. Joseph, Mo.	1	
Jersey City, N. J.	3	4	St. Louis, Mo.	8	1
Jonestown, Pa.	1		Salt Lake City, Utah.	7	
Kalamazoo, Mich.	2		San Francisco, Cal.	3	
Kansas City, Mo.	4	2	San Jose, Cal.	1	
Kearny, N. J.	1		Schenectady, N. Y.	1	
Knoxville, Tenn.	4		Springfield, Mass.	2	
Kokomo, Ind.		1	Springfield, Ohio.	1	1
Lancaster, Pa.	1		Steeltown, Pa.	8	
Lexington, Ky.	5		Superior, Wis.		2



**TYPHOID FEVER—Continued.****City Reports for Week Ended Oct. 21, 1916—Continued.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Toledo, Ohio.....	14	2	Williamsport, Pa.....	2	.....
Topeka, Kans.....	12	2	Wilmington, Del.....	3	.....
Trenton, N. J.....	3	.....	Wilmington, N. C.....	1	.....
Washington, D. C.....	6	1	Worcester, Mass.....	3	1
Watertown, N. Y.....	3	.....	York, Pa.....	1	.....
Wichita, Kans.....	2	.....	Zanesville, Ohio.....	1	.....
Wilkes-Barre, Pa.....	5	.....			

**TYPHUS FEVER.****Arizona—Bisbee.**

Acting Asst. Surg. McNeil reported October 30 that a case of typhus fever was notified in Bisbee, Ariz., on October 21. The patient came from the interior of Mexico about October 13, passed through the port of El Paso, Tex., and proceeded to Bisbee, Ariz.

**California—Los Angeles.**

Senior Surg. Brooks reported November 7, 1916, a case of typhus fever at Emergency Hospital, Los Angeles, Cal., in a railroad laborer who recently came from Mexico. He was removed to the county hospital for isolation.

**Texas—El Paso.**

Acting Asst. Surg. Tappan reported that during the week ended October 28, 1916, 4 cases of typhus fever were notified at El Paso, Tex., making a total of 22 cases since July 1.

**City Reports for Week Ended Oct. 21, 1916.**

During the week ended October 21, 1916, one case of typhus fever was reported at El Paso, Tex., and two cases in New York, N. Y.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

Washington Report for September, 1916.

During the month of September, 1916, 23 cases of diphtheria, 166 cases of measles, and 39 cases of scarlet fever were reported in Washington.

City Reports for Week Ended Oct. 21, 1916.

City.	Population as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
<b>Over 500,000 inhabitants:</b>										
Baltimore, Md.	584,605	178	2	4	1	2	2	33	22	
Boston, Mass.	745,139	41	2	3	2	19	43	17		
Chicago, Ill.	2,447,045	588	198	17	25	73	193	56		
Cleveland, Ohio.	656,975	85	4	1	7	39	14			
Detroit, Mich.	554,717	198	113	4	1	36	19	13		
New York, N. Y.	5,468,190	1,289	128	9	15	38	274	160		
Philadelphia, Pa.	1,683,664	479	61	7	7	12	113	58		
Pittsburgh, Pa.	571,984	151	38	6	9	17	21	11		
St. Louis, Mo.	745,988	187	86	2	6	15	34	20		
<b>From 300,000 to 500,000 inhabitants:</b>										
Buffalo, N. Y.	461,335	143	9	2	2	14	32	13		
Cincinnati, Ohio.	406,706	119	37	4	1	12	17	16		
Jersey City, N. J.	300,133	88	10	2	5	16	7			
Los Angeles, Cal.	465,367	89	3	2	4	60	12			
Milwaukee, Wis.	428,062	109	24	1	25	17	9			
Minneapolis, Minn.	353,460	33	1	14	18	20				
New Orleans, La.	366,484	15	36	1	13	69	20			
San Francisco, Cal.	1,416,912	122	16	2	8	7	5			
Seattle, Wash.	330,834	43	10	2	2	7	2			
Washington, D. C.	358,679	94	10	1	7	12	11			
<b>From 200,000 to 300,000 inhabitants:</b>										
Columbus, Ohio.	209,722	67	6	1	12	8	6	3		
Denver, Colo.	253,161	49	6	1	2	11				
Indianapolis, Ind.	265,578	19	3	3	8	20				
Kansas City, Mo.	289,879	70	18	2	2	9	6			
Portland, Oreg.	272,833	25	1	26	8	3	2			
Providence, R. I.	250,025	71	7	2	3	8				
Rochester, N. Y.	250,747	73	9	1	6	5	5			
St. Paul, Minn.	241,999	32	19	1	3	2				
<b>From 100,000 to 200,000 inhabitants:</b>										
Birmingham, Ala.	174,108	37	5	5	5	5				
Bridgeport, Conn.	118,434	27	1	5	3	2				
Cambridge, Mass.	111,669	25	6	7	3	3				
Fall River, Mass.	126,904	42	1	2	9	6				
Grand Rapids, Mich.	125,759	25	3	1	11	4				
Hartford, Conn.	108,969	26	4	1	1	9	2			
Lowell, Mass.	112,121	8	2	5	2	1	5			
Lynn, Mass.	100,316	27	3	1	1	1	1			
Nashville, Tenn.	115,973	35	11	1	13	5	5			
New Bedford, Mass.	114,694	28	2	1	1	2	5			
New Haven, Conn.	147,095	4	2	2	2	8	2			
Omaha, Nebr.	135,455	51	8	1	3	2	5			
Reading, Pa.	105,094	32	3	1	2	1	2			
Richmond, Va.	154,674	47	13	1	1	6	9			
Salt Lake City, Utah.	113,567	33	1	1	117	16	4			
Springfield, Mass.	103,216	31	10	1	7	4	1			
Syracuse, N. Y.	152,534	32	5	1	6	4				
Tacoma, Wash.	108,094	21	2	71	1	5				
Toledo, Ohio.	187,840	66	4	1	10	1				
Trenton, N. J.	109,212	39	1	2	2	1				
Worcester, Mass.	160,523	44	10	1	8	9	4			

<sup>1</sup> Population Apr. 15, 1910; no estimate made.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Con.

City Reports for Week Ended Oct. 21, 1916—Continued.

City.	Population as of July 1, 1914 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 50,000 to 100,000 inhabitants:										
Atlantic City, N. J.	55,806		2		1		1		1	
Bayonne, N. J.	67,582		1					3		
Berkeley, Cal.	54,879	9					2		1	
Binghamton, N. Y.	53,082	26	8	1			3		1	
Canton, Ohio.	59,139		1	1			4			
Charleston, S. C.	60,427	21	1				2		2	
Covington, Ky.	56,520	12	1				4			
Duluth, Minn.	91,913		1						2	
El Paso, Tex.	51,936	37	3				3		6	
Erie, Pa.	73,798						1		25	
Evansville, Ind.	72,125	18	12	1			3		4	
Flint, Mich.	52,159	13	5	1			2	1		
Fort Worth, Tex.	99,528	19					2		1	
Harrisburg, Pa.	70,754	19	3		1		2		3	
Hoboken, N. J.	76,104	14	3						2	
Johnstown, Pa.	66,585	18	3				5		3	
Kansas City, Kans.	96,854		12				1		2	
Lancaster, Pa.	50,269						1			
Lawrence, Mass.	98,197	22	6						2	
Little Rock, Ark.	55,158	18	2				1			
Malden, Mass.	50,067	11	7						3	
Manchester, N. H.	76,959	23					1		2	
Mobile, Ala.	56,536	19					1		4	
Norfolk, Va.	88,076	30	2				2		1	
Oklahoma, Okla.	88,158	13	2				1			
Passaic, N. J.	69,010	14	7						4	
Pawtucket, R. I.	58,156	12	7				1		1	
Portland, Me.	63,014	22	1		1		1		2	
Rockford, Ill.	53,761	12	1				2		1	
Sacramento, Cal.	64,806	19	1						6	
Saginaw, Mich.	54,815	13	2				3		1	
St. Joseph, Mo.	83,974	22	3	1					2	
San Diego, Cal.	51,115	23	3						7	
Schenectady, N. Y.	95,265	16	1		2		4			
Somerville, Mass.	85,460	20	2	1			1		3	
South Bend, Ind.	67,030	10	1				1			
Springfield, Ill.	59,468	12	12	2			3		2	
Springfield, Ohio.	50,804	12							1	
Troy, N. Y.	77,738		5	1			1		2	
Wichita, Kans.	67,847		3	1			1		3	
Wilkes-Barre, Pa.	75,218	24	3				5		2	
Wilmington, Del.	93,161	38	2	1			1			
York, Pa.	50,543		4				1			
From 25,000 to 50,000 inhabitants:										
Alameda, Cal.	27,031	7	2				1			
Auburn, N. Y.	36,947	13					1		1	
Austin, Tex.	34,016	9	3				2		1	
Brookline, Mass.	31,934	10	1				2		3	
Butler, Pa.	26,587	7	3							
Butte, Mont.	42,918	27	4				1		17	
Chelsea, Mass.	32,452	16	1						3	
Chicopee, Mass.	28,688	7	1				1		1	
Cumberland, Md.	25,564	6			1		1			
Danville, Ill.	31,554	7	1				1		1	
Davenport, Iowa.	47,127		1				3			
East Orange, N. J.	41,155	7					1		2	
Elgin, Ill.	27,844	5								
Everett, Mass.	38,307	10	1						3	
Everett, Wash.	33,767	3								
Fitchburg, Mass.	41,144	13	4		1					
Galveston, Tex.	41,076	10	1						1	
Hagerstown, Md.	25,233		8		15					
Haverhill, Mass.	47,774	10	5				4		1	
Jackson, Mich.	34,730	13	3				1		1	
Kalamazoo, Mich.	47,364	23	1						1	
Kenosha, Wis.	30,319	2	5				3			
Knoxville, Tenn.	38,300						2		3	
La Crosse, Wis.	31,522		4	2			1		2	

1 Population Apr. 15, 1910; no estimate made.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Con.

City Reports for Week Ended Oct. 21, 1916—Continued.

City.	Population as of July 1, 1914 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 25,000 to 50,000 inhabitants—Continued.										
Lexington, Ky.....	39,703	14	11	1			7		1	2
Lima, Ohio.....	34,644	10								
Lincoln, Nebr.....	46,028	13	1				3			
Long Beach, Cal.....	26,012	3					1		1	
Lorain, Ohio.....	35,662		4				4			
Lynchburg, Va.....	32,385	8	1	1			2			
McKeesport, Pa.....	46,743	9	7	1			1			
Medford, Mass.....	25,737	8							1	1
Montclair, N. J.....	25,550	6	1						2	
New Castle, Pa.....	40,351		1			2				
Newport, Ky.....	31,722	9	2						1	1
Newport, R. I.....	29,631	13							2	1
Newton, Mass.....	43,085	11	1							
Niagara Falls, N. Y.....	36,240	14	9	3					2	1
Norristown, Pa.....	30,833	8	3							
Ogden, Utah.....	30,466	6	1		1		2			
Orange, N. J.....	32,524	11					1			1
Pasadena, Cal.....	43,859	8							4	
Perth Amboy, N. J.....	39,725		4						1	
Pittsfield, Mass.....	37,580	5	1							
Portsmouth, Va.....	38,610	10	1				3			2
Quincy, Ill.....	36,764	8	1				1			
Quincy, Mass.....	37,251	8								
Racine, Wis.....	45,507	8					1			
Roanoke, Va.....	41,929	11	2				1		2	2
San Jose, Cal.....	37,994	6	1						1	2
Stuebenville, Ohio.....	26,631	9	4	1						
Stockton, Cal.....	34,508	7	3		14		2			1
Superior, Wis.....	45,285	9			1					1
Taunton, Mass.....	35,957	19					1		3	3
Topeka, Kans.....	47,914	8							2	1
Waltham, Mass.....	30,129	4	5		1				1	
Watertown, N. Y.....	29,384									1
West Hoboken, N. J.....	41,893	3	2							
Wheeling, W. Va.....	45,097	14	1				3		1	2
Williamsport, Pa.....	33,495		5				3		1	1
Wilmington, N. C.....	28,264	9								1
Zanesville, Ohio.....	30,406	10	2				1			1
From 10,000 to 25,000 inhabitants:										
Ann Arbor, Mich.....	14,979	9							1	1
Beaver Falls, Pa.....	13,316		2							
Braddock, Pa.....	21,310	2								
Cairo, Ill.....	15,593	6								
Clinton, Mass.....	13,075	3								
Coffeyville, Kans.....	16,765		1							
Concord, N. H.....	22,480	10	2							1
Galesburg, Ill.....	23,923	10								1
Harrison, N. J.....	16,555		1							
Kearny, N. J.....	22,753	8	2							
Kokomo, Ind.....	20,312	10			21				3	1
Long Branch, N. J.....	15,057	3								
Marinette, Wis.....	14,610						1			
Morristown, N. J.....	13,158	4	1				3			
Nanticoke, Pa.....	22,441	8	3		1					
Newburyport, Mass.....	15,195	5								
New London, Conn.....	20,771	12								1
North Adams, Mass.....	22,019	7								2
Northampton, Mass.....	19,846	5	2				3		2	3
Plainfield, N. J.....	23,280	4	1							1
Portsmouth, N. H.....	11,602				1					
Rutland, Vt.....	14,624	7			1		2			
Sandusky, Ohio.....	20,160				11					
Saratoga Springs, N. Y.....	12,842	5	14		1					
Steelton, Pa.....	15,337	3			1				2	
Wilksburg, Pa.....	22,361	8	1		3				1	
Woburn, Mass.....	15,862	1								

<sup>1</sup> Population Apr. 15, 1910, no estimate made.

# FOREIGN.

## CANADA.

### Poliomyelitis—Winnipeg, Manitoba.

During the two weeks ended October 7, 1916, three cases of poliomyelitis were notified at Winnipeg, Manitoba.

## CHINA.

### Examination of Rats—Shanghai.

During the three weeks ended September 9, 1916, 810 rats were examined at Shanghai. No plague infection was found.

The last plague-infected rat at Shanghai was reported found during the week ended May 6, 1916.

## CUBA.

### Communicable Diseases—Habana.

Communicable diseases have been notified at Habana as follows:

Disease.	Oct. 11-20, 1916.		
	New cases.	Deaths.	Remain- ing under treatment Oct. 20, 1916.
Diphtheria.....	7	2	4
Leprosy.....	3	.....	248
Malaria.....	13	1	14
Measles.....	9	10	20
Paratyphoid fever.....	.....	.....	6
Typhoid fever.....	23	2	38

## GREAT BRITAIN.

### Further Relative to Poliomyelitis—Aberdeen.<sup>1</sup>

During the month of August, 1916, 12 cases of poliomyelitis were notified at Aberdeen, making a total of 67 cases from the beginning of the outbreak, June 1, 1916. During the month of September, 1916, 8 cases of the disease were notified. With 2 exceptions all the cases notified during August and September occurred in children under 4 years of age. The 2 cases referred to occurred in children slightly under and slightly over 5 years of age. None of the cases had any discoverable connection with previously known cases. Two of the cases occurred in persons in the same family who were apparently simultaneously infected.

<sup>1</sup> Public Health Reports, Aug. 25, 1916, p. 2290, and Oct. 6, 1916, p. 2736.

## ZANZIBAR.

## Examination of Rats—Zanzibar.

During the month of July, 1916, 3,900 rats were examined at Zanzibar. No plague infection was found.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

Reports Received During Week Ended Nov. 10, 1916.<sup>1</sup>

## CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>India:</b>				
Calcutta.....	Aug. 13-Sept. 9.....		38	
<b>Philippine Islands:</b>				
Manila.....	Sept. 17-23.....	96	36	Not previously reported: Cases, 8.
<b>Provinces—</b>				
Albay.....	do.....	42	30	
Antique.....	do.....	3	3	
Bataan.....	do.....	22	18	
Batangas.....	do.....	10	9	
Bulacan.....	do.....	38	33	
Camarines.....	do.....	15	8	
Cavite.....	do.....	6	5	
Iloilo.....	do.....	291	197	
Laguna.....	do.....	1	1	
Negros Occidental.....	do.....	49	40	
Nueva Ecija.....	do.....	2	2	
Pampanga.....	do.....	30	25	
Rizal.....	do.....	51	30	
Samar.....	do.....	11	8	
Zambales.....	do.....	13	5	
		584	414	
<b>Turkey in Asia:</b>				
Mersina.....	Sept. 3-9.....	2		
Trebizond.....	Sept. 17-23.....	10	3	

## PLAGUE.

<b>Ceylon:</b>				
Colombo.....	Aug. 20-26.....	12	11	
<b>China:</b>				
Amoy.....	Aug. 13-19.....			Present in vicinity. Aug. 13-Sept. 9, 1916: Cases, 13,724; deaths, 9,474.
<b>India:</b>				
<b>Japan:</b>				
Yokkaichi.....	Oct. 19.....			Present.
<b>Siam:</b>				
Bangkok.....	Sept. 3-9.....	1	1	

## SMALLPOX.

<b>Australia:</b>				
New South Wales.....				Aug. 4-Sept. 15, 1916: Cases, 11.
Burren Junction.....	Sept. 1-15.....	1		
Narrabri.....	Aug. 4-31.....	7		
<b>Brazil:</b>				
Rio de Janeiro.....	Aug. 20-Sept. 30.....	87	23	
<b>China:</b>				
Amoy.....	Aug. 13-19.....			Present in vicinity.
<b>Mexico:</b>				
Laguna del Carmen.....	To Oct. 10.....	30		
Mexico City.....	Oct. 1-14.....	24		
<b>Russia:</b>				
Moscow.....	Aug. 27-Sept. 2.....	10	1	
Petrograd.....	Sept. 22-28.....	7		
Riga.....				June 1-30, 1916: Cases, 1.

<sup>1</sup> From medical officers of the Public Health Service, American consuls, and other sources.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received During Week Ended Nov. 10, 1916—Continued.

#### TYPHUS FEVER

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Germany:</b>				
Berlin.....	Aug. 23-Sept. 2.....		3	
Bremen.....	Aug. 6-Sept. 2.....	6	2	
Frankfort.....	Aug. 27-Sept. 2.....		1	
Hanover.....	July 30-Aug. 5.....	4	1	
<b>Great Britain:</b>				
Dublin.....	Oct. 1-7.....	2		
<b>Mexico:</b>				
Mexico City.....	Oct. 1-14.....	528		
Nuevo Laredo.....	Oct. 28.....	1		In person from Guanajuato.
Tampico.....	Oct. 11-30.....		1	
<b>Russia:</b>				
Moscow.....	Aug. 27-Sept. 2.....	45	22	
Petrograd.....	Sept. 22-28.....	3		
Riga.....				June 1-30, 1916: Cases, 1.
<b>Turkey in Asia:</b>				
Trebizond.....	Sept. 17-23.....		1	

#### YELLOW FEVER.

<b>Mexico:</b>				
Campeche.....	Sept. 15.....	1	1	
Merida.....	Oct. 1-14.....	3	1	Total to Oct. 14, 1916: Cases, 28; deaths, 9.
Progreso.....				To Oct. 14, 1916: Cases, 2; deaths, 1.
Tuxpan.....	Oct. 31.....			Present.

### Reports Received from July 1 to Nov. 3, 1916.

#### CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Austria-Hungary</b>				
Austria.....	Mar. 26-Apr. 8.....	2		Mar. 12-May 6, 1916: Cases, 425; deaths, 155.
Do.....	July 9-15.....	1		
Rosnia-Herzegovina.....	Mar. 12-May 20.....	398	147	
Hungary.....	Mar. 20-Apr. 2.....	2		
<b>Ceylon:</b>				
Colombo.....	June 25-July 1.....	1	1	May 7-20, 1916: Cases, 43; deaths, 5, from s. s. Hong Kheng from Halfong; total to June 1: Cases, 61; deaths, 37; May 28-June 10, 1916: Cases, 19, from the port.
<b>China:</b>				
Canton.....	Aug. 11-31.....		13	On s. s. Taihei Maru from Hong-kong and Chefoo.
Dairen.....	Aug. 6-12.....	1		
Hongkong.....	Aug. 19-Sept. 2.....	9	9	
Macao.....	Aug. 17.....			Present.
Shanghai.....	Aug. 20-26.....		2	Chinese.
<b>Egypt:</b>				
Suez.....	May 18-20.....	5	2	From s. s. Pei-ho from Bombay.
Tor, quarantine station.....	May 22-June 3.....	112	42	
<b>Germany:</b>				
Hanover.....	Aug. 28-Sept. 2.....		1	
<b>Greece:</b>				
Moschopolis.....	July 25-31.....	15	8	
<b>India:</b>				
Akyab.....	June 11-July 8.....		2	
Bassein.....	Apr. 23-June 10.....		3	
Bombay.....	May 14-July 1.....	21	9	
Do.....	July 2-Sept. 16.....	143	97	
Calcutta.....	May 7-July 1.....		259	
Do.....	July 2-Aug. 12.....		59	
Henzada.....	Apr. 23-July 22.....		7	
Karachi.....	Aug. 28-Sept. 16.....	14	9	
Madras.....	June 25-July 1.....	1	1	
Do.....	July 2-22.....	5	3	

# CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to Nov. 3, 1916—Continued.

## CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>India—Continued.</b>				
Madura District.....	Aug. 28—Sept. 9....	6	2	
Mandalay.....	July 23—29.....		1	
Pakokku.....	July 2—8.....		1	
Pegu.....	June 4—10.....		1	
Rangoon.....	May 24—July 29....	13	9	
Do.....	July 1—Aug. 26....	2	1	
<b>Indo-China.</b>				
Provinces—				
Anam.....	Dec. 1—31.....	493	388	
Do.....	Jan. 1—Mar. 31....	1,753	1,024	
Cambodia.....	Jan. 1—Feb. 29....		11	
Cochin-China.....	Jan. 1—Mar. 31....	10	4	
Tonkin.....	Dec. 1—31.....	17	7	
Do.....	Jan. 1—Mar. 31....	244	62	
Saigon.....	May 1—July 2.....	162	74	
Do.....	July 3—Sept. 2....	69	45	
<b>Japan:</b>				
Kobe.....	Aug. 30—Oct. 1....	328	117	
Nagasaki.....	Aug. 8—Sept. 24....	327	160	Since Aug. 14, 1916: Cases, 349; deaths, 149.
Osaka.....	Aug. 30—Sept. 20..	678	170	Since Aug. 13, 1916: Cases, 705; deaths, 332.
Yokohama.....	Aug. 15.....	6	5	55 cases, with 9 deaths in quarantine, from s. s. Hawaii Maru from Hongkong via ports.
Do.....	Sept. 4—24.....	29	19	Total to Sept. 10, 1916: Cases, 29; deaths, 15.
Suburbs of city.....	Aug. 14—20.....	8	4	
Districts.....	Sept. 4—24.....	54	30	Total to Sept. 24, 1916: Cases, 115; deaths, 67.
<b>Java.</b>				
Batavia.....	Apr. 13—June 29....		89	East Java, Apr. 8—June 30, 1916: Cases, 50; deaths, 35.
Do.....	July 7—13.....	16	12	Aug. 4: Cases, 13; deaths, 8.
Malang.....	Apr. 8—14.....	2	2	Mid Java, June 3—30, 1916: Cases, 30; deaths, 26.
Malang and Djombang.....	Apr. 28—May 5....	2	2	July 1—Aug. 4: Cases, 78; deaths, 65.
				West Java, Apr. 3—June 29, 1916: Cases, 661; deaths, 409.
				July 7—Aug. 17: Cases, 562; deaths, 364.
Surabaya residency.....	May 6—19.....	5	2	Including Malang, 2 cases, and Sidoarjo and Malang, 3 cases, with 2 deaths.
<b>Korea.</b>				
Chemulpo.....	Sept. 18.....	2		Sept. 23, 1916: In southern and central Korea, 108 cases.
Fusan.....	Aug. 1—Sept. 2....	2	1	
<b>Persia:</b>				
Asterabad.....	June 10.....			Present, with 4 or 5 deaths daily.
Enzell.....	July 1—Aug. 31....	7	5	
Foumen.....	May 9.....	3	2	Previously erroneously included in cases at Recht.
Ghazian.....	June 13.....	2	1	
Kazvin.....	July 1—Aug. 31....	22	29	
Mohammerah.....	June 12.....			Present.
Recht.....	July 1—Aug. 31....	19	11	
Tabriz.....	Aug. 1—31.....		12	
Teheran.....	Aug. 1—31.....		2	
Urumiah.....	July 1—31.....	25		
<b>Philippine Islands:</b>				
Manila.....	May 14—July 1....	36	25	
Do.....	Aug. 6—Sept. 16..	430	241	Not previously reported: Cases, 44; deaths, 5.
<b>Provinces.</b>				
Albay.....	July 2—Sept. 16....	314	157	July 16—Sept. 16, 1916: Cases, 3,201; deaths, 1,911.
Bataan.....	do.....	32	22	
Batangas.....	July 30—Sept. 16..	30	14	
Bulacan.....	June 18—July 1....	17	4	
Do.....	July 2—Sept. 16....	809	432	
Cagayan.....	June 25—July 1....	2	1	
Do.....	July 2—8.....	2		
Camarines.....	June 18—July 1....	69	32	
Do.....	July 2—Sept. 16....	930	583	
Cavite.....	June 11—July 1....	14	11	
Do.....	July 2—Sept. 16....	31	25	
Iloilo.....	Aug. 20—Sept. 16..	734	477	
Laguna.....	May 21—July 1....	31	20	
Do.....	July 2—Sept. 16....	157	114	
Mindanao.....	July 16—Aug. 5....	19	11	
Mindoro.....	Sept. 3—16.....	6	4	



# CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

## Reports Received from July 1 to Nov. 3, 1916—Continued.

### CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Philippine Islands—Continued.</b>				
<b>Provinces—Continued.</b>				
Misamis.....	July 16-Sept. 16...	218	119	
Negros Occidental.....	Sept. 3-16.....	24	12	
Nueva Ecija.....	Sept. 10-16.....	1	1	
Pampanga.....	July 9-Aug. 5.....	61	52	
Do.....	Aug. 6-Sept. 16.....	73	63	
Rizal.....	May 24-July 1.....	11	9	
Do.....	July 2-Sept. 16.....	371	213	
Romblon.....	June 18-July 1.....	68	39	
Do.....	July 9-Sept. 9.....	23	19	
Samar.....	Aug. 28-Sept. 2.....	1	1	
Tayabas.....	June 10-24.....	11	8	
Do.....	Aug. 6-Sept. 9.....	2	1	
Zambales.....	Aug. 20-Sept. 16.....	49	9	
<b>Siam:</b>				
Bangkok.....	May 15-27.....	22	21	
Do.....	July 16-Aug. 12.....	5	5	
<b>Straits Settlements:</b>				
Singapore.....	May 27-June 24.....	8	3	
Do.....	Aug. 13-19.....	1	1	
<b>Turkey in Europe.....</b>				
Constantinople.....	May 19-July 6.....	118	63	Present among soldiers June 14.
<b>Turkey in Asia:</b>				
Adana.....	June 16-July 9.....	106	60	
Aleppo.....	June 15-25.....	47	16	
Bagdad.....	June 15-July 5.....	78	18	
Beirut.....	July 14-19.....	39	17	
Damascus.....	June 16-July 3.....	77	50	
Jaffa.....	June 17-25.....	67	39	
Do.....	July 1-29.....	112	38	July 9-15: Cases, 39; deaths, 25.
Mersina.....	Aug. 6-12.....	5	2	
Smyrna.....	June 15-28.....	22	13	Epidemic. Estimated number cases daily, 50.
Trebizond.....	Aug. 6-Sept. 9.....	42	9	
<b>At sea:</b>				
Steamship Hong-Kheng.....	Apr. 27-May 9.....	17	14	En route from Haifong, Indo-China, to Colombo.
Steamship Pei-ho.....	Apr. 19-30.....	1	1	From Saigon, Indo-China, for Colombo.
Do.....	May 5-17.....	8	8	From Colombo for Suez.

### PLAGUE.

<b>Brazil:</b>				
Pernambuco, State.....	Jan. 1-Mar. 31.....			Several cases.
<b>Ceylon:</b>				
Colombo.....	Apr. 30-July 1.....	49	46	
Do.....	July 2-Sept. 9.....	55	52	
<b>Chile:</b>				
Mejillones.....	May 28-June 3.....	1	1	
Antofagasta.....	June 4-July 22.....	2	2	
<b>China:</b>				
Amoy.....	July 16-Aug. 5.....			Present. Present in vicinity Aug. 12.
Canton.....	Aug. 1-10.....		3	
Hongkong.....	May 28-June 30.....	7	7	Mar. 19-25: Cases, 2; deaths, 2.
Do.....	July 23-Sept. 16.....	4	3	
<b>Ecuador:</b>				
Ambato.....	May 1-31.....			Epidemic.
Bahia.....	do.....			Country district, vicinity of Bahia.
Daule.....	June 1-30.....	4	2	
Guayaquil.....	May 1-June 30.....	10	3	
Do.....	July 1-Aug. 31.....	25	9	
Manta.....	May 1-31.....			Country district, vicinity of Manta.
Santa Rosa.....	Aug. 1-31.....	1	1	
<b>Egypt.....</b>				
Alexandria.....	May 26-Sept. 23.....	48	28	Jan. 1-Aug. 31, 1916: Cases, 1,690; deaths, 823. Jan. 1-June 29, 1916: Cases, 1,634; deaths, 792.
Cairo.....	July 10.....	1	1	Imported.
Port Said.....	May 7-June 23.....	11	10	
Do.....	July 20-Aug. 3.....	5	4	
<b>Provinces—</b>				
Assiout.....	May 27-June 29.....	9	8	
Beni-Souef.....	May 26-June 25.....	34	15	
Do.....	July 1-10.....	2	1	

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to Nov. 3, 1916—Continued.

### PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Egypt—Continued.</b>				
<b>Provinces—Continued.</b>				
Fayoum.....	May 26-June 30...	112	45	
Do.....	July 1-Aug. 3.....	9	2	
Galioubeh.....	June 7.....	1	1	
Girgeh.....	June 9-21.....	3	1	
Do.....	July 7-10.....	7	7	
Menoufieh.....	June 12-30.....	9	4	
Do.....	July 1-31.....	5	3	
Mimieh.....	May 23-June 30...	37	14	
Do.....	July 3-10.....	5	2	
<b>Great Britain:</b>				
Bristol.....	Aug. 18-31.....	3	.....	
Hull.....	Aug. 19-31.....	2	1	
Liverpool.....	Sept. 22-Oct. 6....	6	3	
<b>Greece:</b>				
Island of Chios—				
Mitylene.....	Sept. 29.....	.....	.....	Present.
Volo.....	do.....	.....	.....	Slight epidemic.
<b>India</b>				
Bassein.....	Apr. 23-July 29.....	.....	242	
Bombay.....	May 14-July 1.....	290	264	
Do.....	July 2-Sept. 16.....	128	108	
Calcutta.....	May 7-July 1.....	.....	14	
Benazada.....	Apr. 23-July 1.....	.....	14	
Do.....	July 9-22.....	.....	4	
Karachi.....	May 14-July 1.....	72	61	
Do.....	July 2-Sept. 16.....	10	11	
Madras Presidency.....	May 14-June 24.....	139	94	
Do.....	July 9-Sept. 16....	1,694	1,120	
Man talay.....	May 14-June 3.....	.....	1	
Moulmein.....	Apr. 23-June 10.....	.....	37	
Do.....	July 2-29.....	.....	69	
Pegu.....	June 11-July 15.....	.....	3	
Prome.....	Apr. 23-May 20.....	.....	1	
Do.....	July 2-29.....	.....	39	
Rangoon.....	Apr. 23-July 1.....	467	440	
Do.....	July 2-Sept. 9.....	256	236	
Toungoo.....	June 25-July 1.....	2	2	
Do.....	July 9-29.....	.....	9	
<b>Indo-China.</b>				
<b>Provinces—</b>				
Anam.....	Dec. 1-31.....	36	20	
Do.....	Jan. 1-Mar. 31.....	131	93	
Cambodia.....	Dec. 1-31.....	27	36	
Do.....	Jan. 1-Feb. 29.....	77	71	
Cochin China.....	Dec. 1-31.....	4	1	
Do.....	Jan. 1-Mar. 31.....	82	27	
Tonkin.....	Dec. 1-31.....	23	23	
Saigon.....	May 15-July 2.....	55	30	
Do.....	July 24-Sept. 2....	16	7	
<b>Java:</b>				
<b>Residences—</b>				
Kediri.....	Apr. 9-May 19.....	18	18	
Do.....	July 22-28.....	2	2	
Paseroacan.....	Apr. 9-June 30.....	13	12	
Do.....	July 1-28.....	4	4	
Surabaya.....	Apr. 9-June 30.....	28	25	
Do.....	July 1-Aug. 4.....	14	13	
Surakarta.....	Apr. 9-June 30.....	15	24	
<b>Japan:</b>				
<b>Taiwan—</b>				
Tamsui.....	July 15-Sept. 23.....	3	3	17 miles from capital city.
Mauritius.....	Apr. 15-June 21.....	6	8	
<b>Persia:</b>				
Recht.....	May 2-19.....	20	14	
<b>Siam:</b>				
Bangkok.....	Apr. 30-July 1.....	66	59	
Do.....	July 2-Sept. 2.....	44	37	
<b>Straits Settlements:</b>				
Singapore.....	Apr. 30-July 1.....	5	1	
Do.....	July 2-Sept. 2.....	2	4	
<b>Union of South Africa:</b>				
Orange Free State.....	Jan. 23-Mar. 26....	36	23	Remaining under treatment Mar. 26, 6 cases.

<sup>1</sup> Reports for weeks ended May 20 and 27, 1916, not received.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to Nov. 3, 1916—Continued.

### SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Australia:</b>				
New South Wales.....				Aug. 4-17, 1916: Cases, 6.
Angledool.....	July 21-Aug. 3.....	1		
Gulldford.....	June 9-22.....	2		
Lake Macquarie.....	Aug. 4-17.....	2		
Narrabri.....	May 26-June 7.....	8		
Do.....	July 7-Aug. 17.....	19		
Swansea.....	Aug. 4-16.....	1		
Sydney.....	June 23-30.....	1		
Do.....	July 1-Aug. 3.....	4		
Tamworth.....	June 9-22.....	1		
Do.....	July 7-20.....	1		
Walgett.....	July 21-Aug. 3.....	6		
<b>Austria-Hungary:</b>				
Austria.....				Feb. 13-May 20, 1916: Cases, 2,175.
Galicia, Province.....	Apr. 23-May 20.....	464		
Prague.....	July 2-Sept. 9.....	6	2	
Vienna.....	May 27-July 1.....	4	1	
Do.....	July 9-Aug. 5.....	3		
<b>Hungary—</b>				
Budapest.....	May 21-July 1.....	38	15	
Do.....	July 2-Sept. 9.....	1	1	
<b>Brazil:</b>				
Bahia.....	July 2-Aug. 26.....	8	8	
Para.....	July 2-8.....		4	
Rio de Janeiro.....	Apr. 9-June 17.....	94	18	
Do.....	July 9-Aug. 19.....	55	8	
Santos.....	May 8-14.....		1	
<b>British East Africa:</b>				
Mombasa.....	Apr. 24-May 31.....	4	2	
Do.....	July 1-31.....		1	
<b>Canada:</b>				
<b>Ontario—</b>				
Fort William and Port Arthur.....	July 9-15.....	1		
Niagara Falls.....	July 2-8.....	1		
Toronto.....	June 25-July 29.....	3		
<b>Ceylon:</b>				
Colombo.....	May 7-June 3.....	4		
<b>China:</b>				
Antung.....	May 22-June 18.....	2	1	
Canton.....	Aug. 1-10.....		1	
Chunking.....	May 7-June 24.....			
Do.....	July 2-Aug. 21.....			Present.
Dairen.....	May 21-July 1.....	2	1	Do.
Do.....	July 16-Aug. 26.....	3	2	
Fochow.....	May 7-27.....			Do.
Do.....	July 2-Aug. 5.....			Do.
Harbin.....	May 2-June 18.....	3	1	
Do.....	July 9-Aug. 13.....	3	2	
Hongkong.....	May 7-June 24.....	68	50	Mar. 19-25: Cases, 16; deaths, 13.
Do.....	July 28-Sept. 16.....	22	20	
Nanking.....	June 11-Aug. 19.....			Do.
Tientsin.....	May 14-July 1.....	45	11	
Do.....	July 2-Sept. 9.....	4	1	
<b>Cuba:</b>				
Cienfuegos.....	Sept. 24-30.....	2		
<b>Egypt:</b>				
Alexandria.....	May 28-June 17.....	4	2	
Cairo.....	Jan. 22-May 27.....	184	57	
Port Said.....	Mar. 12-May 27.....	6	6	
<b>France:</b>				
Paris.....	May 14-July 1.....	9		
Do.....	July 2-8.....	1		
<b>Germany:</b>				
Breslau.....	May 21-27.....	1		
Hamburg.....	June 11-17.....	1		
Königsberg.....	July 2-Sept. 2.....	4		
<b>Great Britain:</b>				
Cardiff.....	June 4-17.....	1	1	
London.....	do.....	1		
Southampton.....	July 31-Aug. 5.....	1		
<b>Greece:</b>				
Athens.....	Apr. 1-June 13.....	178	37	
Do.....	July 9-23.....			Present. Estimated occurrence, 10 cases weekly.

# CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

## Reports Received from July 1 to Nov. 3, 1916—Continued.

### SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.	
<b>India:</b>					
Bassein.....	May 7-June 10.....	.....	2		
Bombay.....	May 14-July 1.....	153	79		
Do.....	July 2-Sept. 16.....	53	35		
Calcutta.....	May 7-June 3.....	.....	3		
Do.....	July 2-Aug. 5.....	.....	2		
Karachi.....	Aug. 6-Sept. 2.....	5	4		
Madras.....	May 14-July 1.....	139	42		
Do.....	July 2-Sept. 16.....	118	53		
Rangoon.....	Apr. 23-July 1.....	260	135		
Do.....	July 2-Sept. 9.....	17	6		
<b>Indo-China</b> .....					
Provinces—					
Anam.....	Dec. 1-31.....	48	.....	Dec. 1-31, 1915: Cases, 74; deaths, 14. Jan. 1-Mar. 31, 1916: Cases, 399; deaths, 27.	
Do.....	Jan. 1-Mar. 31.....	68	5		
Cambodia.....	Dec. 1-31.....	19	13		
Do.....	Jan. 1-Mar. 31.....	38	14		
Cochin China.....	Dec. 1-31.....	1	.1		
Do.....	Feb. 1-Mar. 31.....	23	2		
Tonkin.....	Dec. 1-31.....	6	.....		
Do.....	Jan. 1-Mar. 31.....	270	6		
Saigon.....	July 24-Aug. 13.....	4	4		
<b>Japan:</b>					
Kobe.....	May 29-June 25.....	24	4		
Do.....	July 24-Sept. 3.....	11	2		
Nagasaki.....	June 26-July 2.....	1	1		
<b>Java:</b>					
Batavia.....	Apr. 13-June 29.....	31	9	East Java, Apr. 8-June 30, 1916: Cases, 83; deaths, 11. July 1-Aug. 4: Cases, 42; death, 1. Mid Java, Apr. 1-June 30, 1916: Cases, 233; deaths, 47. July 1-Aug. 4: Cases, 56; deaths, 14. West Java, Apr. 13-June 29: Cases, 278; deaths, 59. June 30-Aug. 17: Cases, 253; deaths, 34.	
Do.....	June 30-July 13.....	6	4		
Samarang.....	May 13-19.....	2	2		
Surabaya.....	May 9-June 16.....	2	1		
<b>Malta</b> .....					
.....	Apr. 1-30.....	7	1		
<b>Mexico:</b>					
Agascalientas.....	June 12-July 2.....	.....	33		
Do.....	July 3-Oct. 1.....	.....	44		
Frontera.....	May 23-June 10.....	4	1		
Guadalajara.....	June 11-17.....	35	9		
Mazatlan.....	May 31-June 6.....	.....	4		
Mexico City.....	Aug. 28-Sept. 30.....	45	.....		
Tenosique.....	June 14.....	.....	.....	175 miles south of Frontera: Epidemic among troops.	
Vera Cruz.....	June 4-July 2.....	.....	9		
Do.....	July 3-Sept. 3.....	.....	4		
<b>Netherlands:</b>					
Amsterdam.....	May 28-June 3.....	1	.....		
<b>Philippine Islands:</b>					
Manila.....	.....do.....	1	.....		
Do.....	July 1-8.....	3	.....		
<b>Porto Rico:</b>					
Agua Buenas.....	June 19-25.....	5	.....	June 19-25, 1916: Cases, 33.	
Arecibo.....	.....do.....	2	.....		
Do.....	Aug. 7-13.....	1	.....		
Bayamon.....	June 19-July 2.....	2	.....		
Naranjito.....	June 26-July 2.....	4	.....		
Río Piedras.....	.....do.....	1	.....		
San Juan.....	.....do.....	24	.....		
Toa Alta.....	.....do.....	12	.....		
<b>Portugal:</b>					
Lisbon.....	May 21-July 1.....	15	.....		
Do.....	July 9-Aug. 26.....	9	.....		
<b>Russia:</b>					
Moscow.....	Apr. 30-July 1.....	222	59		
Do.....	July 2-Aug. 26.....	72	142		
Riga.....	Apr. 6-May 31.....	1	1		
Do.....	July 1-22.....	2	.....		
Petrograd.....	Apr. 23-July 1.....	162	35	Apr. 1-30, 1916: 1 case.	
Do.....	July 2-Aug. 10.....	70	17		
<b>Siam:</b>					
Bangkok.....	May 24-30.....	2	.....		
<b>Spain:</b>					
Cádiz.....	July 1-31.....	.....	1		
Madrid.....	May 1-31.....	.....	13	June 1-30, 1916: Cases, 10.	

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from July 1 to Nov. 3, 1916—Continued.

#### SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Spain—Continued.</b>				
Madrid.....	July 1-Aug. 31.....		34	
Malaga.....	May 1-31.....		7	
Seville.....	May 1-June 30.....		5	
Do.....	Aug. 1-31.....		4	
Valencia.....	May 21-July 1.....	12	4	
Do.....	July 8-Sept. 2.....	8		
<b>Straits Settlements:</b>				
Penang.....	May 14-20.....	3		
Singapore.....	Apr. 30-July 1.....	5	3	
Do.....	July 16-Aug. 26.....	5	2	
<b>Switzerland:</b>				
Basel.....	May 13-July 1.....	29		
Do.....	July 2-Sept. 30.....	14		
<b>Union of South Africa:</b>				
Durban.....	June 1-30.....	1		
Johannesburg.....	May 28-June 3.....	1		
<b>Venezuela:</b>				
Maracaibo.....	Sept. 2-22.....		3	
<b>Zanzibar:</b>				
Zanzibar.....	May 12.....	1		From s. s. Dilmar.
<b>At sea:</b>				
Steamship Katuna.....				Case of smallpox landed at Colombo, Ceylon, May 12, 1916. Vessel arrived May 27 at Fremantle, Australia, was ordered to quarantine, and proceeded to Melbourne direct for disinfection.

#### TYPHUS FEVER.

<b>Austria-Hungary:</b>				
Austria.....				Feb. 13-May 20, 1916: Cases, 2,407.
Galicia, province.....	Apr. 22-May 20.....	1,311		
Vienna.....	July 2-15.....	3		
<b>Hungary:</b>				
Budapest.....	May 21-June 24.....	14	2	
Do.....	July 2-Sept. 9.....	5	1	Feb. 21-Mar. 5, 1916: Cases, 35 deaths, 7.
<b>Belgium:</b>				
Liege.....	Aug. 12-19.....		1	
<b>Canada:</b>				
New Brunswick— St. John.....	July 29.....	4		
<b>Canary Islands:</b>				
Santa Cruz de Tenerife.....	July 31-Aug. 5.....		1	
<b>China:</b>				
Antung.....	June 19-25.....	1	1	
Do.....	July 22-Sept. 10.....	4		
Harbin.....	May 2-8.....	1		
Do.....	July 3-16.....	1		
Tientsin.....	May 14-20.....		1	
<b>Egypt:</b>				
Alexandria.....	May 21-July 1.....	235	93	
Do.....	July 2-Sept. 23.....	163	71	
Cairo.....	Jan. 8-May 27.....	900	400	
Port Said.....	Mar. 18-May 27.....	41	21	
<b>Germany:</b>				
Aix la Chapelle.....	July 2-Aug. 12.....		2	
Barmen.....	Aug. 13-19.....		1	
Berlin.....	June 18-24.....		1	
Do.....	July 16-Aug. 19.....		8	
Bremen.....	July 16-Aug. 12.....	6		
Breslau.....	Aug. 15-21.....	3		
Chemnitz.....	May 23-June 3.....		1	
Frankfort on Main.....	June 11-17.....		1	
Hanover.....	May 7-27.....	4	1	
Do.....	July 1-29.....	3		
Königsberg.....	June 4-10.....	1		
Do.....	July 9-Aug. 26.....	13		
Leipzig.....	June 4-10.....		1	
Stettin.....	July 16-Aug. 19.....		3	
<b>Great Britain:</b>				
Belfast.....	July 16-Sept. 9.....	12	4	
Glasgow.....	July 9-Sept. 30.....	9	6	

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from July 1 to Nov. 3, 1916—Continued.

#### TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Greece:</b>				
Athens.....	July 24-Aug 21.....		2	
Saloniki.....	May 1-July 2.....		61	
Do.....	July 3-Sept. 10.....		160	
<b>Italy:</b>				
Palermo.....	June 29-July 5.....	1	1	
<b>Japan:</b>				
Hakodate.....	July 16-22.....	2		
Tokyo.....	May 22-July 25.....	114		
<b>Java:</b>				
Batavia.....	Apr. 13-June 29.....	46	13	
Do.....	July 7-27.....	24	4	
Samarang.....	Apr. 1-June 30.....	20	8	
Surabaya.....	Apr. 8-May 12.....	6	6	
Do.....	July 1-7.....	1		
<b>Mexico:</b>				
Aguascalientes.....	June 12-July 2.....		32	
Do.....	July 3-Oct. 1.....		181	
Chihuahua.....	Sept. 7.....	40		Sept. 20: Estimated number of cases, 100.
Durango.....	Sept. 1.....			Present.
Juarez.....	Sept. 7-20.....	18		
Guadalajara.....	June 11-17.....	4	1	
Mexico City.....	Aug. 28-Sept. 30.....	967		
San Luis Potosi.....	Oct. 21.....			Epidemic.
Vera Cruz.....	June 4-9.....		2	
Do.....	July 24-Sept. 24.....		8	
Zacatecas, State.....				Sept. 7: Prevalent.
<b>Netherlands:</b>				
Rotterdam.....	July 30-Aug. 5.....		1	
<b>Norway:</b>				
Bergen.....	do.....		1	
<b>Russia:</b>				
Moscow.....	Apr. 30-July 1.....	909	52	
Do.....	July 9-Aug. 26.....	254	12	
Petrograd.....	Apr. 23-July 1.....	59	13	
Do.....	July 3-Aug. 26.....	25	5	
<b>Spain:</b>				
Madrid.....	Aug. 1-31.....		1	
<b>Sweden:</b>				
Stockholm.....	June 21-27.....	1		
Do.....	July 9-Sept. 16.....	8		
<b>Switzerland:</b>				
Basel.....	July 21-Aug. 26.....	8		
Geneva.....	May 21-27.....	1		
Zurich.....	July 23-Sept. 2.....	5		
<b>Turkey in Asia:</b>				
Adana.....	May 13-June 25.....			Present.
Do.....	July 2-8.....			Do.
Bagdad.....	June 27.....			Do.
Haifa.....	Apr. 24-June 11.....	35	13	
Do.....	July 10-Aug. 27.....	70	31	
Jaffa.....	Apr. 23-June 25.....		47	Mar. 19-Apr. 1: Present.
Mersina.....	May 7-June 25.....	9		Apr. 2-8: Cases, 3. May 6-20: Many cases.
Do.....	July 2-8.....			Do.
Tarsus.....	May 13-27.....			Present.
Do.....	July 2-8.....			Do.
Trebizond.....	Aug. 6-12.....	3	1	

#### YELLOW FEVER.

Barbados.....	Sept. 17-30.....	6	5	
<b>Ecuador:</b>				
Babahoyo.....	June 1-30.....	2		
Guayaquil.....	May 1-June 30.....	76	51	
Do.....	July 1-Aug. 31.....	73	44	
Milagro.....	June 1-30.....	1	1	
Do.....	July 1-Aug. 31.....	3	1	
Naranjito.....	Aug. 1-31.....	2	1	
<b>Mexico:</b>				
Merida.....	July 1-Sept. 23.....	25	7	
Progreso.....	Aug. 13-Sept. 2.....	2	1	

# SANITARY LEGISLATION.

## STATE LAWS AND REGULATIONS PERTAINING TO PUBLIC HEALTH.

### MISSISSIPPI.

#### Ophthalmia Neonatorum—Notification of Cases—Prevention. (Ch. 115, Act Mar. 15, 1916.)

SECTION 1. *Inflammation of the eyes of the new born defined.*—That any inflammation, swelling, or redness in either or both eyes of any infant, either apart from or together with any unnatural discharge from the eye or eyes of any such infant, independent of the nature of the infection, if any occurring, any time within two weeks after birth of such infant, shall be known as “inflammation of the eyes of the new born.”

SEC. 2. *Duties of physicians, midwives, etc.*—It shall be the duty of any physician, surgeon, obstetrician, midwife, nurse, maternity home or hospital of any nature, parent, relative, and any person attendant on or assisting in any way whatsoever any infant, or the mother of any infant, at childbirth, or at any time within two weeks after childbirth, knowing the condition hereinabove defined to exist, within six hours thereafter, to report such fact as the State board of health shall direct, to the local health officer of the city, town, village, or whatever other political division there may be, within which the infant or the mother of the infant may reside.

SEC. 3. *Duties of the local health officer.*—It shall be the duty of the local health officer: (1) To investigate or to have investigated each case as filed with him, in pursuance of the law, and any other such case as may come to his attention; (2) to report all cases of inflammation of the eyes of the new born and the result of all such investigations as the State board of health shall direct; (3) to conform to such other rules and regulations as the State board of health shall promulgate for his further guidance.

SEC. 4. *Duties of the State board of health.*—It shall be the duty of the State board of health: (1) To enforce the provisions of this act; (2) to promulgate such rules and regulations as shall, under this act, be necessary for the purpose of this act, and such as the State board of health may deem necessary for the further and proper guidance of local health officers, etc.; (3) to provide for the gratuitous distribution of a scientific prophylactic for inflammation of the eyes of the new born, together with proper directions for the use and administration thereof, to all physicians and midwives as may be engaged in the practice of obstetrics or assisting at childbirth; (4) to provide, if necessary, daily inspection and prompt and gratuitous treatment to any infant whose eyes are infected with inflammation of the eyes: *Provided further*, That the State board of health, if necessary, shall defray the expenses of such treatment from such sums as may be appropriated for

its use; (5) to publish and promulgate such further advice and information concerning the dangers of inflammation of the eyes of the new born and the necessity for prompt and effective treatment; (6) to furnish copies of this law to all physicians and midwives as may be engaged in the practice of obstetrics or assisting at childbirth; (7) to keep a proper record of any and all such cases of inflammation of the eyes of the new born as shall be filed in the office of the State board of health, in pursuance with this law, and as may come to their attention in any way, and to constitute such record a part of the annual report to the governor and legislature; (8) to report any and all violations of this act as may come to its attention to the local police, county prosecutor, or district attorney in the county wherein such misdemeanor may have been committed and to assist such official in every way possible, such as securing necessary evidence, etc.

SEC. 5. *Requirements in maternity homes, hospitals, etc.*—It shall be the duty of the physicians, midwives, or other persons in attendance upon a case of childbirth in a maternity home, hospital, public or charitable institution, in every infant immediately after birth, to use some prophylactic against inflammation of the eyes of the new born and to make record of the prophylactic used. It shall be the duty of such institution to maintain such records of cases of inflammation of the eyes of the new born as the State board of health shall direct.

SEC. 6. *Duties of midwives.*—It shall be the duty of a midwife in every case of childbirth under her care, immediately after birth, to use such prophylactic against inflammation of the eyes of the new born as the State board of health requires.

SEC. 7. *Violation of this act a misdemeanor.*—The failure of any physician, midwife, etc., as hereinbefore set forth, to comply with any of the provisions of this act shall constitute a misdemeanor under this act, and the offender shall, on conviction thereof, be fined for the first offense not to exceed \$50; for the second offense not to exceed \$100; and for the third offense and thereafter not to exceed \$200 for each violation. It shall be the duty of the local police, county prosecutor, or the district attorney to prosecute for all misdemeanors as herein prescribed.

### **Tuberculosis—Notification of Cases—Establishment and Maintenance of State Sanatorium. (Ch. 109, Act Mar. 25, 1916.)**

SECTION 1. *Establishing a tuberculosis hospital.*—That a sanitarium for the prevention and treatment of tuberculosis shall be established under the management and control of the State board of health, with such limitations as are imposed in the succeeding sections of this act. The said sanitarium shall be known as Mississippi Sanitarium for the Prevention and Treatment of Tuberculosis, and the State board of health shall have the right to acquire land or accept donations of land on which to establish said sanitarium.

SEC. 2. *Superintendent; his appointment and qualifications.*—The State board of health shall elect a superintendent of said institution, who shall be a well-trained physician and experienced in public health work. The superintendent shall make all recommendations to the board in directing said sanitarium, and the board is hereby authorized to elect and employ such officials and pay such fees and salaries from the appropriation made for this purpose by the legislature as may be found necessary for the proper management and maintenance of said institution.

SEC. 3. *State board of health to provide for admission of patients.*—The State board of health shall determine the qualifications for admission of those apply-



ing as patients to the institution and shall make all by-laws and regulations as shall be necessary for the government of said sanitarium. The said sanitarium shall be conducted so that it may be as nearly self-supporting as shall be consistent with the purpose of its creation. The board of health is hereby empowered to do such other things as seem reasonably necessary and incident to the proper management of the institution.

**SEC. 4. Bureau of tuberculosis provided; statistics obtained.**—A bureau for tuberculosis shall be established and operated by the sanitarium. The said bureau shall have the following duties: (1) It shall obtain through the State bureau of vital statistics reports of all cases of tuberculosis in the State; (2) it shall keep a register of all tubercular persons reported in the State. The bureau shall have exclusive control of such register, and a knowledge of its details shall be open to the following: (1) State, county, or municipal officers; (2) representatives of organizations interested in making financial provision for the care of tubercular persons; (3) those who may seek scientific information for the prevention and treatment of tuberculosis.

**SEC. 5. Correspondence school for advising patients.**—Said bureau for tuberculosis shall operate and maintain a correspondence school with those suffering from tuberculosis in this State, to the end that the tuberculous population of Mississippi shall be properly advised and directed both as to the method for attaining cures and as to the methods for preventing the spread of disease to other persons.

**SEC. 6. Physicians to report persons afflicted.**—All physicians and the executive officers of every private or public hospital, institution for the treatment of disease, or dispensary shall report on blank forms, and in accordance with the instructions of the board of health, the names and other particulars of all persons afflicted with tuberculosis whom they are called upon to examine or treat, or who are to be examined or treated in the hospital, institution, or dispensary of which he or she is the executive head, within seven days after the disease is recognized by such physician or executive officer. Any violation of this section shall be a misdemeanor and subject to a fine of not less than \$10 nor more than \$100.

**SEC. 7. Board may accept gifts for benefit of sanitarium.**—The board of health shall be empowered to receive or accept gifts or donations for the benefit of the State sanitarium, and the board of health shall, in its discretion, accept the same for carrying out the purpose for which the sanitarium is established.

**SEC. 8. Municipalities may provide for treatment at sanitarium.**—That any city or town in the State of Mississippi, through its board of aldermen, town council, or other government boards, and any county in the State of Mississippi, through its board of supervisors, is hereby authorized and empowered to provide for the treatment of any tubercular person or persons resident in and who is a bona fide citizen of said city, town, or county, at the Mississippi Sanitarium for the Care and Treatment of Tuberculosis an amount which shall not be more than \$1 per day per patient.

### **Tuberculosis—State Sanatorium—Appropriation for Establishment and Maintenance. (Ch. 68, Act Apr. 5, 1916.)**

**SECTION 1. For establishment and operation of a tuberculosis sanitarium.**—That the sum of \$25,000, or so much thereof as may be necessary, be, and the same is hereby, appropriated out of any money in the State treasury not other-

wise appropriated, to be used for the establishment and operation of a State sanitarium for the care and treatment of tubercular patients. Said sum of money, or so much thereof as may be necessary, to be drawn from the State treasury and used in the manner provided by the act of the legislature creating and providing for the establishment and operation of the State sanitarium for the treatment of tubercular patients, upon the written approval of the governor.

SEC. 2. *Fund to be contingent upon bond issue.*—This appropriation is contingent upon the issuance and sale of the bonds of the State of Mississippi to the amount of \$25,000, the sum hereby appropriated to be available only when such bonds shall have been duly issued and sold, and the proceeds derived therefrom paid into the State treasury.

SEC. 3. *Unexpended balance to lapse January 15, 1918.*—This appropriation shall be available for the purposes aforesaid during the years 1916 and 1917, and any unexpended balance remaining in the treasury on January 15, 1918, shall lapse.

**Ophthalmia Neonatorum—Appropriations for Prevention. (Ch. 73, Act Apr. 3, 1916.)**

SECTION 1. *To put into effect an act to prevent blindness in new-born infants.*—That the sum of \$300 for the year 1916 and \$300 for the year 1917, or so much thereof as may be necessary, is hereby appropriated out of any money in the State treasury not otherwise appropriated for the purpose of carrying out the provisions of an act entitled “An act for the prevention of blindness from inflammation of the eyes of the new born,” etc., approved March 15, 1916.

**Pellagra Hospitals—Establishment and Maintenance by Counties. (Ch. 143, Act Apr. 6, 1916.)**

SECTION 1. *Hospitals for pellagra sufferers; how may be established.*—That the board of supervisors of any one county, or more than one county, are hereby authorized to establish and maintain a hospital for the treatment of persons suffering with pellagra, and for said purpose may issue bonds and incur such indebtedness within the limit now authorized by law.

**State Board of Health—Appropriations for 1916 and 1917. (Ch. 52, Act Mar. 16, 1916.)**

SECTION 1. *To provide for the maintenance of the State board of health and the eradication of disease.*—That the following sums of money, or so much thereof as may be necessary, be, and the same are hereby, appropriated out of any money in the State treasury not otherwise appropriated:

For general expense of the State board of health, the publication of the health bulletin each month, and other literature on sanitation, and for the eradication of tuberculosis, pellagra, typhoid fever, hookworm disease, malaria, and other infectious diseases for the year 1916.....	\$12, 000
For rural sanitation and pellagra.....	5, 000
For food and drug inspection and the inspection of the towns and cities of the State and the enforcement of the sanitary regulations of the State for the year 1916.....	3, 200
For the maintenance and equipment of the State board laboratory and for chemical and bacteriological work for the year 1916.....	6, 000
For the bureau of vital statistics for the year 1916.....	6, 000
<b>Total appropriation for the year.....</b>	<b>32, 200</b>

For the general expenses of the State board of health, the publication of health bulletins each month, and other literature on sanitation, and for the eradication of tuberculosis, pellagra, typhoid fever, hookworm disease, malaria, and other infectious diseases for the year 1917-----	\$12, 000
For rural sanitation and pellagra-----	5, 000
For food and drug inspection and the inspection of the towns and cities of the State and the enforcement of the sanitary regulations of the State for the year 1917-----	3, 200
For the maintenance and equipment of the State board laboratory and for chemical and bacteriological work for the year 1917-----	6, 000
For the bureau of vital statistics for the year 1917-----	6, 000
<b>Total appropriation for the year-----</b>	<b>32, 200</b>

SEC. 2. *Funds to be used as specified; can not be diverted; itemized report to be made.*—The money herein appropriated shall be used for the purpose stated in said bill and for the items thereof and no other, but the State board of health shall make a specific detailed report, itemized, to the legislature of all money expended, and also of any money received by the board of health or arising from the operation of the same or its departments.

# MUNICIPAL ORDINANCES, RULES, AND REGULATIONS PERTAINING TO PUBLIC HEALTH.

BERKELEY, CAL.

## Milk—Production, Care, and Sale. (Ord. 481, N. S., Sept. 26, 1916.)

SECTION 1. For the purpose of this ordinance the words defined in this section shall be held and construed to have the meaning therein set forth.

The word "person," as used in this ordinance, shall be construed to include and mean the words person, firm, society, association, copartnership, corporation, or individual. The singular shall be construed to mean and include the plural, and the masculine the feminine.

The word "dairy" shall be construed to mean any place where milk is produced for the purpose of sale or consumption.

The words "milk shop" shall be construed to mean any place, other than a dairy, where milk is prepared for sale, or sold, or exposed or offered for sale.

The words "milk wagon" shall be construed to mean any vehicle used for the delivery of milk.

The words "milk dealer" shall be construed to mean any person engaged in the sale of milk directly to the consumer.

The words "pasteurized milk" shall be construed to mean milk which has been heated to a minimum temperature of 140° F. for a minimum time of 25 consecutive minutes, and rapidly cooled after such heating to 50° F. or below, and so maintained until delivered to the consumer.

The words "raw milk" shall be construed to mean milk which has not been artificially heated.

The words "sterile containers" shall be construed to mean milk containers which have been boiled in water for 20 minutes, or subjected to the action of steam for 15 minutes, and thereafter protected from contamination.

The words "health department" shall be construed to mean the health department in and for the city of Berkeley.

SEC. 2. From and after the date this ordinance takes effect no milk dealer shall expose for sale or sell or deliver within the corporate limits of the city of Berkeley any milk for human consumption without first obtaining a permit therefor in accordance with the provisions of this ordinance.

SEC. 3. Any milk dealer desiring a permit to engage in the sale of milk in the city of Berkeley, as provided by section 2 of this ordinance, shall first make application therefor to the health officer upon an application blank provided for that purpose. Such application shall state:

(1) The trade name and business address of the applicant, and, if the applicant be a corporation, then the names and places of residence of the officers of said corporation; and if the applicant be a firm or partnership, then the names and places of residence of its members.

(2) The exact location of the applicant's milk shop, or if the applicant has no milk shop, then the exact location of his dairy.

(3) The kinds of milk to be handled or sold and the approximate number of gallons of each kind sold daily.

(4) The names and exact locations of the dairies which serve as the sources of the milk supply of said applicant, together with—

- (a) The total number of cattle in each, and
- (b) The total number of cows being milked;
- (c) The hours of milking.

(5) The trade names and business addresses of all middlemen handling the milk furnished to said applicant.

This application shall be signed by the applicant, and shall be filed in the office of the health department.

SEC. 4. Within 24 hours after the receipt of an application as provided in section 3 of this ordinance it shall be the duty of the health officer to mail a written acknowledgment to the applicant. This acknowledgment shall constitute the applicant's authority for conducting his business until a permit has been granted or due notice given by the health officer that a permit will not be granted.

SEC. 5. The health officer or his authorized representative shall have authority to inspect all cattle, dairies, milk shops, and milk wagons within the corporate limits of the city of Berkeley, and to inspect all cattle, dairies, milk shops, and milk wagons supplying milk for use within the corporate limits of the city of Berkeley, and to take samples of milk for chemical and bacteriological examination.

SEC. 6. Upon receipt of an application as provided in section 3 of this ordinance it shall be the duty of the health officer or his authorized representative to inspect all cattle, dairies, and milk shops, and to prepare duplicate score cards of such inspections, in the form and manner hereinafter provided, one of said duplicates to be left on the premises inspected and the other to accompany the report of the inspector to the health officer. The health officer shall also cause to be made at least one chemical and one bacteriological examination of the milk sold by the applicant before the permit is granted.

SEC. 7. The score cards used in the inspection of the cattle, dairies, and milk shops, as provided in section 6, shall be printed in the following forms, which shall be filled in by the health officer or his authorized representative:

*Score card for cattle.*

Farm of.....	Number of cattle in dairy herd.....
Business address.....	Perfect score for each cow or bull, 100.
Location.....	Total possible score for herd.....
Consignee.....	

DEDUCTIONS ON ACCOUNT OF CATTLE DISEASED.

No. of cattle.	Nature of disease, defect, etc.	Deduct per cow.	Total deductions.
1.	Tuberculosis as shown by a physical examination, or by the tuberculin test by a veterinarian authorized by the health officer.....	100	
2.	Absence of a tuberculin test within one year of date of inspection, not to include cattle scored under paragraph 1.....	30	
3.	Inflammatory diseases of the udder.....	100	
4.	Diseases other than or in addition to those mentioned above.....	100 or less.	
5.	Unclean condition of teats and udders.....	40 or less.	
6.	Unclean condition of cows other than specified in paragraph 5.....	30 or less.	
7.	Undue emaciation or cows otherwise out of condition.....	10 or less.	

Total deduction for herd..... Net score.....  
 Net score ( ) divided by total possible score for herd ( ) equals percentage score ( ).

Remarks:  
 Date.....

*Inspector.*

Score card for dairy.

Farm of..... Location.....  
 Date..... Consignee.....  
 Business address..... Gallons sold daily.....

	Score in points.	
	Perfect.	Allowed.
<b>A. Stable and yard:</b>		
1. Stable; site well drained, free from contaminating surroundings.....	1	
2. Yard; free from manure, clean, well drained (if manure is stored less than 50 feet from stable, 0).....	4	
3. Construction of stable; tight, sound floor, proper gutter, tie and manger.....	4	
Smooth, tight walls and ceilings.....	2	
4. Light; 3 square feet of window per cow, and adequate artificial light for milking.....	3	
5. Ventilation; open window space (adjustable windows).....	3	
Cubic feet of air space, per cow: 1,000 to 600.....	2	
(500 to 600, 1.) Stable air; free from dust and objectionable odors.....	2	
<b>6. Cleanliness—</b>		
Floor.....	3	
Walls.....	1	
Ceilings and ledges.....	2	
Mangers and partitions.....	1	
Windows.....	1	
7. Water for cattle; clean and fresh.....	1	
<b>B. Milk house:</b>		
1. Site free from contaminating surroundings.....	1	
2. Convenience.....	1	
3. Tight construction of floor, walls, and ceiling.....	1	
4. Light, ventilation, and screens adequate.....	1	
5. Cleanliness of milk room, including freedom from flies.....	3	
<b>C. Utensils:</b>		
1. Milk pails with top two-thirds covered..... (With removable top, 5.)	10	
2. Facilities for sterilizing with steam or boiling in water.....	10	
3. Thorough cleansing and sterilizing of utensils with steam or boiling in water 20 minutes..... (Rinsing or washing, 5.)	10	
4. Milk cooler.....	2	
5. Construction; sound, of good type and repair.....	1	
6. Water for cleaning; clean, convenient, and sufficient.....	2	
<b>D. Milking and milk:</b>		
1. Udders washed and dried..... (Cleaned with moist cloth, 4.)	8	
2. Attendants, cleanliness, and apparent health.....	2	
3. Clean milking suits.....	1	
4. Each pailful of milk removed at once from stable.....	2	
5. Prompt cooling.....	4	
6. Efficient cooling, below 50° F..... (51° F. to 55° F., 4; 56° F. to 60° F., 2.)	5	
7. Storage below 50° F.....	3	
8. Transportation; iced..... (Jackets or wet blanket, 2; dry blanket or covered wagon, 1.)	3	
<b>Total.....</b>	<b>100</b>	

Remarks:  
 Sources of water supply, .....

Inspector.

Score card for milk shop.

Trade name.....	Middlemen furnishing milk to this milk shop:
Business address.....	.....
Gallons of grade A, raw milk, sold daily.....	.....
Gallons of grade A, pasteurized milk, sold daily.....	.....
Gallons of grade B, pasteurized milk, sold daily.....	Date of inspection.....
Dairies serving as source of milk supply:	Permit No.....
.....	
.....	

	Score in points.	
	Perfect.	Allowed.
<b>Building:</b>		
Location, free from contaminating surroundings.....	2	
Arrangement.....	6	
Separate receiving room.....	1	
Separate handling room.....	2	
Separate wash room.....	1	
Separate sales room.....	1	
Separate boiler room.....	1	
Construction.....	8	
Floors; tight, sound, cleanable.....	1	
Walls; tight, smooth, cleanable.....	1	
Ceilings; tight, smooth, cleanable.....	1	
Provision for light.....	1	
Provision for pure air.....	1	
Screens.....	2	
Minimum of shafting, pulleys, hangers, exposed pipes, etc.....	1	
Cleanliness.....	8	
Floors.....	3	
Walls.....	1	
Ceilings.....	2	
Doors and windows.....	1	
Shafting, hangers, pulleys, etc.....	1	
Freedom from objectionable odors.....	2	
Freedom from flies and other insects.....	3	
Drainage.....	2	
<b>Apparatus:</b>	36	
Boiler.....	2	
(Hot water heater, 1.)		
Milk cooler.....	2	
Refrigerator.....	2	
Appliances for cleaning utensils and bottles.....	2	
Racks, etc., for utensils and bottles after cleaning.....	1	
Sterilizer for utensils and bottles.....	3	
Bottling and capping machine.....	1	
Wash bowl, soap and towels for attendants.....	2	
Condition of apparatus (make deductions for inaccessible parts, open seams, rusty ware, decayed or battered tables or sink, milk carrying pipes with rough interiors and lack of frequent hand couplings, and for badly worn and poorly repaired material).....	4	
Cleanliness of apparatus.....	17	
Thoroughly washed and rinsed.....	6	
Sterilized in live steam or boiling in water for 20 minutes.....	5	
(Rinsing or washing only, 3.)		
Bottle caps sterilized and properly handled.....	4	
Apparatus protected from dirt.....	2	
Water supply.....	2	
Clean and fresh.....	1	
Convenient and abundant.....	1	
Handling milk.....	18	
Received below 50° F.....	5	
(50°-55°, 4; 55°-60°, 3.)		
Rapidity of handling in plant.....	3	
Freedom from undue exposure to air in plant.....	2	
Capping bottles by machine.....	1	
Bottle top and cap protected by covering.....	2	
Storage 45° F. or below.....	3	
(45°-50°, 2; 50°-55°, 1.)		
Protection during delivery.....	2	
Laboratory.....	4	
Equipment.....	2	
Bacteriological work.....	2	
Inspection of dairies furnishing milk supply.....	5	
Once a year.....	1	
Twice a year.....	2	
Three times a year.....	3	
Four times a year.....	4	
Employees.....	2	
Cleanliness.....	1	
Washable outer clothing.....	1	
Wagons:		
Cleanliness of delivery outfit.....	2	
<b>Total score.....</b>	<b>100</b>	

NOTE.—If the conditions in any particular are so exceptionally bad as to be inadequately expressed by a score of "0" the inspector may make a deduction from the total score.

Inspector.

**Sec. 8.** The chemical and bacteriological examinations made as provided in section 6 shall be scored according to the following tables :

*Table for scoring chemical examinations of milk.*

[Score 100.]

- Total solids, 13.2% or more.
- For each 0.1% under 13.2% deduct 2 points on score.
- For added water deduct 100 points.
- If per cent of butter fat is less than 3%, deduct 100 points.
- For milk containing preservatives, deduct 100 points.

*Table for scoring bacteriological examinations of milk.*

Raw milk.		Pasteurized milk.				Score in points.
Grade A.		Grade A.		Grade B.		
Bacteria in thousands per c. c.	Score in points.	Before pasteurization. Bacteria in thousands per c. c.	After pasteurization. Bacteria in thousands per c. c.	Before pasteurization. Bacteria in thousands per c. c.	After pasteurization. Bacteria in thousands per c. c.	
50 to 100	140	100 to 200	8 to 10	500 to 1,000	40 to 50	70
25 to 50	160	50 to 100	6 to 8	400 to 500	30 to 40	80
10 to 25	180	25 to 50	4 to 6	300 to 400	20 to 30	90
Under 100	200	Under 25	Under 4	Under 300	Under 20	100

Score for raw milk is obtained directly from table.

Score for pasteurized milk is obtained by adding together the score before pasteurizing and the score after pasteurizing.

For raw milk deduct 20 point for the first 1,000 colonies of the colon group or streptococci, whichever may be the more numerous, and deduct 10 points for each subsequent 1,000.

For milk after pasteurization deduct 10 points for the first 100 colonies of the colon group or streptococci, whichever may be the more numerous, and deduct 2 points for each subsequent 100.



**Sec. 9.** The report to the health department, as provided in section 6, shall be made upon the following form provided for the purpose :

*Milk record.*

From ..... 191..... To ..... 191.....  
 Milk dealer ..... Address .....  
 Permit No. .... Kind of milk; raw, pasteurized.

Totals.	Inspector.	
		1. Date of inspection or examination.
	2. Names of farms furnishing supply.	
	3. Number of cattle.	
	4. Cattle score %.	
	5. Product of number of cattle multiplied by cattle score.	
	6. No. of gals. furnished daily.	
	7. Dairy score.	
	8. Product of number of gals. furnished daily multiplied by dairy score.	
	9. Milk shop score.	
	10. Total solids %.	
	11. Chemical score.	
	12. Bacteria in one cubic centimeter.	
	13. Colon bacilli.	
	14. Streptococci.	
	15. Bacteriological score.	

Determination of final score.	
$\frac{\text{Total col. 5}}{\text{Total col. 3}} = \text{Average cattle score.}$ Average cattle score=	
$\frac{\text{Total col. 8}}{\text{Total col. 6}} = \text{Average dairy score.}$ Average dairy score=	
$\frac{\text{Total col. 9}}{\text{No. of inspections}} = \text{Average milk shop score}$ Average milk shop score=	
$\frac{\text{Total col. 11}}{\text{No. of analyses.}} = \text{Average chemical score}$ Average chemical score=	
$\frac{\text{Total col. 15}}{\text{No. of examinations.}} = \text{Average bacteriological score.}$ Average bacteriological score=	
$\frac{\text{Sum of averages}}{6 \text{ (or 5 if no milk shop)}} = \text{Final score.}$ Final score=	

SEC. 10. Upon receipt of the report, as provided in section 9, it shall be the duty of the health officer to grant a permit to engage in the sale of milk to any milk dealer whose milk record shows a final score of 70 per cent or over: *Provided*, That if the milk-record score of the applicant be less than 70 per cent the health officer shall notify the applicant that a permit will not be granted until such time as a score of 70 per cent or over shall have been attained.

SEC. 11. Permits granted under the provisions of this ordinance shall be numbered consecutively and shall be valid from the date of issue until the beginning of the following fiscal year, unless revoked for causes hereinafter set forth.

SEC. 12. Every person granted a permit under the provisions of this ordinance shall keep his permit posted in a conspicuous place in his milk shop or dairy and shall cause the words "milk permit" and the number of said permit to be legibly placed in characters not less than 2 inches in height and 1 inch in width, and his trade name in letters not less than 3 inches in height and 1½ inches in width in a conspicuous place on both outer sides of all milk wagons used by such person.

SEC. 13. There shall be maintained in the office of the health department a public list of milk dealers and their final scores arranged in order of numerical value. The final score of each milk dealer shall be his posted score for the three months succeeding the date of posting, and shall be obtained from his milk record, based upon the following data:

(1) At least one inspection made during the preceding three months' period of each herd of cattle and each dairy which furnish the dealer's milk supply.

(2) At least one inspection each month during the preceding three months' period of the dealer's milk shop.

(3) At least one chemical and one bacteriological examination made of the milk during the preceding three months' period.

**SEC. 14.** The health officer or his authorized representative shall at all times give advice and assistance to milk dealers in the matter of improving their scores.

**SEC. 15.** In addition to the provisions of the laws of California, the regulations of the State dairy bureau, and the regulations of the State board of health, relative to the production and standard of dairy products, the following special requirements shall govern all milk sold in the city of Berkeley :

(1) Grade A milk raw and grade A milk pasteurized shall be delivered to the consumer in sterile containers of not to exceed 1 quart capacity.

(2) Grade B milk pasteurized shall be delivered to the consumer in sterile containers of not less than 12-quart capacity.

(3) No milk pasteurized at a greater distance than 7 miles from the city hall of Berkeley shall be sold or delivered in Berkeley.

**SEC. 16.** The health officer or his authorized representative shall report at each regular meeting of the health department the following information :

(1) The names of all persons whose applications are pending and the dates when said applications were received.

(2) Milk records upon which action is pending.

(3) Milk records upon which action has been completed since the last regular meeting of the health department.

**SEC. 17.** The health officer shall have power to revoke permits granted under the provisions of this ordinance for the following causes :

(1) A final score below 70 per cent obtained in two successive records.

(2) The maintenance of a nuisance or an insanitary condition in the milk shop of a milk dealer, or the maintenance by any person of a nuisance or of an insanitary condition in any dairy which serves as a source of his milk supply, for more than 10 days after written notice from the health officer to abate said nuisance or insanitary condition.

(3) Misbranding or adulterating products in violation of the laws of the State of California.

(4) Violating any of the special requirements governing pasteurized milk and raw milk sold in the city of Berkeley.

(5) Changing the source of any portion of a milk supply without notifying the health officer of such change.

(6) Receiving milk from persons whose cattle score is below 60 per cent, or whose dairy is below 60 per cent, as determined by the milk records of the health department.

**SEC. 18.** Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than \$500 or by imprisonment for not more than 90 days, or by both such fine and imprisonment.

**SEC. 19.** Ordinance No. 135, N. S., and all ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.