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## UNITED STATES.

### MORBIDITY AND MORTALITY REPORT OF THE DISTRICT OF COLUMBIA FOR THE YEAR 1895.

*Presented to the Medical Society of the District of Columbia on January 23, 1896, by the committee on public health.*

In presenting the first annual report on public health, the committee craves indulgence for some omissions which were unavoidable, owing to the difficulty in obtaining complete and satisfactory data. Many subjects also have been omitted, as they were of secondary importance. Attention has been given chiefly to matters which are of more vital interest, and which express more clearly our needs in matters of health. Whatever be the imperfections of this report, there can be no question of the wisdom of the creation of such a committee. The health of our city bears the closest relationship to its prosperity, and at no time in its history have there been so many and important questions forcing themselves into public notice as now.

The work of the committee was divided as follows: Dr. Carr, malarial diseases; Dr. Morgan, tuberculosis and smallpox; Dr. Mayfield, contagious and diarrheal diseases; Dr. Hyatt, diphtheria and antitoxin; Dr. Leech, chronic diseases, alcoholism, and inebriety; Dr. Chappell, diseases and mortality in the county; Dr. Johnston, typhoid fever, sewerage, water supply, etc.

#### CLIMATOLOGY OF YEAR 1895.

(Prepared for the committee by Dr. W. R. PHILLIPS, of the United States Weather Bureau.)

The average mean daily temperature of the year was .6° below the normal daily temperature, which is 55°. The annual precipitation was 10.19 inches below the normal, which is 44.66 inches. The number of rainy days, that is, the number of days on which .01 of an inch or more of precipitation occurred was normal—128 days. The total number of hours of bright sunshine was apparently in excess of any year since and inclusive of 1891, the date from which sunshine statistics are obtainable. Exact comparison in this instance can not be made, as prior to 1894 no correction was applied to compensate for an instrumental defect of sunshine recording apparatuses, technically known as the twilight error. As this correction is a variable quantity that has to be determined for each day separately, it is obviously impracticable to approximate the error in sunshine records previous to 1894. The number of cloudy days was 92, or 14 less than the normal.

The most noteworthy features of the temperature distribution were the excessively cold weather that prevailed during the month of February, when the average mean daily temperature was 10° below the normal, and the almost equally abnormally hot weather of August and September, and, to a less degree, that of June. It should also

be stated that July and October were cooler than usual. Otherwise than above specified, the temperature distribution as determined from comparisons with the adopted normals of the different months was virtually normal.

The following spells of either exceptionally cold or hot weather are deserving of mention: In February there occurred 12 consecutive days during which the mean daily temperatures ranged from 12° to 29° below the normal; in May, 8 consecutive days with mean temperatures from 9° to 15° above the normal, and 6 consecutive days with temperatures from 9° to 15° below the normal, and the last 3 days of May and the first 3 days of June were from 13° to 20° above the normal; in July there were 6 consecutive days with mean temperatures from 8° to 11° below the normal; in August, 8 consecutive days from 7° to 10° and 4 consecutive days from 8° to 13° above the normal; in September, 4 consecutive days from 8° to 14° and 10 consecutive days from 9° to 18° above the normal; and in December 8 consecutive days from 13° to 22° above the normal.

The amount of sunshine was apparently deficient in but one month, namely, January. It is specially worthy of mention that from June to October, inclusive, there prevailed a period of exceptionally high and continued insolation, during which the amount of bright sunshine received averaged 77 per cent of the amount possible to be received.

The departures from normal distribution of precipitation during the year were as follows: January, in excess 1.06 inches; February, deficient 2.21 inches; March, deficient 1.61 inches; April, in excess 3.10 inches; May, deficient 0.81 inch; June, in excess 0.05 inch; July, deficient 0.42 inch; August, deficient 3.18 inches; September, deficient 2.87 inches; October, deficient 1.33 inches; November, deficient 1.65 inches; and December, deficient 0.59 inch.

The excessive rainfall of April, 6.16 inches, taken with the nearly normal rainfalls of May, June, and July, and followed, as it was, by the great deficiencies of August, September, October, and November, appears deserving of more than ordinary attention in relation to its possible effect upon the level of the subsoil water. It will be noticed upon consulting the chart showing the accumulated precipitation that there has been a steady decline in the amount of precipitation since May, 1892, to the present time, during which interval the accumulated deficiency amounts to 39.16 inches, or the loss of nearly one year's rainfall.

In lack of any measurements of the level of the subsoil water, the connection between this diminution of rainfall and the level of the ground water can only be inferred, and is a matter for future investigation rather than present report.

It may not be unimportant to state that this loss of rainfall has been general throughout the Middle Atlantic and adjacent States.

TABLE I.—*Report of the Weather Bureau for 1895—Washington, D. C.*

		Temperature.							Humidity.*			Wind.	Number of days.				Percentage of sunshine.			
		Mean.	Maximum.	Minimum.	Range.	Change.	Absolute.		Mean.	Mean.			Total precipitation (inches and hundredths).	Prevailing direction.	Average daily velocity.	Clear.		Fair.	Cloudy.	Rainy.
							Maximum.	Minimum.		8 A. M.	8 P. M.									
							Maximum.	Minimum.		Range.	Maximum.	Minimum.					Range.			
Jan.	1895.....	32	39	25	14	7.4	62	4	58	77	80	74	4.42	S.	162	7	8	16	13	39
	Normal.....	34	41	26	15	6.0				74			3.36	NW.	152	6	13	12	12	
Feb.	1895.....	26	34	18	16	5.8	67	0	67	63	68	57	1.10	NW.	222	14	9	5	6	68
	Normal.....	36	45	23	17	6.6				70			3.31	NW.	166	7	12	9	10	
Mar.	1895.....	42	50	34	16	6.2	74	22	52	62	65	58	2.59	NW.	222	12	10	9	14	59
	Normal.....	41	50	32	18	5.7				60			4.20	NW.	204	8	13	10	12	
Apr.	1895.....	54	63	45	18	5.0	86	33	53	64	68	61	6.26	NE.	209	11	8	11	13	52
	Normal.....	53	63	43	20	5.2				63			3.16	NW.	204	9	12	9	11	
May	1895.....	63	72	53	19	4.0	95	40	55	73	77	68	3.09	S.	160	9	13	9	17	62
	Normal.....	64	74	54	20	4.6				66			3.90	S.	149	10	12	9	11	
June	1895.....	75	85	65	20	2.8	98	53	45	72	74	71	4.34	NE.	130	16	9	5	12	80
	Normal.....	73	83	63	20	3.7				68			4.29	S.	136	9	15	6	11	
July	1895.....	73	82	64	19	3.8	94	52	42	75	77	73	4.50	NW.	118	14	7	10	14	71
	Normal.....	77	86	68	18	3.1				68			4.65	S.	127	10	14	7	11	
Aug.	1895.....	77	88	67	21	3.1	97	54	43	72	76	68	1.26	S.	123	18	12	1	9	78
	Normal.....	75	84	66	18	3.0				73			4.44	S.	114	10	13	8	12	
Sept.	1895.....	72	83	62	21	4.9	98	45	53	73	76	69	1.11	S.	129	18	11	1	5	77
	Normal.....	64	77	59	18	3.7				74			3.98	S.	125	11	11	8	8	
Oct.	1895.....	52	63	41	23	4.8	74	29	45	64	71	58	1.94	NW.	170	25	4	2	4	79
	Normal.....	57	66	48	18	4.8				72			3.27	S.	132	12	11	8	9	

\* Relative humidity.

### **ERRATA.**

In Table II, page 201, the population of Philadelphia, Baltimore, and Cleveland is that given by the Census of 1890 ; the population of New York, Chicago, San Francisco, New Orleans, Washington, and Allegheny is estimated.

## HEALTH RECORD AND MORTALITY IN 1895.

The total number of deaths in 1895 was 5,368, with a general death rate of 19.84 per 1,000.

The extraordinary prevalence of certain diseases in the District during the past year does not point to any defects in government or in the administration of the health office. It is a significant fact that, although there has been a great increase in malarial diseases and in typhoid fever during certain months of the year, yet the total mortality for the fiscal year ending in June last was lower by 436 than in the previous year, and that this mortality was lowered by a reduction of deaths in the class over which the health regulations have the most control.

Existing health regulations are powerless to prevent the spread of malarial diseases and typhoid fever. These are due to conditions over which we do not have control, and which are at present beyond our power to control. The report of this committee will show what these conditions are and how wise are the efforts which the Commissioners of the District are now making to regenerate the city by all the means which science and intelligence can give them. Table II shows the relative mortality from certain diseases in nine cities of the United States.

TABLE II.—*Number of deaths from causes mentioned in table below in nine cities during months of July, August, and September, 1895.*

Cities.	Popu- lation.	Inter- mittent fever.	Ratio of deaths to 10,000 popula- tion.	Inflam- mation of intes- tines.	Ratio of deaths to 10,000 popula- tion.	Diph- theria.	Ratio of deaths to 10,000 popula- tion.
New York .....	* 1,861,714	19	.10	2,422	13.01	338	1.86
Chicago .....	* 1,600,000	6	.03	2,041	12.71	279	1.76
Philadelphia .....	† 1,046,964	5	.04	629	6.00	179	1.71
Baltimore .....	† 434,439					56	1.28
San Francisco .....	* 330,000	1	.03	2	.06	2	.06
New Orleans .....	* 275,000	32	1.16	54	1.96	9	.32
Washington .....	* 270,514	12	.44	452	16.62	11	.40
Cleveland .....	† 261,353					12	.45
Allegheny .....	* 120,000			135	11.25	12	1.00

  

Cities.	Con- sump- tion.	Ratio of deaths to 10,000 popula- tion.	Typhoid fever.	Ratio of deaths to 10,000 popula- tion.	Whoop- ing cough.	Ratio of deaths to 10,000 popula- tion.
New York .....	1,210	6.49	117	.62	196	1.05
Chicago .....	535	3.34	192	1.20	39	1.14
Philadelphia .....	454	4.33	86	.82	55	.52
Baltimore .....	187	4.34	46	1.05	25	.57
San Francisco .....	231	7.00	31	.93	2	.06
New Orleans .....	116	4.21	14	.50	3	.10
Washington .....	174	6.43	95	3.51	17	.62
Cleveland .....	89	3.40	26	.99	1	.03
Allegheny .....	26	2.16	35	2.91	4	.33

\* Census of 1890.

† Estimated population.

## SPECIAL CONDITIONS INFLUENCING HEALTH—THE PUBLIC SCHOOLS.

The special conditions which influence health in the city and the District are numerous, and must be taken into account in explaining the extent and fatality of certain diseases. The relation of the city to the river and the Eastern Branch, and the proximity of large areas of swamp land which spread their baneful exhalations far and wide, present the most interesting problems for study. This subject will be fully considered under the head of malarial diseases. Other special causes of disease, such as defective sewerage, soil saturation, and impure water supply, find their appropriate place in connection with typhoid fever.

It is difficult to base any observations upon the mode of life of the community as a whole, or to find any reasons for suggestions of improvement, but there is one form of daily life the details of which are open to us and which are under our control. Every day 40,000 children, between the ages of 6 and 16, leave their homes and for six hours are under the exclusive care of the state, obeying the rules of a central authority. No greater opportunities could be afforded for the study of problems of the highest value to the com-

munity, because they deal with the health and well-being of children who are to become citizens and the fathers and mothers of another generation. Thus the air which these 40,000 children breathe, the temperature of their school rooms, the direction and intensity of the light which falls on their books, the time and place of their midday recreation, and many other matters equally important, have been subjects of study in which both experience and science have taken part. At the present time we may say that the public school system is approaching perfection in many of its details, and that children are well housed, well cared for, and well taught under public guardianship.

As physicians, we are brought into daily contact with these children; we become aware of the effects of the system upon the individual and of the influence which uniformity of management has upon children of different ages and varying constitution. We see, too, that there are faults in the machinery, and it is for us to suggest and insist upon the needed alterations. In the first place, although it has been shown that there is a progressive deterioration in the eyesight of pupils as they pass from one grade to another, no systematic attention is paid to remedying the defect and preventing further injury to vision. As early correction of such defects will delay their increase or prevent them altogether, and will avert the development of symptoms in the nervous system which are the direct consequences of long-continued eye strain, the eyes of each child should be subjected to repeated examinations, and treatment by the use of glasses or otherwise be insisted on when such treatment is needed, before the child is allowed to continue his studies.

Every teacher should receive instructions that will enable her to detect the signs of illness or failing health in children under her care, and each child presenting suspicious symptoms should be subjected to medical examination. Children who exhibit symptoms of loss of strength or flesh, who are markedly anæmic, who have choreic movements, constant headache or cough, who are irritable or dull, should be removed from school.

The number of subjects studied, the nature of the studies, and the time of confinement in doors, should not be the same for the strong and the weak alike. A child who is unable to compete with superior children and who will break down under the strain of such competition, should not be deprived of the benefits of education. Some provision should be made for feeble, delicate children who are not ill enough to be excluded altogether from the schools.

#### *Alcoholism and inebriety.*

The importance of the effects of alcoholic indulgence upon the health and morals of the community can not be overlooked. No one can fail to recognize the bearing it has upon the prevalence of disease, crime, and suffering. Although the drink habit may not be a direct cause of death in a very large number of cases, yet it is an active predisposing cause of disease and has the most powerful influence in bringing about unfavorable results. The actual number of deaths attributed to this cause is no doubt much greater than is indicated by mortality returns. A death from pneumonia developing after a debauch figures as a death from pneumonia, but the most potent cause of death was not the pulmonary lesion, but the condition of the individual due to alcoholic excess.

The following table gives the number of reported deaths from alcoholism during the past ten years:

TABLE III.—Deaths from alcoholism for ten years, July 1, 1885, to June 30, 1895.

Years.	M. W.	F. W.	M. C.	F. C.	Total.
1886.....	12	1	6	.....	19
1887.....	15	2	3	.....	22
1888.....	15	7	2	.....	24
1889.....	9	3	.....	.....	12
1890.....	18	5	1	2	26
1891.....	13	2	3	2	20
1892.....	8	5	5	1	19
1893.....	10	3	3	.....	17
1894.....	15	1	1	2	24
1895.....	19	.....	.....	.....	21

The highest number of deaths from alcoholism was 26, in 1890; the lowest 17, in 1893. Notwithstanding the increase in population, the number of deaths from this cause has not increased from year to year.

The following records from police statistics have an important bearing upon this sub-

ject : 2,823 arrests for intoxication were made in 1893-94, 2,816 in 1894-95. Of these, 25 were under 16 years of age ; 18 colored and 7 white ; 2 were females, the rest males. These figures include 13 under 16 years of age who were arrested for disorderly conduct in connection with intoxication.

As intoxication is not an offense in the District, most of these were dismissed without punishment.

Although intoxication in the streets may not be increasing, yet the miserable sufferers from the alcoholic habit make up a large proportion of the habitués of the police court, and crowd the workhouse, penitentiary, and asylum hospital. These sufferers from what is often an incurable disease, demand our care, for while we minister to the wants of any other disease we strongly neglect this. For a long time the District has been sadly in need of a hospital for inebriates. Such an institution is as much needed as a hospital for the insane, and if one could be established here for the inebriate poor, who get no surcease from sorrow except when they are behind the bars of the workhouse or jail, a great deal of good would be done. This hospital should be conducted under proper auspices, with a competent medical superintendent and assistants.

#### MALARIAL DISEASES.

Reports have been received from 76 physicians as to the relative prevalence of malarial diseases during the year 1895 as compared with previous years. These reports, with three or four exceptions, were from the northwest section of the city.

Forty-eight of them state a marked increase, 10 of these indicating an increment of 100 to 200 per cent. Eighteen report no material change and 9 "fewer cases than usual." Of the 18 reporting no increase, 4 were specialists not engaged in general practice, and 4 are unknown, having signed no name. There were 6 who are known to have been in general practice for several years. Of these 6, one reports 8 cases of remittent ; two, 10 cases ; one, 17 ; one, 20, and one 25—an average of 15 cases each of remittent fever, while the average of the whole 74 is about 4. Of the 9 reporting fewer cases than usual, 4 are specialists and 3 signed no name, leaving 2 only who are known to be in general practice. The tendency of these reports, as a whole, is to show an increase in malarial fevers in the northwest section of about 100 per cent.

At Providence Hospital the cases of intermittent fever treated in 1893 numbered 59, in 1894, 112, and 1895, 186. There were 2 cases of remittent fever in 1893, 33 in 1894, and 16 in 1895. During this period there was an increase of 13 per cent in the total number of patients treated, and an increase of 200 per cent in intermittent, and of 800 per cent in remittent, fevers.

At the Emergency Hospital clinic for general diseases, 333 cases of malarial disease were treated in 1895 and 135 in 1894, an increase of about 250 per cent, with no great increase in the number of patients.

In many of these cases the diagnosis was confirmed by finding the malarial organism in the blood, but only 14 cases are officially reported as confirmed by blood examination, as no record was kept of this work until late in the season. Appended reports from the Washington Barracks show a steady increase from 1891, when there were 68 cases of malarial fever, to 1885, when there were 198 cases.

The rate per 1,000 for 1891 was 29 ; for 1892, 53 ; for 1893, 67 ; for 1894, 54 ; and for 1895, 100. These figures show twice as many cases in 1895 as in 1894, and nearly four times as many per 1,000 as in 1891.

Appended reports from Fort Myer show that with the same number of troops, there were in 1892, 30 cases of intermittent fever ; 1893 there were 152 cases ; in 1894, 131 cases ; and in 1895, 228 cases ; an increase of 760 per cent over 1892, and about 100 per cent over 1893 and 1894. This is an increase of 1,000 per cent over 1891, when there were 8 cases, with half the number of men. The cases of remittent fever, 35 in number, were more than three times as numerous in 1895 as in any year except 1892, when there were 82 cases.

Dr. Reed, of the Army Medical Museum, informs us that Fort Myer and the Washington Barracks have led all military posts in the United States in the percentage of malarial diseases during the present year.

Reports from the Navy-Yard show a steady increase in malarial fevers since 1890. In 1887, 8 per cent of the men were affected ; in 1888, 13 per cent ; in 1889, 12 per cent ; in 1890, only 3 per cent ; in 1891, 9 per cent ; in 1892, 45 per cent ; in 1893, 70 per cent ; in 1894, 40 per cent ; in 1895, of the seamen, 100 per cent, and of the marines, 76 per cent were affected.

Here we have for a number of years an average of about 10 per cent, and then the percentage rises suddenly to 40, 70, and finally nearly to 100 in 1895.

Reports from St. Elizabeth's are to the effect that malarial diseases have more than doubled in the last three years, and the same statement is received from the Washington Asylum.

Statistics from the health office show 59 deaths from intermittent and remittent fevers from January 1 to October 31 in 1895, and only 24 deaths from the same causes for the same months in 1893-4. This is an increase of 250 per cent, in spite of the fact that many cases are now diagnosed as typhoid fever which a year ago would have been called remittent fever. This change of diagnosis is shown by the fact that for the same periods there has been a decrease in the deaths attributed to typhomalarial fever from 23 to 8. And this will account for some of the increase in the typhoid fever death rate.

In this connection it is pertinent to call attention to an article by Osler in the Medical News for November 23, 1895, on "The practical value of Laveran's discoveries." He says: "The United States census report for 1890, recently issued, which covers the six years ending May, 1890, gives the following number of deaths from malaria, to which I add, for comparison, those of typhoid fever:"

TABLE IV.

	Malarial diseases.	Typhoid fever.
Washington .....	500	850
Baltimore.....	934	904
New York .....	2,060	2,031
Brooklyn .....	1,413	1,002

"That in Baltimore, Brooklyn, and New York the deaths from malarial fever exceeded those from typhoid will no doubt be read with astonishment. Any reasonable physician in Baltimore and Philadelphia will at once acknowledge that a death from malarial fever is a great rarity, while deaths from typhoid are only too common."

He then takes the reports of all the large New York hospitals and shows that there were not more than 4 to 5 deaths in them all from malaria, and most of these from the pernicious form, and that the ratio of deaths from malarial diseases in the New York and Brooklyn hospitals compared with deaths from all causes is about 1 to 1,000.

The various reports received by your committee show that malarial diseases have greatly increased in all sections of the District, and particularly in the northeast section. The cause of this increase at Fort Myer is attributed to bad water, great upturning of the soil in making roads and grading the grounds, and to the rank growth of weeds in the surrounding fields. At the Navy-Yard and at St. Elizabeth's it is attributed to changes made in the Anacostia River three or four years ago.

Surgeon John C. Wise, of the Navy-Yard, says: "Medical officers, both at the Yard and receiving ship, have frequently referred to the increase of malarial diseases. Since the partial improvement of the flats of the Anacostia River the increase has been marked and regular. Prior to the improvements it was only at unusually low tide that the flats were uncovered, but by diversion of the water into the swash channel a shallow morass has been formed, a veritable hotbed for the generation of malarial poison."

Dr. Godding, superintendent of the Government Hospital for the Insane, in his report, writes as follows: "In the three years since the mud bars were thrown up to cut off the swash channel on the river front adjoining the hospital grounds the consumption of quinine by the inmates has been more than doubled, while the unaided efforts of nature have made but slow progress in filling up the broad expanse of nearly stagnant water that each low tide changes to mud that has no salt to savor it, and it is a constant menace to St. Elizabeth."

There is little doubt but that all the above-mentioned causes have been operative and that climatic conditions have been unusually favorable to the development of the malarial organism during the past year.

A special report prepared by the chief of the Weather Bureau for your committee shows that January, 1895, was colder than the normal, February was very much colder, March and April were slightly warmer, May was colder, June considerably warmer, July much colder, August considerably warmer, September very much warmer, and October colder. The mean daily variations in July and September were very great. Warm weather began early and persisted a month longer than usual, while the temperature throughout the whole summer and fall has been remarkably variable. The thermometer ranged from 95° to 40° in May—unusually high and unusually low—from 98° to 53° in June, from 94° to 52° in July, from 97° to 54° in August, and from 98° to 45° in September. These remarkable variations and the prolonged hot weather, no doubt, contributed in considerable degree to the increase. The mean relative humidity was great in July and less than normal in August, September, and October. But there were some hot days in August and September, when the relative humidity was very high. The rainfall was 6½ inches, or twice the normal amount in April, and

only about one-third of the normal in August, September, and October. August and September had 1 cloudy day each, 8 being the average, or normal. In June and July the prevailing winds were northerly, whereas they should have been from the south.

The reports, however, from Washington Barracks, Fort Myer, St. Elizabeth, and the Navy-Yard show that there has been a steady increase of malarial disease for three, four, or five years that began simultaneously with the improvements to the eastern branch. And while the increase was greater than ever in 1895, and was probably due in part to unavoidable climatic conditions, still there is strong evidence in these reports to show that the condition of the Anacostia River is the prime factor. And when we bear in mind that there are comparatively few individuals in Washington who do not make at least one or two river excursions during the summer, passing by this dangerous region, usually during the night, there is good ground for believing that the eastern branch may be responsible for many cases occurring in remote parts of the city.

Certainly the conditions there existing are a source of much ill health as well as a blot on the beauty of our city. These conditions are remediable, and the remedy should be applied at once, as has been done to the Washington channel. The condition of the newly made flats or parks on the river front is also far from what it ought to be. This ground for several years has been covered with a rank growth of weeds from 6 to 15 feet in height, a condition most favorable for the development of malaria. The ground should be leveled and covered with a good sod of grass, trees and grass being known to be unfavorable for the development of malaria, while tall weeds favor it.

Stagnant water in various parts of the city, and wet areas of soil, even if small, should be removed or covered with asphalt. Well-authenticated instances are recorded of epidemics of malaria in a house due to the outflow of a rain-water barrel under the window. There has been some improvement of wet alleys and dirty alleys, but there are many small local causes for malaria existing throughout the District that have been more or less overlooked or ignored.

The committee is indebted for important information on this subject to Surgeon John C. Wise, U. S. N., of the Navy-Yard; to Surgeon Geo. W. Adair, U. S. A., of the Washington Barracks, and to Surgeon Mears of Fort Myer.

The following table based upon reports made to the committee from some of the principal hospitals of the country show that there has been a notable increase in malarial diseases in certain cities in 1895 as compared with 1894:

TABLE V.

Hospitals.	No. of cases of malarial diseases.	
	1894.	1895.
Johns Hopkins Hospital, Baltimore, Md.....	79	130
Cook County Hospital, Chicago, Ill.....	67	109
Cincinnati Hospital, Cincinnati, Ohio.....	35	51
Louisville Hospital, Louisville, Ky.....	54	41
Bellevue Hospital, New York.....	124	206
Massachusetts General Hospital, Boston, Mass.....	22	37

#### TYPHOID FEVER PREVALENCE AND MORTALITY.

The extent to which typhoid fever has prevailed during the past year has been a subject of earnest inquiry and discussion.

The total number of deaths from January, 1895, to January, 1896, was 221.

TABLE VI.—*Mortality by months, 1894 and 1895.*

	1894.	1895.		1894.	1895.
January.....	10	3	August.....	30	27
February.....	5	8	September.....	26	56
March.....	5	2	October.....	30	54
April.....	6	1	November.....	24	24
May.....	5	6	December.....	16	20
June.....	20	8			
July.....	33	12	Total.....	210	221



The following table will show the mortality of 1895 as compared with the previous 14 years :

TABLE VII.—*Typhoid fever in the District of Columbia, 1891 to 1895, inclusive.*

Years	Population (estimated).	Deaths from typhoid fever.	Ratio of deaths from typhoid fever to 1,000 deaths from all causes.	Ratio of deaths from typhoid fever to each 10,000 population.	Total deaths.
1881.....	183,000	67	16.2	3.6	4,136
1882.....	188,653	120	26.2	6.3	4,571
1883.....	191,980	92	21.4	4.8	4,286
1884.....	200,000	76	16.0	3.8	4,814
1885.....	200,000	124	25.0	6.2	4,998
1886.....	205,000	125	27.2	6.2	4,674
1887.....	210,000	116	25.0	5.5	4,685
1888.....	225,000	168	33.6	7.4	5,040
1889.....	250,000	170	33.3	6.8	5,152
1890.....	250,000	208	37.7	8.3	5,564
1891.....	250,000	208	36.6	8.3	5,720
1892.....	260,000	183	30.4	7.0	6,098
1893.....	263,000	186	28.8	7.1	6,452
1894.....	265,000	210	34.7	7.9	6,039
1895.....	268,000	221	37.9	8.2	5,565

The total number of cases reported to the health officer was 428. There were collected by the committee, reports of 453 cases; of these, 272 had been also reported to the health officer, which would be an addition of 181 cases, or a total number reported by 207 physicians of 609 cases.

By adding the 181 cases collected by the committee to the 436 cases reported to the health officer, the following is the distribution by regions:

TABLE VIII.

Sections.	Estimated population, 1895.	Cases of typhoid fever.	Ratio of cases of typhoid fever to each 10,000 of population in each region.
1. South.....	65,328	92	14.08
2. Northeast.....	27,417	*89	32.46
3. Central.....	74,408	151	20.29
4. Northwest.....	52,467	83	15.81
5. Georgetown.....	17,045	22	12.90
6. County.....	31,950	*115	36.00

\* No additional cases reported from these sections.

In endeavoring to estimate the number of cases, a calculation based upon the deaths and an assumed mortality of 18 per cent would show that there were during the year 1,228 cases. On the same basis there were 17 cases in January, 45 in February, 12 in March, 5 in April, 34 in May, 44 in June, 66 in July, 150 in August, 311 in September, 300 in October, 133 in November, 111 in December.

TABLE IX.—*Table of estimated number of cases of typhoid fever for ten years.*

Year.	Deaths from typhoid fever.	Estimated number of cases.	Year.	Deaths from typhoid fever.	Estimated number of cases.
1885.....	124	688	1891.....	208	1,155
1886.....	125	694	1892.....	183	1,017
1887.....	116	644	1893.....	186	1,033
1888.....	168	931	1894.....	210	1,166
1889.....	170	944	1895.....	221	1,228
1890.....	208	* 1,155			

The great discrepancy between the estimated number of cases of typhoid fever, 1,288, and the number of cases actually reported, 609, must be due to one circumstance only,

namely, that a large number of cases of typhoid fever are not recognized as such, but are classed as malarial fevers.

If the number of cases was actually not above 700, the deaths being 221, our mortality would be 31.66; that is, a little more than one-third of the cases end fatally, which is incredible.

These conditions serve to show the great importance of a revision of our knowledge on the subject of typhoid fever. For the knowledge we have must be very defective if it permits such inaccuracy and uncertainty as is here shown. In any case, it is the duty of physicians to do all that is possible to insure an accurate diagnosis in cases of doubtful nature.

In considering the unusual prevalence of typhoid fever during the year past, the question arises as to the extent of its prevalence elsewhere.

The table below will show the position of the death rate of Washington from typhoid fever as compared with other cities.

TABLE X.—*Table of mortality in certain cities from typhoid fever during the months of July, August, September, and October, 1895, with the ratio to 10,000 population.*

	Number of deaths.	Ratio.	Population.
Allegheny, Pa.....	61	5.83	120,000
Washington, D. C.....	136	5.03	275,500
Pittsburg, Pa.....	80	2.94	272,000
Baltimore, Md.....	75	1.73	*434,439
Chicago, Ill.....	271	1.69	1,600,000
Cleveland, Ohio.....	40	1.53	*261,353
San Francisco, Cal.....	39	1.18	330,000
Philadelphia, Pa.....	120	1.14	1,163,864
New York, N. Y.....	157	.84	1,892,332
New Orleans, La.....	20	.42	275,000
Brooklyn, N. Y.....	90	.81	1,100,000

\* Census of 1890.

One of the most sudden and alarming outbreaks occurred in Stamford, Conn. (population, 18,000), in April last (1895). It began on April 15 and spread rapidly; 32 cases were reported in one day, and on the 27th there were 184 cases in the town. The epidemic was rapidly traced to the milk infected by washing cans with contaminated water from a foul well.

From these figures it is seen that Washington has had a larger death rate from typhoid fever and presumably a greater number of cases than the other cities named, with the exception of Allegheny, Pa.

The conclusion can safely be drawn from this that local conditions predisposing to or causing typhoid fever have been more active here than in the other cities. What these conditions are will be considered later. But it can not be assumed that the epidemic influence has been originated by local conditions which have not existed in great activity elsewhere, or that the increase in mortality over previous years has been manifested in this locality alone. On the contrary, a study of the epidemiology of the United States during the same period will show that there has been a universal tendency to epidemics of typhoid fever during the past year. This has been more marked in towns and cities which do not compile their statistics, and the knowledge of such outbreaks reaches us only through the medical journals and the public press.

An universal prevalence of typhoid fever has been noted in various cities and towns both in the west and east.

At Lancaster, Pa., with a population of 40,000, there were 100 cases under treatment at one time. In Pittsburg and Allegheny during the past summer there was an epidemic which excited a great deal of discussion and alarm. At one time in the Pittsburg hospital, there were 118 cases under treatment. In Oil City, Pa., population of 10,932, 174 cases occurred in three months; 5 of these were in January, 4 in February, and 165 in March.

In various towns of Illinois, Michigan, and other States epidemics have occurred. At Watertown, N. Y., there were on May 11, 150 cases in a population of 14,725. Yet in none of these cities whose records are accessible was the relative or actual mortality as high as it was in Washington.

#### CAUSE OF PREVALENCE OF TYPHOID FEVER IN THE DISTRICT OF COLUMBIA.

The recent investigation made under the authority of the health officer into the prevalence of typhoid fever in 1895 is of great interest and value. The report is a careful collection of facts that adds very much to the definiteness of our knowledge, and strengthens

the belief that contaminated well water is the chief but not the only agent in the diffusion of the disease.

The conclusion of the committee of 1894 was inferential and based upon the coexistence of the largest number of privies in the same localities with the largest number of cases of typhoid fever. Dr. Kober's personal investigation of 436 cases has shown that this inference was justified; that 289 cases, or 66.28 per cent, were consumers of well water, and that 132, or 30.27 per cent, drank Potomac water, 3 cases drinking Columbia lithia water, and 3 melted ice.

An examination of the well water thus consumed shows, according to the analyses made by Dr. Kinyoun, that out of a total of 81 analyses of samples from wells and 10 from springs, 21 analyses demonstrated bacilli belonging to the sewage group; 20 analyses had suspicious characters. The 21 analyses containing intestinal bacilli were from wells distributed as follows: Five were in Takoma, 4 in county, 1 in Brightwood, 1 in Brookland, Ivy City, 1; Georgetown, 1; northwest section of city, 11; northeast, 1. The suspicious wells were distributed as follows: Northeast section of city, 5; northwest, 4; southeast, 3; Brightwood, 2; Ivy City, 2; Sheridan avenue, 1; Anacostia, 1; Columbia lithia spring, 1. In over 60 analyses there were no bacilli or suspicious features.

There can be no doubt in the mind of anyone as to the mode by which the wells are contaminated. The saturation of the soil with the excreta of patients suffering from enteric fever is now going on in every house where there are no sewer connections to carry off these discharges. Every box privy may be considered as a possible source of soil pollution, as it is not possible as they are at present constructed to make them watertight. In 1894 there were 8,959 boxes in use; no special census has been taken since then and there is no way of determining the number in use at this date. The Odorless Excavating Company, which has the contract, reports a decrease in business and believes that the present number is not so great as this. During the year ending June 30, 1895, there were 4,372 reported as full, 746 as leaking, 5,201 in a bad and filthy condition, and 230 in a state of dilapidation. These figures show that the danger is increasing rather than diminishing. In 1892 there were 465 leaking boxes as compared with 746 in the past year. The number of old and worn-out boxes reported for nine years ending June 30, 1891, averaged 70 each year; in the past year there were 230 so reported. Such a great increase in "dilapidation" and "leakage" indicates that the boxes scattered throughout the city are becoming with each year more unfit for the purpose for which they are used, and that the saturation of the soil is increasing to an alarming extent. How much of the great increase of typhoid fever during the past year is due to this cause it is impossible to say, but it is beyond question that these conditions associated with the drinking of well water are the most favorable ones that could be created for the diffusion of the poison of enteric fever.

The number of pumps on June 30, 1894, was 216. During the year to June 30, 1895, 47 of these were abandoned, and since June, 11 have been closed. The number in use now is 160. Three-fourths of those in use eighteen months ago are in use now, and while the work of removal of this source of infection is going on, the question arises whether the positive danger does not require a more rapid and complete closure of wells, even if they are not found to be contaminated at the moment of examination. It is a matter of congratulation that 150 pumps have been abandoned since 1889, and that, although in the five years preceding the agitation of this subject the average annual reduction of wells was 12, during the year past 47 have been closed a rate four times as rapid as during previous years.

This result is a fair measure of the vigor and activity of the health office under its new administration.

#### SEWERS AND SEWERAGE.

If wells are closed and if the boxes are removed a sewerage system is needed for carrying off the excreta, and water must be supplied in abundance, both for domestic use and for flushing the sewers. These form parts of one system; a sewerage city is impossible without water supply, and abundant water does but little good if it does not serve to wash the city clean of its daily waste and filth. The discussions and letters to the press, in which claims are made as to the greater benefit of abundant water over sewerage, show an ignorance of the fact that sewerage and water are mutually dependent—in cities one is incomplete without the other.

The present sewerage system of the city is defective; to obtain the best results the plan proposed by the Commissioners, and now before Congress, must be adopted. With the financial and business aspects of the question we, as physicians and health conservators, have nothing to do. At various times during the past year the president of the society and other members have aided in a movement to bring these questions before the public, and to demonstrate the rapid improvement in the health of cities with the

completion of a sewerage system, and the great difference in the mortality from typhoid fever in seweraged and unsewered cities. If this relation exists between perfect sewerage and health and imperfect sewerage and a high death rate from typhoid fever, it is our duty to make the facts known. It is for public men and legislators to devise the means and the methods.

The imperfections in the present sewerage system are well known; the defects lie in the radical faults in construction, and in the incapacity to carry off the sewage of our rapidly growing population as well as the storm water of newly extended areas. The proposed capacity of projected intercepting sewers is at the rate of 20 cubic feet (150 gallons) per capita per day for a population of 500,000. We shall need all of this.

New Orleans is to have a new sewerage system at an estimated cost of \$8,000,000. It is being built by a company, which will make a charge of 85 cents to \$2 per month to each house owner for the improvement. The city has the right after twenty years to purchase the plant. It is believed that the mortality will be reduced 20 per cent by the change.

The City of Mexico is about to undertake the reconstruction of its sewers at an estimated cost of \$6,000,000 to \$10,000,000, and with an estimated reduction of one-half of the present heavy death rate.

This question of sewerage is agitating many other communities than ours; in Chicago, Cleveland, Syracuse, and Albany it is a burning question, and the people seem to be learning that money can not be better spent than in averting death. As the Albany Telegram says: "Many men prefer to dig sewers than graves," and certainly all men prefer to spend money for sewerage than for lots in cemeteries. Sewers at any price are cheaper.

A great deal of work is being done by the engineering department of the city government in the laying of new pipe sewers and in the taking up and relaying old pipe sewers. During the year 1,938 house connections were made.

The Tiber Creek sewer, which is one of the great sources of danger from overflow and from the filling up with reflux of sand and mud, has been cleaned at a cost of \$1,450 for the year. Owing to the few heavy rainfalls the overflow has been less than usual.

#### SEWAGE DISPOSAL.

When sewers are constructed one of the most important questions is where shall they be emptied. A community which saves itself from infection by pouring its filth into a river, the water of which is used by other communities, is not to be commended for its science or for its humanity. Rivers and lakes should not be made public sewers; they should not be receptacles for the filth of cities and sources of drinking water at the same time. We know that Chicago and Cleveland poisoned themselves with their own sewage. At Cleveland the Cuyahoga River pours the sewage of the city into the lake, and 2 miles from the shore the water was found to be polluted, and yet the intake of drinking water from the lake was only  $1\frac{1}{2}$  miles from the shore. In seven years there were 1,044 deaths from typhoid fever in Cleveland, or about 3 per cent of the entire mortality.

The golden rule applies very directly to every community; even if we are not greatly injured by the pollution of our river we have no right to put the lives of others in jeopardy by polluting it.

The safe disposal of sewage is a vital question, therefore, and sooner or later scientific methods must take the place of the river-poisoning method that is now employed. The experiments of Mr. Dibdin, chemist of the London county council, demonstrated that sewage can be purified to any required degree by aeration and filtration; 180 acres of coke breeze (cinders) is sufficient to purify the whole daily sewage of London, amounting to 180,000,000 gallons. In Glasgow the sewage water after filtration is perfectly clear, and the filtered solid matter is mixed with ashes and sold as a fertilizer. Some such system must sooner or later be adopted here.

#### WATER SUPPLY FROM POTOMAC RIVER.

An abundant supply of water from the Potomac is essential to the flushing of pipes and sewers and the safe discharge of sewage. In Washington we get 215 gallons per capita per day. Not more than one-fourth of this quantity, or 50 gallons, is used for domestic purposes, and of the 49,162,357 gallons which is supplied every twenty-four hours, the greater part is wasted.

But purity is as necessary as quantity, and the agitation of the subject of the purification of the Potomac water is forced upon us, as physicians, by every recent addition to our knowledge of the subject. The late examinations reported by Dr. Kinyoun in connection with Dr. Kober's report, show that the water of the Potomac has been found to

be suspicious or to contain intestinal bacilli in numerous instances. Colonel Elliot, in his report of 1894, says that "under the present conditions there appears to be no cause for apprehension respecting the healthfulness of the Potomac water as delivered by the river into the intake of the aqueduct at Great Falls." He bases this opinion largely upon the facts of the self-purification of rivers under natural conditions. Investigations at Zurich (Switzerland) show that in the water of the river Limmat there is a rapid disappearance of bacteria below the point where the sewage of the city empties into this river. The mean decrease of bacteria in the first 6 miles is 40 per cent, and at this rate 6 miles below, the bacteria would be reduced to the normal number of the lake water. "A river flowing at the mean velocity of 4 miles per hour will purify itself within a distance of about 16 miles from the point of pollution."

"The nearest town of any size above Great Falls is Harpers Ferry, which is distant 41 miles, so that the pollution from this source may be supposed to be eliminated long before it reaches the intake. But it is not only towns which infect the river; the washings of the hills carry with them whatever filth there may be at any point on its banks. The letters obtained by Dr. Kober show to what extent the river is the receptacle for fecal matter, and what Dr. Miller of Cumberland says of his city is true of every hamlet and farmhouse along the banks, that the entire outlet for waste material is the Potomac River. All closets are cleaned and refuse deposited on soil drained into or dumped directly into the river, while many sewers and closets open directly into streams which flow into it.

What another correspondent of Shepherdstown says of his locality is true of the whole river: "The greatest source of pollution of the Potomac is the canal. All slops and filth of every kind—dead animals and manure from stables—are thrown into the canal by boatmen, and the people living along it also use it for very much the same purpose. The water from the canal is continually washed by leaks into the river, which must thus be extensively polluted." Typhoid fever prevails along the Potomac River at all points, its tributary streams and the canal receive the dejecta from all such cases, and it can not be asserted that self-purification can take place to the extent needed to protect us against all possible danger of infection.

The following table from Colonel Elliot's report gives the principal towns along the Potomac, their distance above the Great Falls, and their population:

TABLE XI.—*Towns on the Potomac River.*

	Distance above Great Falls (miles).	Popula- tion.		Distance above Great Falls (miles).	Popula- tion.
Harpers Ferry, W. Va....	44	958	Hancock, Md.....	84	815
Shepherdstown, W. Va...	54	1,515	Cumberland, Md.....	127	12,729
Charlestown, W. Va.....	54	2,016	Keyser, W. Va.....	147	1,693
Williamsport, Md.....	75	1,277	Piedmont, W. Va.....	152	1,853
Front Royal, Va.....	84	829			

There are over 23,000 people living along the river in towns of from 800 to 12,000 inhabitants; the number living outside of towns, in villages, hamlets, etc., can not be estimated, but they are numbered by thousands and there are innumerable possibilities of river infection with the typhoid bacillus from other sources than towns. The history of various epidemics proves that it is not the amount of infection which is to be considered, but the fact of infection, and there are many arguments from experience against the idea of efficiency of self-purification of rivers. It can not be relied on to protect Washington against the dangers of impure water. Nine years ago it was asserted that the Hudson River water supplying the city of Albany was perfectly pure. In February, 1895, Albany, with a population of 100,000, led all the cities of the State in its death rate from typhoid fever; in March there were 175 cases, 71 new cases occurring in one week. From January to April there were 398 cases, with 65 deaths. It is now known that the sewage contamination of the Hudson is a crying evil, and that there can be no health for any city which gets its drinking water therefrom. The Delaware River below Trenton has 8 to 10 per cent of sewage. The death rate from typhoid fever in Camden, which gets its water directly from the Delaware, is very high, and the people of that city are urgently demanding relief from the drinking of dilute sewage. The Ohio River, before it reaches Cincinnati, receives the sewage and surface drainage of 100 cities and towns. This dilute sewage is pumped into the reservoirs of Cincinnati and served to the people. In 1894, in Cincinnati, there were 761 cases of typhoid fever, with 169 deaths. Cincinnati returns to the Ohio 3,600,000 gallons of sewage.

No constant reliance can be placed upon the efficiency of the natural purification of Potomac water. If all the conditions which bring this about are in perfection, the water

may be freed largely from its dangers. Some of the principal conditions most favorable to purification of river water are the large dilution of the contaminated water by unpolluted streams flowing into it along its course, the natural sedimentation of suspended matter, a rapid current flowing over an uneven surface with a free exposure to sunlight.

In the dry season of the past summer we have an example of how these influences may be reduced in their operation. The dilution from inflowing streams was much lessened, and because of the diminished clay in solution there was less sedimentation of contained organic matter; the lowering of the river bed involved a slower current, with less exposure to air and sunlight. Add to this the greater pollution of the river from an unusual prevalence of typhoid fever, and it is clearly seen how at certain seasons no reliance can be placed upon self-purification of Potomac water. With increasing population along the river the sources of contamination are continually increasing and the efficiency of self-purification constantly diminishing.

There are two methods by which we can secure a pure water supply; one is by enacting laws to prevent the contamination of rivers and streams, and the other to get rid of impurities, and especially bacteria, by artificial sedimentation and filtration. Although bills are pending in Massachusetts and elsewhere to prevent the emptying of the waste from tanneries, mills, dye works, etc., into streams, it is questionable whether there is any justice in preventing the free use of rivers for the carriage of such impurities. It is true that much waste matter can be destroyed and that sewage can be rendered less dangerous by proper treatment, but for large stretches of country the river must still continue to be a sewer.

The second method, then, must be the only feasible one, namely, the purification of water used for domestic purposes by treatment before it is sent into the pipes. House filtration has been shown to be useless in getting rid of bacteria.

#### PURIFICATION OF THE WATER SUPPLY BY FILTRATION.

In Europe 20,000,000 people are now regularly supplied with filtered water. This number about equals the total population of the cities of the United States which have a public water supply. In London 5,000,000 of people receive 200,000,000 gallons daily of pure filtered water from 120 acres of sand filters. Other cities thus supplied in Europe are Liverpool, Birmingham, Berlin, Leeds, Bradford, Hamburg, Amsterdam, Rotterdam, Antwerp, Breslau, Magdeburg, Warsaw, St. Petersburg, Copenhagen, and Zurich. The facts of the decrease of the death rate with a pure water supply and perfected sewerage have been so often before this society that it is not necessary to repeat them here. The history of Lawrence, Mass., which at one time had a large mortality from typhoid fever, and which now, with filtered water, has a greatly reduced mortality, is one of the most striking examples in this country. For the four years before the use of the filter, the death rate on a basis of 50,000 people was 64. In the first year afterwards there was a reduction of 75 per cent, the death rate being 16. The uniform annual reduction in the death rate is about 60 per cent. In the year 1894 30,000 to 40,000 analyses of the water were made, which proved the success of filtration; about 99½ per cent of bacteria being removed.

The value of sand filtration as the most convenient and effective method for the purification of drinking water is now so generally admitted that it is not necessary to dwell upon it here. That this must be adopted ultimately for the water supply of Washington there can be no doubt. Mechanical filtration, while more rapid, is in the end unsatisfactory and has nothing to recommend it except its lower cost.

The cost of filtration beds and of the maintenance of the system are the only objections to their adoption. That the capital of this great and powerful country should hesitate to adopt means for the preservation of the health and lives of its population, which have been used for years in such cities as Rotterdam, Breslau, and Copenhagen does not argue strongly for our enlightenment as compared with theirs. We do not allow ourselves to be surpassed in the art of war, and we claim to lead in many of the arts of peace, but in the adoption of methods for preserving the lives of the people we have not yet reached the public spirit and intelligence of the Governments of England, Germany, Switzerland, and Russia. And yet the growth of knowledge on this subject has been so rapid that we may confidently hope for early and very efficient action by Congress, which has already shown itself ready to act when once convinced.

The cost of the new water supply of Boston is \$25,000,000, and there is very little doubt but that all this money will be soon repaid in the lives saved. Indeed, there is no waste of money when it is used to save human life. The original cost at Lawrence, Mass., was \$65,000; the running expenses \$4,000 per year. In one year there were 48 lives saved by sand filtration. Estimating the value of a human life at \$5,000, Lawrence was repaid \$175,000 over and above the cost of investment, and the running expenses are paid out of one life saved every year. The cost of the system rarely

exceeds \$3.50 per inhabitant, and the running expenses, including the interest on the cost of construction, will not exceed 35 cents per inhabitant annually.

Improvement in the water supply of Chicago caused such a falling off in the number of deaths from diarrheal diseases and typhoid fever, that instead of leading the 17 cities with a population of 200,000 or more, it took the sixth place in the list. "If the same death rate had obtained from typhoid fever and diarrheal diseases in 1894 that obtained in the four years immediately preceding, there would be 2,153 persons less living in Chicago than there are to-day" (report of health officer). Thus in four years Chicago saved in money over ten millions of dollars' worth of human lives and prevented an incalculable amount of human suffering.

#### DIARRHEAL DISEASES.

The accompanying tabulated statement of deaths from diarrheal diseases includes only those from enteritis, enterocolitis, diarrhea, and dysentery for the first nine months of 1894 and 1895, respectively. The entire number of deaths from May to September, 1894, inclusive, from gastroenteritis, enteritis, enterocolitis, diarrhea, and dysentery, was 523, while the deaths from the same causes during the same months of the present year have been but 407, a decrease of 116.

Information obtained from reports made by members of the profession to the committee, bears out conclusions formed from a consideration of the number of deaths occurring from these causes during 1894 and 1895 that intestinal diseases during the past summer have been less numerous and less severe. The causes producing the lessened amount of sickness and deaths in 1895 may probably be traced to better paved and consequently cleaner alleys, and to a more rigid inspection of the milk supply.

As regards the temperature, we find that during the months of May to September, inclusive, there were, in 1895, 80 days that the temperature reached 85 degrees or over, and 52 days 90 degrees or over, while in 1894 the 85-degree mark was reached on only 75 days, and the 90-degree mark on only 48 days.

But careful inspection will show an absence of the same sustained heat in 1895 as in 1894, the temperature being much greater in the former, as shown by the monthly means of maximum and minimum temperature being nearly the same in the two years.

#### CONTAGIOUS DISEASES.

Measles during 1895 show a decidedly higher death rate than during 1894, but whether due to greater number of cases occurring or to a higher rate of mortality it is impossible to state.

Concerning scarlet fever, however, we can speak with more certainty. While there occurred during the past year 420 cases, an increase of 59 over the preceding year, yet the death rate was only 14, a decrease of 6 over 1894.

The mortality from both measles and scarlet fever is remarkable for this, that, of the deaths from these two diseases during 1895, but 4 from measles and 2 from scarlet fever occurred among the colored population.

Whooping cough, if we may be allowed to draw conclusions from mortality returns, has been but slightly prevalent, there having been from this cause but 19 deaths in 1895 as opposed to 104 deaths in 1894.

#### DIPHTHERIA AND ITS TREATMENT BY ANTITOXIN.

Diphtheria has not only been less prevalent this year than it was last, but the percentage of deaths to cases has been reduced from 34.8 to 25.1. For the year ending December 31, 1895, there were reported to the health office 266 cases, with 67 deaths, while during the year 1894 there were 499 cases and 174 deaths.

An effort has been made to learn to what extent antitoxin has been used in the treatment, and in response to a circular letter sent to physicians requesting information on the subject, we find that it has been used by about one-fourth of them. Those who have tested it, with very few exceptions, speak favorably of the results obtained, and some are even enthusiastic in praise of it. The exact number of cases could not be obtained, as all who used it did not report, but the following cases in which it was given are recorded: October, 16 cases, no deaths; November, 13 cases, 3 deaths; December, 29 cases, 5 deaths.

In the December cases which died, it was used very late in the disease, only a few hours before death; and in one of the cases in November it was administered on the sixth day of the disease, 12 hours before death.

The total number of cases of the disease reported for October, November, and Decem-

ber was 118, with 30 deaths, a percentage of 25.4. Of these cases it has been ascertained that 58 received the serum treatment, of which 8 died, giving a percentage of 13.7. For the corresponding months in 1894, when antitoxin was not used, there were 176 cases, with 55 deaths, a percentage of 31.2.

The results reported in intubated cases where the serum was used are most favorable; 10 cases having been so treated without a single death, as contrasted with a previous mortality of 30 per cent without the serum.

The type of the disease has been about the same as it was the previous year.

#### TUBERCULOSIS.

Although we can speak encouragingly of the advance which the medical profession of the city of Washington has made in the prevention and treatment of tuberculosis, as judged by the decrease in the prevalence and distribution of the disease, and by the gradually lowering death rate for the past ten years, which is especially marked for the year 1895, yet there remains much to be done, when we consider that 2 per cent and a fraction of the general mortality per 1,000 in the city of Washington is due to pulmonary tuberculosis alone; or, to impress the facts more strongly, there are, with few days of exception, 2 deaths from phthisis every day in the District of Columbia. One would be apt not to credit the statement, unless verified by figures, that the deaths from tuberculosis in the District of Columbia are very nearly seven-eighths as many as all the deaths from the zymotic diseases combined, there being 771 deaths from tuberculosis for the fiscal year ending July 1, 1895, and 907 from the zymotic diseases. Taking some of the most fatal of the zymotic diseases singly, the comparison with tuberculosis is positively startling; for instance, typhoid fever, 187 deaths for the year 1895; cholera infantum, 121; diphtheria, 124; tuberculosis, 771 deaths. As for scarlet fever, it had a mortality of but 16 for the year, and measles of but 10.

Since the 1st of July, 1895, to December 18, 1895, there have been 291 deaths from pulmonary tuberculosis and should this same favorable average be continued for the remaining six months of the fiscal year ending July 1, 1896, we should have 624 deaths against 675 and 671 for the two preceding years, a happy decrease of 51 in one year and 47 in the other.

To the prevention and treatment of tuberculosis is due, in no small degree, the lengthened duration of life of the whole mass of the people. Beginning in 1881 with a length of life of 26½ years for all ages, and coming down through the subsequent years with slightly varying rate, but with lengthening tendency, the average was 27 years and 11 months for the year 1893; for 1894 it was 29 years, 4 months, and 22 days; and for 1895, 31 years, 3 months, 9 days. The deaths per 1,000 from tuberculosis for the fiscal year ending 1894 were 7.06; for the fiscal year ending July 1, 1895, the percentage was 6.75, or a decrease of .31 per 1,000 for 1895. The whites now have an average life of 36 years, 9 months, 22 days; the colored race of 25 years, 8 months, 27 days; last year the average was 35 years, 9 months, 36 days for the whites, and 22 years, 11 months, 9 days for the colored. As can be seen from the comparison, the colored population is gaining in the race for longevity.

The reports on pulmonary tuberculosis from the health office, the hospitals, and the Central Dispensary all show a gradual decrease. Providence Hospital reports 60 cases for 1895 against 79 for 1894; at Garfield Hospital there were more cases in 1894 than in 1895; the Central Dispensary shows a decrease of 18 in 1895.

*Prevention.*—The public mind is being quickly educated to the knowledge of the contagiousness of tuberculosis expectoration. Amann gives the result of 4,000 examinations of sputum obtained from 1,792 patients. The bacillus was found in 1,498, or 83 per cent of the patients.

The health commission of Brooklyn, N. Y., in a very recent circular for the guidance of the laity, very properly italicises the following: "It should be remembered that the dangerous element is the expectoration of consumptives, and that if this is destroyed before it becomes dry little danger is to be found."

In some parts of Germany phthisis is considered to be almost as infectious as the zymotic diseases, and cases of pulmonary tuberculosis are not treated in the general wards of the hospitals. The experiments of Dr. Cornet serve to impress upon our minds the needs of prevention and disinfection in the habitations of tuberculous patients. He examined the dust of rooms recently inhabited by phthisical patients. The dust was collected from the neighborhood of the patients' beds, but at such a distance from them that it could not have been contaminated either by direct contact with the patients or in their expectoration. A definite quantity of this dust was introduced into the bodies of guinea pigs to test its powers of infection. Nearly 400 animals were used for experimentation. Of these, very nearly one-half died from acute infection, whilst a large proportion succumbed to peritonitis.

Recent statistics collected by Professor Hollinger, of Munich, show that the mortality



from tuberculosis in Munich, Berlin, Frankfort, Dresden, and Stuttgart has decreased 9 to 10 per 10,000. This lowered mortality is undoubtedly due to the hygienic measures, individual and general, taken in regard to tuberculosis.

All suspected cattle should be tested with tuberculin as a diagnostic measure. It is a well-known fact that animals giving the most milk are those most frequently affected.

We would take a long step forward in the right direction if we could bring about the compulsory disinfection of all bedding and clothing of a tuberculous patient. Capó, of Madrid, has recommended the cremation of those dead from tuberculosis. Our efforts at disinfection of tubercle-infected houses are often both disagreeable and useless. Sulphurous acid, chlorine, and euehlorine have proved practically useless.

The experiments of Schill and Fisher are unfavorable to the use of perchloride of mercury. According to Drs. Delapine and Ransome, of London, who have made an extended study of the various methods of disinfection, the only method which seems to promise satisfactory results is the direct application of a solution of chlorinated lime to the walls. Sunlight was found to be a most important natural disinfecting agent. The treatment of tuberculosis with the blood serum of the horse or mule has been practiced by some few physicians with promising results. Dr. Paul Paquin, of St. Louis, has been using during the year "the blood serum of selected horses, carefully injecting the serum underneath the skin of the victim of tuberculosis." About 50 cases have been experimented upon with asserted satisfactory results. The remedy also seemed to promise good results in surgical tuberculosis. In one case of knee-joint-disease removal of the diseased structures had been followed by serum injection with good effect. As regards the production of the serum, horses were naturally immune to tubercular processes. First of all, an injection is made into the jugular vein with some culture media containing the toxins of the bacilli. When the animal ceases to react to this (as evidenced by the lack of fever and other constitutional manifestations), dead bacilli are injected, and finally living bacilli. When all reaction has subsided, blood is drawn from the vein, placed on ice, and the serum gradually allowed to separate. It is then filtered and is ready for use. From ten to thirty minims are used for each injection, and camphor has been found to materially assist in keeping the serum in good condition.

The serum used by Dr. C. W. Ingraham in his experimentations was obtained from the mule, as this animal seems naturally immune to tuberculosis. The results obtained show that the serum has a limited control over tuberculosis, and he expresses the opinion that serum therapeutics will find its greatest range of usefulness in the treatment of acute pulmonary tuberculosis, rather than in the cure of chronic cases.

#### EPIDEMIC INFLUENZA.

During the year 1895 there were 91 deaths from influenza, against 142 for 1894. The year 1891 witnessed the greatest mortality from this disease, there being 162 deaths. Since December, 1889, when the first fatal case of epidemic influenza was announced, we have had in the city of Washington a slight or greater visitation of this disease every year, its intensity seeming to be reached in the late winter or early spring, then gradually subsiding as the summer approaches, only to revive again as the winter progresses.

The sequelæ of this disease are most persistent and unusually fatal. Pneumonia and cerebral diseases, as a sequence, cover more than half of the fatal cases. The whites are somewhat more subject to the disease, and the mortality is greater than in the colored. By sex, the female mortality is much higher. Age plays an important role; those advanced in years are quickly prostrated by an attack and a recrudescence only too often is a precursor of a fatal end.

#### *Influenza—Mortality by months, 1893, 1894, 1895.*

Years.	Months.											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1893.....	1	2	15	33	9	1	1	2	2	4	1	42
1894.....	56	10	13	9	1	1	0	1	1	0	0	3
1895.....	7	21	13	21	5	2	1	0	0	0	0	3

*Mortality by years.*—1890, 109; 1891, 162; 1892, 113; 1893, 96; 1894, 142; 1895, 91.

#### SMALLPOX—THE EPIDEMIC OF 1894-95.

The recent epidemic of smallpox in the city of Washington extended over a period from October 21, 1894, to April 18, 1895. During that time there were reported 56 cases; of these, 9 died.

The first case resulting in death occurred at 433 Fourth street NE., in the person of a child, aged 18 months and 22 days, the daughter of Mr. P. J. Coston, who contracted the disease, it is believed, while in Vermont or in the cars "while en route home Saturday, September 15, 1894." Mr. Coston and family "arrived in New York City at 7.10 p. m. the same day, and were conveyed across the city in a carriage furnished by a transportation company that sells tickets on the train. Two weeks after their return home to Washington City, that is, on Sunday, September 30, they discovered their child was ailing a little." The child, who had never been vaccinated, had an eruptive disease, of which it died October 13, 1894, the eruption still persisting at the time of death.

Following this case was that of Mary Mundell, colored, aged 17. She had never been vaccinated, was a servant in the Coston family, and arrived at the Coston house the morning the baby was taken ill. "Friday, October 19, she had a chill, fever, and pains in back and limbs. She had been complaining several days before she went to bed. By Sunday, October 21, at 10.30 p. m., a papular eruption had extended over her entire body, being more distinct on the scalp, forehead, and face, with an occasional small vesicle. The vesicles had an indurated feel, with a tendency to slip from underneath the fingers on pressure. The eyes were congested, there was difficulty in swallowing, and she complained of sore throat." She died October 23, 1894.

In quick succession the following cases were reported: Mary Thomas, colored, 243 Fourteenth street NE.; Mary Brown, colored, 202 D street NW.; Judge E. M. Rucker, white, 1104 Twelfth street NW.; Wm. Owens, white, 302 Fourth street SE.; Judge James F. Parker, white, 1810 Fourth street NW.; George Anderson, white, 632 G street NW.; Samuel Mundell, colored, 433 Fourth street NE., and Charles E. Williams, colored, 915 Eighth street NW. All these were reported to the health office by October 28, 1894.

Mary Thomas, colored, aged 16; assisted Coston's washerwoman. She had had chicken pox, and had never been vaccinated. Her aunt, with whom she lived, had been in the employ of the Coston family during the sickness of the Coston child, and on one occasion her aunt had brought home some of the sick child's clothes to be laundered. Mary Thomas had assisted her aunt in washing these clothes.

Wm. M. Owens, white, aged 16, had never been vaccinated. He was a messenger in the Interior Department, and was personally acquainted with Mr. Coston, with whom he was quite a favorite, and was a frequent visitor at Mr. Coston's house.

Judge E. M. Rucker, white, aged 32, had never been vaccinated. He occupied the same office with Mr. Coston in the Interior Department, and he condoled with Mr. Coston on the death of his child, taking him by the hand.

George L. Anderson, white, aged 32, had been vaccinated (number of years ago not ascertained). He was a messenger in the Interior Department and was in daily contact with Mr. Coston, and had been sent by the latter repeatedly to his house during the illness of his child.

Judge J. I. Parker, white, aged 42, had had chicken pox and was vaccinated last when 14 years old. He was connected with the Interior Department and met Mr. Coston daily. "He loaned Mr. Coston some money to pay the expenses of the funeral, and a few days after that it was returned to him."

Samuel Mundell, colored, aged 45 years, had had chicken pox and never had been vaccinated. He was Mary Mundell's uncle, and lived in the same house with her, and was employed after the death of Mr. Coston's child in removing and cleaning the carpets in the Costons' house.

In tracing the course of the disease in these cases it was found that every case had its origin from direct or indirect communication with Mr. Coston's child or with himself. The remaining cases of this epidemic, extending over a period of six months, could all be clearly traced to the original focus with but one or two exceptions, and with these the indirect proof was very positive of exposure, such as a person being exposed to the original outbreak conversing with a second party, the second party then going to the barber's to be shaved or to a near-by restaurant to lunch. In due course of time an employee in the restaurant or barber's shop gives rise to the second outbreak of smallpox.

The infection was carried into the neighboring counties of Maryland and Virginia, but was fortunately early recognized and isolated.

The quarantine hospital, to which all cases were removed excepting 8 (of which number 1 was returned on the death certificate as "confluent variola," and one as "shock and childbirth;") the remaining 6 of the 8 cases, treated at their homes, were varioloid, and all recovered), was in charge, for the first part of the outbreak, of J. Ramsey Nevitt, M. D., and later, December 15, of Llewellyn Elliot, M. D. In the first outbreak of cases there was a mortality of 31 per cent for all cases, or 22 per cent for cases treated at the quarantine station. "The cases which died were all of a malignant form of variola and had never been vaccinated." The second crop of cases, which numbered 34, had two deaths, giving a percentage of 6.25. Of the whole number of cases 20 were white

and 36 colored. Of these, 3 white and 6 colored died, giving a general percentage of all cases of 16.2.

The committee can not extol too highly the energetic and persistent efforts of the Secretary of the Interior, who, in conjunction with the health officer of the District of Columbia and a special detail of officers from the Marine-Hospital Service, did such effective work in staying and stamping out the spread of the disease.

The value of the interstate quarantine regulations authorizing the Surgeon-General of the United States Marine-Hospital Service to cooperate with State and municipal health officers in all efforts to prevent the spread of contagious and quarantinable diseases was fully shown in this epidemic.

There were 5 cases of the disease up to October 28 in the Interior Department, all of which, with one exception, occurred in the office of the Assistant Attorney-General, in the room where Mr. Coston had his desk. On the 25th of October, 2 cases having developed in persons occupying the same room with Mr. Coston in the Interior Department (Messrs. Rucker and Owens), the seriousness of the situation was recognized, and by the direction of the Honorable Secretary of the Interior every person connected with the Department was ordered to be vaccinated, and other necessary steps taken to suppress the disease. The employees of the office of the Assistant Attorney-General were granted a furlough for fifteen days, and the rooms occupied by them were closed and fumigated with sulphur.

On October 26 it was decided to fumigate the entire Patent Office building and the Census Office. On October 27 it was ordered that all clerks in the Pension Office should be vaccinated. The rooms occupied by Messrs. Rucker, Parker, Coston, Owens, and Anderson, having been twice fumigated, were opened, the chairs and desks used by them were burned, and all other furniture washed with a solution of bichloride of mercury. All books and papers which had been handled by them were collected, spread out as much as possible, and again fumigated. Such books as could be replaced were burned. Carpets and matting in use were taken up after having been sprinkled with a solution of carbolic acid, the matting and paper under the carpet were burned, and the carpets were sent to the city quarantine station and disinfected in a steam disinfecting apparatus. The floors and walls were washed with bichloride solution, and all woodwork and walls were freshly painted. All towels used in the Department were sent to the quarantine station for steam disinfection. All outgoing mail was thoroughly fumigated. The Department library was closed. All water-closets were closed and fumigated each afternoon at 4 p. m. All waste paper was burned daily. On Saturday, November 3, as a matter of extra precaution, the Patent and Census offices were closed and fumigated again.

It is the opinion of the committee on public health that the prompt steps taken by the health officer and the medical profession in recommending and enforcing general vaccination were wholesome checks upon the spread of the disease.

#### DISINFECTION FOR SMALLPOX—REGULATIONS ADOPTED DURING THE LATE EPIDEMIC.

1. Apartments infected by smallpox shall be disinfected by one or both of the following methods: (a) Exposure to sulphur dioxide for twenty-four to forty-eight hours. (b) Washing with a solution of bichloride of mercury  $\frac{1}{1000}$  or a 5 per cent solution of pure carbolic acid.

2. Clothing, bedding, and articles of furniture exposed to the infection of smallpox shall be disinfected by one or more of the following methods: (a) Exposure to sulphur dioxide for twenty-four to forty-eight hours. (b) Immersion in a solution of bichloride of mercury  $\frac{1}{1000}$  or 5 per cent solution of pure carbolic acid. (c) Exposure to steam at  $100^{\circ}$  to  $102^{\circ}$  C. for thirty minutes. (d) Boiling for fifteen minutes.

The favorite disinfectant during the epidemic of 1872-73, which was caused by the opening of an old smallpox grave by laborers in grading potter's field, was 2 parts of sulphuric ether and 1 of chloroform, which were put in an iron vessel and ignited.

*Statement giving the number of cases of smallpox in the District of Columbia from October, 1894, to March, 1895, by sex and color, the duration of the late epidemic.*

Period.	W. M.	W. F.	C. M.	C. F.	Total.
1894.					
October.....	4	1	3	3	11
November.....	3	4	0	0	7
December.....	1	3	5	8	17
1895.					
January.....	2	1	8	4	15
February.....	1	0	0	1	2
March.....	0	0	4	0	4
Total.....	11	9	20	16	56

*Statement showing the number, sex, and color of those who died of smallpox during the late epidemic from October, 1894, to April 15, 1895.*

Period.	W. M.	W. F.	C. M.	C. F.	Total.
1894.					
October.....	1	1	0	1	3
November.....	0	1	2	0	3
December.....	0	0	2	1	3
Total.....	1	2	4	2	9

#### MILK INSPECTION.

At present there is no efficient system of milk inspection in the District of Columbia. Samples of milk brought to the health office will be examined gratis, and some attempt is made to insure a standard quality by having all milk dealers in the city registered, and by requiring all milk producers who send milk to the city to have their herds inspected at their own expense. Cattle in the District are inspected by the veterinary surgeon of the District Fire Department simply as a matter of accommodation to the authorities.

It goes without saying that this is a matter of the greatest importance, and that there is urgent need of a thorough and systematic examination of all cattle whose milk is received in the city, not only as to their freedom from actual disease, but also in regard to their surroundings and the method of handling the milk.

These methods, while of the greatest importance, are too well understood to need further discussion.

The health officer has asked for a very modest appropriation, with a view to the inauguration of a proper system of milk inspection, and it is earnestly hoped that this appropriation will be granted and increased as the needs of the service require.

A similarly modest request has been also made for the purpose of establishing an efficient bacteriological laboratory and disinfecting service, the necessity for both of which is self-evident at present.

#### GENERAL CONCLUSIONS.

The work of the committee may be summed up in the following conclusions:

1. Malarial fever, of intermittent type chiefly, has been much more prevalent in Washington and the District during the past year than for many years past. This increase is largely, if not wholly, due to the existence of the marshes and lowlands of the Anacostia River, associated with the small amount of rainfall and the unusual variability of the temperature during July, August, and September. The condition of the Anacostia imperatively demands removal, otherwise malaria must continue to have continued and great prevalence.

2. Typhoid fever has been shown to have had an unusual prevalence during September and October, 110 deaths out of the total 221 deaths occurring during these months; the total for the whole year is only 11 more than the year 1894, only 13 more than 1890 and 1891, which had 208 deaths each. There is, therefore, no reason to consider the past year as in any sense indicating any new danger, but the study of typhoid fever for the last fifteen years shows a continuous and great prevalence of this disease. This prevalence is shown to be due to removable causes, and it is the duty of every member of this society as citizen and physician to urge the sewerage of the city and the filtration of the Potomac water as essential to reducing the mortality from typhoid fever and stopping its spread.

3. The lessened mortality from all the preventable contagious diseases is an evidence of the efficient work of the health office and of the medical profession of the District, while the lessened death rate from diphtheria under antitoxin treatment supports the growing favor of this new discovery.

4. The history of the recent smallpox epidemic proves what can be done by efficient sanitary regulations and active sanitary work in suppressing this disease. The necessity for early and correct diagnosis is also demonstrated by the facts recited.

5. The great need for liberal appropriations for the work of the health office and strict laws for the inspection of milk and food supplies has also been insisted on.

[Reports to the Supervising Surgeon-General Marine-Hospital Service.]

*Smallpox in Tennessee.*NASHVILLE, *March 3, 1896.*

SIR: Following is a statement of the occurrence of smallpox in Tennessee for the month ending February 29:

In Memphis there occurred 19 cases of smallpox, all colored; in Shelby county, 58 cases, 5 white and 53 colored, with 5 death resulting; in Fayette county, 3 cases, all colored, with 1 death; in Obion county, 3 cases, 1 white and 2 colored; in Tipton county (near Mason), 27 cases, all colored; thus making a total of 110 cases (6 white and 104 colored) in the State.

For the restriction and prevention of this disease, the usual precautions of isolation, disinfection, and vaccination were observed.

Very respectfully,

J. BERRIEN LINDSLEY,  
*Secretary and Executive Officer.*

*Smallpox in the United States as reported to the Supervising Surgeon-General Marine-Hospital Service, December 26, 1895, to March 3, 1896.*

Places.	Date.	Cases.	Deaths.	Remarks.
<b>Arizona:</b>				
Hirshaw.....	Feb. 17.....	10		
Nogales.....	Jan. 6-Feb. 3....	3		
<b>Arkansas:</b>				
Crittenden County.....	Jan. 19.....	24	5	
Faulkner County.....	Jan. 4-Feb. 8....	27	4	
Monroe County.....	To Feb. 8.....	43		
Lee County.....	.....do.....	12	3	
St. Francis County.....	.....do.....	16	6	
Pulaski County.....	.....do.....	4		
Widener.....	Jan. 4.....	1		
Surrounded Hill.....	.....do.....	1		
<b>Connecticut:</b>				
Middletown.....	Feb. 11.....	1		
New Haven.....	Feb. 8.....	1		
<b>Illinois:</b>				
Cairo.....	Jan. 14-Feb. 15....	15	2	
Chicago.....	Dec. 1-Dec. 31....		2	
Du Quoin, Perry County .....	Feb. 24.....	8		
<b>Indiana:</b>				
Seymour.....	Jan. 29.....	1		
<b>Louisiana:</b>				
New Orleans.....	Dec. 21-Dec. 28....	10	2	
	Dec. 28-Jan. 25....	26	7	
	Jan. 25-Feb. 22....	36	13	
<b>Michigan:</b>				
Detroit.....	Dec. 14-Dec. 21....			Smallpox reported.
	Dec. 21-Dec. 28....	3	1	
	Dec. 28-Feb. 15....	8	2	
	Feb. 22-Feb. 29....	3	3	
Imlay Township.....	Feb. 7-Feb. 22....			Do.
Ionia Township.....	.....do.....			Do.
Greenbush Township.....	Feb. 15-Feb. 22....			Do.
Rochester.....	Dec. 14-Dec. 21....			Do.
Saginaw.....	Feb. 1-Feb. 22....			Do.
Riga Township.....	.....do.....			Do.
<b>Missouri:</b>				
Birds Point.....	Jan. 14.....			Do.
St. Louis.....	Jan. 21.....	1		
<b>New York:</b>				
Brooklyn.....	Jan. 4-Jan. 11....	2	1	
	Feb. 15-Feb. 22....	1		
<b>Ohio:</b>				
Martins Ferry.....	Dec. 1-Dec. 28....	139	3	
<b>Pennsylvania:</b>				
Knoxville.....	Dec. 17.....	1		
Brookville.....	Feb. 18.....	1		
Finleyville.....	Feb. 11.....	1		
Gilberton.....	Feb. 13.....	1		
Maltby.....	Feb. 17.....	1		

*Smallpox in the United States as reported to the Supervising Surgeon-General Marine-Hospital Service, December 26, 1895, to March 3, 1896—Continued.*

Places.	Date.	Cases.	Deaths.	Remarks.
<b>Tennessee:</b>				
Fayette County .....	Jan. 1-Jan. 31.....	1		
	Feb. 1-Feb. 29.....	3	1	
Obion County.....	Jan. 1-Jan. 31.....	2		
	Feb. 1-Feb. 29.....	3		
Memphis.....	Dec. 15-Dec. 31.....	17		
	Jan. 1-Jan. 31.....	21		
	Feb. 1-Feb. 29.....	19		
Shelby County.....	Dec. 15-Dec. 31.....	9		
	Jan. 1-Jan. 31.....	35		
	Feb. 1-Feb. 29.....	58	5	
Alamo .....	Dec. 15-Dec. 31.....	6		
Tipton County.....	Feb. 1-Feb. 29.....	27		
<b>Texas:</b>				
Houston.....	Feb. 1-Feb. 8.....	1		
<b>Washington:</b>				
Port Townsend Quarantine...	Feb. 18-Feb. 26.....	3		
<b>Wisconsin:</b>				
Mukwonago .....	Feb. 6 .....	1		
Waukesha .....	Feb. 6-Feb. 24.....	3		
Wausau .....	Dec. 28 .....	1		

*Report of immigration at New York for the week ended February 29, 1896.*

OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,  
Port of New York, March 2, 1896.

*Number of alien immigrants who arrived at this port during the week ended February 29, 1896; also names of vessels and ports from which they arrived.*

Date.	Vessel.	Where from.	No. of immigrants from Russia.	No. of immigrants.
1896.				
Feb. 23	Steamship Campania.....	Liverpool and Queenstown...	1	279
Do.....	Steamship Paris .....	Southampton .....	13	143
Do.....	Steamship Weimar .....	Bremen .....	83	240
Do.....	Steamship Schiedham.....	Amsterdam .....	52	180
Feb. 24	Steamship La Bourgogne.....	Havre .....	4	322
Do.....	Steamship Christiania .....	Hamburg .....	48	217
Do.....	Steamship Phoenicia .....	do .....	148	263
Feb. 26	Steamship Thingvalla .....	Copenhagen, etc.....		62
Feb. 27	Steamship Neustria.....	Marseilles and Naples.....		210
Do.....	Steamship Furnessia.....	Glasgow .....	19	142
Do.....	Steamship Werkendam.....	Amsterdam .....	98	398
Feb. 28	Steamship Noordland.....	Antwerp.....	1	256
Do.....	Steamship Norwegian.....	Glasgow .....	13	53
Do.....	Steamship Lahn .....	Bremen .....	45	445
Feb. 29	Steamship Persia .....	Hamburg .....	164	298
Do.....	Steamship Britannic.....	Liverpool and Queenstown...	2	154
	Total.....		691	3,652

Dr. J. H. SENNER,  
Commissioner of Immigration.

*Report of immigration at Philadelphia for the week ended February 29, 1896.*OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,  
*Port of Philadelphia, February 29, 1896.**Number of alien immigrants who arrived at this port during the week ended February 29, 1896; also names of vessels and ports from which they arrived.*

Date.	Vessel.	Where from.	No. of immigrants from Russia.	No. of immigrants.
1896.				
Feb. 23	Steamship Maine .....	London and Swansea.....		2
Do....	Steamship Tafna.....	St. Jago .....		3
Feb. 24	Steamship Holguin.....	Port Antonio.....		2
Feb. 25	Steamship Belgenland.....	Liverpool and Queenstown.....	14	104
Do....	Steamship Illinois .....	Antwerp .....	14	309
Feb. 26	Steamship Assyrian .....	Glasgow .....		3
Do....	Steamship Remus.....	St. Jago .....		1
	Total .....		28	424

JNO. J. S. RODGERS,  
*Commissioner of Immigration.**Vessels arriving at, departing from, and remaining at United States quarantine stations.*

## BRUNSWICK QUARANTINE.

*Week ended February 29, 1896.*

Name of vessel.	Date of arrival.	Where from.	Destination.	Treatment of vessel and cargo.	Date of dep'ture.
Span. bg. San Salvador*.....	Feb. 21	Habana .....	Brunswick..	Disinfected.....	Feb. 26
Brit. sch. W. R. Huntley*.....	Feb. 22	.....do .....	.....do .....	.....do .....	.....do .....
Brit. bk. Margaret Mitchell.....	Feb. 23	Matanzas .....	.....do .....	Held for disinfection.	.....
Span. bg. Joven Antonio.....	.....do .....	Habana .....	.....do .....	Disinfected.....	Feb. 29
Span. bg. Anton.....	Feb. 25..	Neuvas .....	.....do .....	Held for disinfection.	.....

\* Previously reported.

## DELAWARE BREAKWATER QUARANTINE.

*Week ended February 29, 1896.*

Three vessels inspected and passed.

## REEDY ISLAND QUARANTINE.

*Week ended February 29, 1896.*

Twenty-two vessels inspected and passed.

## SAN DIEGO QUARANTINE.

*Week ended February 26, 1896.*

Four vessels inspected and passed.

## SOUTH ATLANTIC QUARANTINE.

*Week ended February 29, 1896.*

Three vessels inspected and passed.

## SOUTHPORT QUARANTINE.

*Week ended February 29, 1896.*

One vessel inspected and passed.

*Reports of States and yearly and monthly reports of cities.*

**IOWA—Boone.**—Month of December, 1895. Estimated population, 8,845. Total deaths, 13, including enteric fever, 1; scarlet fever, 1; and diphtheria, 5.

Month of January, 1896. Total deaths, 10, including 1 from diphtheria.

**Cedar Rapids.**—Month of December, 1895. Estimated population, 21,555. Total deaths, 10, including 4 from diphtheria and 1 from phthisis pulmonalis.

Month of January, 1896. Total deaths, 22, including enteric fever, 1; and diphtheria, 3.

**Clinton.**—Month of January, 1896. Estimated population, 17,375. Total deaths, 38, including diphtheria, 5; enteric fever, 1; and phthisis pulmonalis, 2.

**Council Bluffs.**—Month of January, 1896. Estimated population, 20,-189. Total deaths, 21, including phthisis pulmonalis, 1; and diphtheria, 5.

**Creston.**—Month of January, 1896. Estimated population, 7,306. Total deaths, 8, including scarlet fever, 1; and diphtheria, 1.

**Davenport.**—Month of December, 1895. Estimated population, 31,484. Total deaths, 35, including 1 from phthisis pulmonalis.

Month of January, 1896. Total deaths, 43, including phthisis pulmonalis, 2, and diphtheria, 1.

**Decorah.**—Month of January, 1896. Estimated population, 3,200. Two deaths. No death from contagious disease.

**Des Moines.**—Month of December, 1895. Estimated population, 82,000. Total deaths, 57, including phthisis pulmonalis, 5; enteric fever, 5; and diphtheria, 1.

Month of January, 1896. Total deaths, 62, including phthisis pulmonalis, 4; enteric fever, 1; diphtheria, 1; and whooping cough, 1.

**Dubuque.**—Month of December, 1895. Estimated population, 40,000. Total deaths, 24, including phthisis pulmonalis, 5; and enteric fever, 2.

Month of January, 1896. Total deaths, 37, including phthisis pulmonalis, 7; enteric fever, 1; and diphtheria, 1.

**Eldon.**—Month of January, 1896. Estimated population, 1,900. Total deaths, 2. No deaths from contagious diseases.

Month of February, 1895. No deaths.

**Keokuk.**—Month of December, 1895. Estimated population, 14,287. Total deaths, 20. No deaths from contagious diseases.

Month of January, 1896. Total deaths, 15, including 1 from phthisis pulmonalis.

**Oskaloosa.**—Month of December, 1895. Estimated population, 8,500. Total deaths, 5, including 2 from phthisis pulmonalis.

Month of January, 1896. Total deaths, 7, including 1 from scarlet fever.



*Ottumwa*.—Month of December, 1895. Estimated population, 16,761. Total deaths, 17, including phthisis pulmonalis, 3; and diphtheria, 3.

Month of January, 1896. Total deaths, 14, including phthisis pulmonalis, 3; enteric fever, 1; and diphtheria, 2.

KENTUCKY—*Louisville*.—Month ended January 3, 1896. Estimated population, 205,000. Total deaths, 293, including phthisis pulmonalis, 10; enteric fever, 14; diphtheria, 9; and whooping cough, 1.

MICHIGAN.—Week ended February 22, 1896. Reports to the State board of health, Lansing, from 53 observers, indicate that pleuritis and intermittent fever increased and diarrhea decreased in area of prevalence. Phthisis pulmonalis was reported present at 247 places, scarlet fever at 36, diphtheria at 26, enteric fever at 21, whooping cough at 19, measles at 17, and smallpox at 6 places—Detroit, Greenbush Township, Ionia, Imlay Township, Riga Township, and Saginaw.

NEW JERSEY—*Hudson County*.—Month of January, 1896. Estimated population, 338,671. Total deaths, 639, including phthisis pulmonalis, 61; enteric fever, 30; scarlet fever, 4; diphtheria, 42; measles, 5; croup, 12; and whooping cough, 3.

NORTH CAROLINA.—Month of January, 1896. Aggregate population, 129,934 (white, 76,317; colored, 53,617). Deaths, 172 (white, 88; colored, 84), including phthisis pulmonalis, 36; enteric fever, 4; and measles, 3.

PENNSYLVANIA—*Pottsville*.—Two weeks ended February 25, 1896. Estimated population, 14,000. Total deaths, 9, including 1 from diphtheria.

#### PUBLICATIONS RECEIVED.

Annual Report of the General Superintendent of Canadian Quarantines, 1895.

On the Prevention of Tuberculosis, Jas. B. Russell, B. A., M. D., LL. D. 1896.

Report on Certain Associated Cases of Enteric Fever—following Stirling County Ball. A. K. Chalmers, M. D., D. P. H. (Medical Officer of Health, Glasgow) 1895.

Annual Report of the Board of Health of the City of Salem, Mass. 1895.

Des Améliorations à apporter à la Station Quarantenaire de Tor. Rapport présenté au Conseil Sanitaire, Maritime et Quarantenaire D' Egypte par la Commission des Travaux et Installations, 1895.

Annual Report of the Medical Officer of Health, River Tyne Port Sanitary Authority. 1895.

## MORTALITY TABLE, CITIES OF THE UNITED STATES.

Cities.	Week ended.	Population, U. S. Census of 1890.	Total deaths from all causes.	Deaths from—										
				Phthisis pulmonalis.	Yellow fever.	Smallpox.	Variceloid.	Cholera.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Allegheny, Pa.....	Feb. 29.	105,287	57	7						1				4
Amesbury, Mass.....	do.	9,798	1											
Ashtabula, Ohio.....	do.	8,338	0											
Auburn, N. Y.....	do.	25,858	8											
Baltimore, Md.....	do.	434,439	244	34						1		5	1	1
Battle Creek, Mich.....	do.	13,197	1							3				
Belleville, Ill.....	do.	15,361	3											
Beverly, Mass.....	Feb. 22.	10,821	6											
Binghamton, N. Y.....	Feb. 29.	35,005	10	1										
Boston, Mass.....	Feb. 22.	448,477	242	29						1	2	18		2
Do.....	Feb. 29.	448,477	234	33						2	1	12		
Bridgeport, Conn.....	do.	48,866	2									3		
Bristol, Conn.....	Feb. 22.	7,382	3											
Bristol, R. I.....	do.	5,478	2											
Do.....	Feb. 29.	5,478	2	1								1		
Brockton, Mass.....	Feb. 22.	27,294	7											
Brookline, Mass.....	do.	12,103	3	2										
Brooklyn, N. Y.....	Feb. 29.	806,343	470	40						3	4	23	21	4
Bucyrus, Ohio.....	Feb. 22.	5,974	2											
Butler, Pa.....	Feb. 29.	8,734	0											
Cambridge, Mass.....	do.	70,028	29	3								2		
Carlisle, Pa.....	Feb. 22.	7,620	2											
Do.....	Feb. 29.	7,620	3	1										
Charleston, S. C.....	Feb. 22.	*54,955	†29	7									1	
Chicago, Ill.....	do.	1,099,850	463	44						24		17	3	
Cincinnati, Ohio.....	Feb. 28.	296,908	26							5		2	6	
Cleveland, Ohio.....	Feb. 29.	261,353								1	1	1		
Columbus, Ind.....	do.	88,150	6	2										
Council Bluffs, Iowa.....	Feb. 22.	21,474	8									1		
Dayton, Ohio.....	Feb. 27.	61,220	21	2								1		
Dedham, Mass.....	Feb. 22.	7,123	1											
Denver, Colo.....	Feb. 15.	106,713	27	8							2			
Detroit, Mich.....	Feb. 29.	205,876	3			3						3		
Elizabeth, N. J.....	do.	37,764								1				
El Paso, Tex.....	Feb. 22.	10,338	6	2										
Emporia, Kans.....	Feb. 29.	7,551	0											
Everett, Mass.....	do.	11,068	5											
Fitchburg, Mass.....	do.	22,037	12	2									1	
Flint, Mich.....	Feb. 22.	9,803	3											
Do.....	Feb. 29.	9,803	2	1										
Fort Worth, Tex.....	Feb. 22.	23,076	6							1				
Galveston, Tex.....	Aug. 2.	29,084	18	2										
Do.....	Aug. 9.	29,084	17	1						1				
Do.....	Aug. 16.	29,084	18	1										
Do.....	Aug. 23.	29,084	16											
Do.....	Aug. 30.	29,084	9							1				
Grand Rapids, Mich.....	Aug. 22.	60,278	21	1								1		
Do.....	Aug. 29.	60,278	24	5							1	1		
Green Bay, Wis.....	do.	9,069	5									1		
Haverhill, Mass.....	do.	27,412	7											
Hoboken, N. J.....	Feb. 22.	43,648	23	3								1		
Hornellsville, N. Y.....	do.	10,996	0											
Do.....	Feb. 29.	10,996	2											
Houston, Tex.....	Feb. 22.	27,557	14											
Do.....	Feb. 29.	27,557	18											
Ironton, Ohio.....	do.	10,939	8											
Jamestown, N. Y.....	Feb. 22.	16,038	4											
Jersey City, N. J.....	Feb. 23.	163,003	126	10						12		3	1	3
Johnstown, Pa.....	Feb. 22.	21,805	8											
Do.....	Feb. 29.	21,805	5											
Kalamazoo, Mich.....	do.	17,853	5											
Lawrence, Mass.....	Feb. 22.	44,654	23											
Lowell, Mass.....	Feb. 29.	44,654	40	5						1		1		
Ludington, Mich.....	do.	7,517	0											
Lynchburg, Va.....	do.	19,709	10	1										
McKeesport, Pa.....	Feb. 22.	20,741	7							1				1
Manchester, N. H.....	Feb. 29.	44,126	20										1	1
Marinette, Wis.....	do.	11,523	8											
Massillon, Ohio.....	Feb. 22.	10,092	1											
Do.....	Feb. 29.	10,092	1	1										
Medford, Mass.....	do.	11,079	4											
Melrose, Mass.....	Feb. 25.	8,519	3											
Memphis, Tenn.....	Feb. 29.	64,495	25	3										

\* Estimated population, white, 23,870; colored, 36,295. Total, 65,165. † White, 7; colored, 22.

MORTALITY TABLE, CITIES OF THE UNITED STATES—Continued.

Cities.	Week ended.	Population, U. S. Census of 1890.	Total deaths from all causes.	Deaths from—										
				Phthisis pulmonalis.	Yellow fever.	Smallpox.	Varioloid.	Cholera.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Middletown, Ohio.....	Feb. 22.....	11,977	3								1			
Millville, N. J.....	Feb. 28.....	10,002	3											
Milwaukee, Wis.....	Feb. 22.....	204,468	73	3						1		5		1
Do.....	Feb. 29.....	204,468	86	6						1		4		1
Minneapolis, Minn.....	Feb. 22.....	164,738	41	5						1	1	2		1
Do.....	Feb. 29.....	164,738	58	4						1		2		
Mobile, Ala.....	do.....	31,076	23	4										
Nashville, Tenn.....	do.....	76,168	45	4						1			9	
New Bedford, Mass.....	do.....	40,733	26	2										
Newburyport, Mass.....	Feb. 22.....	13,947	4											
New Haven, Conn.....	Feb. 27.....	81,298	26	3										
New Orleans, La.....	Feb. 22.....	242,039	161	19		8				2		2		
Newport, R. I.....	Feb. 29.....	19,457	2											
New York, N. Y.....	do.....	1,515,301	893	95						5	16	47	21	8
Norristown, Pa.....	do.....	19,791	7											
North Adams, Mass.....	do.....	16,074	6											
Northampton, Mass.....	Feb. 22.....	14,990	4											
Olean, N. Y.....	Feb. 29.....	7,358	3											
Omaha, Nebr.....	Feb. 22.....	140,452	28	3							2	1		1
Oneonta, N. Y.....	Feb. 29.....	6,272	2									1		
Ottumwa, Iowa.....	Feb. 22.....	14,001	5											
Paducah, Ky.....	Feb. 23.....	12,797	7	2										
Palmer, Mass.....	Feb. 22.....	6,520	3	1										
Do.....	Feb. 29.....	6,520	1											
Philadelphia, Pa.....	Feb. 22.....	1,046,964	471	53						8	2	12	7	2
Pittsburg, Pa.....	do.....	238,617	120	11						5		5	3	1
Pittsfield, Mass.....	Feb. 29.....	17,281	8	2										
Plainfield, N. J.....	Feb. 15.....	11,267	10	1										
Do.....	Feb. 22.....	11,267	4	1										
Providence, R. I.....	Feb. 29.....	132,146	56	6										
Pueblo, Colo.....	Feb. 22.....	24,558	1	2							1	1		
Racine, Wis.....	Feb. 28.....	21,014	6											
Reading, Pa.....	Mar. 2.....	58,661	13											
St. Louis, Mo.....	Feb. 22.....	451,770	200	32										
Salt Lake City, Utah.....	do.....	44,843	6									4	3	1
San Diego, Cal.....	do.....	16,159	1											
San Francisco, Cal.....	do.....	298,997	118	24										
Santa Barbara, Cal.....	do.....	5,864	2	1						1		1		
Scranton, Pa.....	do.....	75,215	19	2										
Do.....	Feb. 29.....	75,215	31	1										
Shreveport, La.....	Feb. 8.....	11,979	1	1							1	2		
Do.....	Feb. 22.....	11,979	3											
Sioux Falls, S. Dak.....	Feb. 15.....	10,177	1											
Do.....	Feb. 22.....	10,177	2											
Somerville, Mass.....	do.....	40,152	14	1										
Do.....	Feb. 29.....	40,152	16									1		
Spokane, Wash.....	Feb. 22.....	19,922	8	1										
Springfield, Mass.....	Feb. 29.....	44,179	16	1										
Sterling, Ill.....	Feb. 22.....	5,824	1											
Superior, Wis.....	do.....	11,983	7							1				
Taunton, Mass.....	Feb. 28.....	25,448	13											
Tiffin, Ohio.....	Feb. 29.....	10,801	5							2				
Urbana, Ohio.....	do.....	6,510	2											
Utica, N. Y.....	Feb. 22.....	44,007	16											
Virginia City, Nev.....	Feb. 23.....	8,511	4	1										
Warren, Ohio.....	Feb. 24.....	5,973	0											
Washington, D. C.....	Feb. 22.....	230,392	118	16										
West Bay City, Mich.....	do.....	12,981	2									2		
Wilmington, Del.....	Feb. 29.....	61,431	37	3							1	1		1
Woburn, Mass.....	Feb. 22.....	13,499	3											
Do.....	Feb. 29.....	13,499	5											
Worcester, Mass.....	Feb. 20.....	34,655	30	3						1	1	1		
Yonkers, N. Y.....	Feb. 28.....	32,033	19	2								1		1
Youngstown, Ohio.....	Feb. 22.....	33,220	10	1							1			
Do.....	Feb. 29.....	33,220	9	1										

Table of temperature and rainfall, week ended February 24, 1896.

[Received from Department of Agriculture, Weather Bureau.]

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	*Excess.	*Deficiency.	Normal.	Excess.	Deficiency.
<b>Atlantic Coast:</b>						
Eastport, Me.....	23		5	1.05		.82
Portland, Me.....	25		6	.91		.28
Northfield, Vt.....	18		7	.69		.33
Boston, Mass.....	29		6	.91		.76
Vineyard Haven, Mass.....	33		5	.84		.53
Nantucket, Mass.....	31		4	.79		.41
Woods Hole, Mass.....	31		6	.89		.81
Block Island, R. I.....	32		4	1.22		.99
New Haven, Conn.....	29		4	1.07		1.01
Albany, N. Y.....	27		8	.63		.41
New York, N. Y.....	33		7	.98		.91
Harrisburg, Pa.....	33		9	.70		.70
Philadelphia, Pa.....	35		8	.81		.73
Atlantic City, N. J.....	34		9	.84		.74
Baltimore, Md.....	38		9	.91		.91
Washington, D. C.....	37		8	.84		.83
Lynchburg, Va.....	42		11	.84		.79
Cape Henry, Va.....	44		10	.89		.87
Norfolk, Va.....	44		11	.91		.85
Charlotte, N. C.....	47		12	1.06		1.06
Raleigh, N. C.....	46		12	1.05		.88
Kittyhawk, N. C.....	47		14	.93		.53
Wilmington, N. C.....	51		15	.84		
Columbia, S. C.....	51		14	.98	.36	.65
Charleston, S. C.....	54		13	.84		.83
Augusta, Ga.....	53		12	.93		.87
Savannah, Ga.....	56		13	.77		.77
Jacksonville, Fla.....	60		11	.77		.77
Jupiter, Fla.....	67		11	.64		.52
Key West, Fla.....	72		10	.41		.41
<b>Gulf States:</b>						
Atlanta, Ga.....	58		11	1.29		1.23
Tampa, Fla.....	66		12	.76		.40
Pensacola, Fla.....	58		8	1.00		.98
Mobile, Ala.....	56		6	1.19		1.17
Montgomery, Ala.....	54		11	1.34		1.30
Meridian, Miss.....	54		10	1.80		1.41
Vicksburg, Miss.....	55		5	1.19	.53	
New Orleans, La.....	59		4	1.06		1.02
Shreveport, La.....	53		2	1.16	.03	
Fort Smith, Ark.....	45	1		.88		.55
Little Rock, Ark.....	48		2	1.54		1.42
Palestine, Tex.....	54	0		.96	2.22	
Galveston, Tex.....	59	0		.71	.66	
San Antonio, Tex.....	58	2		.56	.67	
Corpus Christi, Tex.....	60	1		.54	.64	
<b>Ohio Valley and Tennessee:</b>						
Memphis, Tenn.....	47		6	1.34		1.19
Nashville, Tenn.....	44		6	1.36		1.33
Chattanooga, Tenn.....	47		11	1.34		1.33
Knoxville, Tenn.....	49		13	1.29		1.29
Louisville, Ky.....	40		13	1.15		.90
Indianapolis, Ind.....	34		11	.85		.44
Cincinnati, Ohio.....	38		13	.96		.87
Columbus, Ohio.....	33		12	.91		.84
Parkersburg, W. Va.....	38		15	.77		.51
Pittsburg, Pa.....	34		13	.70		.53
<b>Lake Region:</b>						
Oswego, N. Y.....	25		7	.63		.34
Rochester, N. Y.....	25		6	.63		.39
Buffalo, N. Y.....	25		7	.63		.31
Erie, Pa.....	29		9	.84		.69
Cleveland, Ohio.....	29		10	.72		.52
Sandusky, Ohio.....	29		10	.80		.74
Toledo, Ohio.....	30		10	.49	.16	
Detroit, Mich.....	27		10	.58		.41
Lansing, Mich.....	27		9	.56		.32
Port Huron, Mich.....	23		6	.63		.53
Alpena, Mich.....	18		1	.56		.54
Sault Ste. Marie, Mich.....	14		2	.29		.06
Marquette, Mich.....	16	0		.42	.58	
Green Bay, Wis.....	18		2	.70		.58
Grand Haven, Mich.....	25		4	.56	.74	

\*The figures in these columns represent the average daily departure.

Table of temperature and rainfall, week ended February 24, 1896—Continued.

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	*Excess.	*Deficiency.	Normal.	Excess.	Deficiency.
<b>Lake Region—Continued.</b>						
Milwaukee, Wis.....	24		6	.49		.34
Chicago, Ill.....	28		10	.58		.35
Duluth, Minn.....	15	0		.28		.27
<b>Upper Mississippi Valley :</b>						
St. Paul, Minn.....	18	0		.23		.23
La Crosse, Wis.....	21		2	.28		.27
Dubuque, Iowa.....	24		2	.42	.36	
Davenport, Iowa.....	26		5	.42		.01
Des Moines, Iowa.....	25	2		.35		.14
Keokuk, Iowa.....	30		4	.49		.30
Springfield, Ill.....	33		6	.96		.81
Cairo, Ill.....	41		7	1.05		1.02
St. Louis, Mo.....	37		4	.74		.69
<b>Missouri Valley :</b>						
Columbia, Mo.....	34	0		.84		.81
Springfield, Mo.....	39		1	.87		.85
Kansas City, Mo.....	34	2		.42		.33
Wichita, Kans.....	39	4		.35		.14
Concordia, Kans.....	31	10		.17		.07
Omaha, Nebr.....	27	6		.21		.20
Sioux City, Iowa.....	21	6		.15		.08
Yankton, S. Dak.....	22	10		.21		.21
Valentine, Nebr.....	25	13		.14		.14
Huron, S. Dak.....	16	13		.14		.14
Pierre, S. Dak.....	18	17		.07		.07
Moorhead, Minn.....	8	9		.21		.21
Bismarck, N. Dak.....	12	13		.19		.17
Williston, N. Dak.....	12	9		.13		.13
<b>Rocky Mountain Region :</b>						
Havre, Mont.....	18	21		.14		.14
Helena, Mont.....	25	15		.14		.14
Miles City, Mont.....	18	19		.13		.13
Rapid City, S. Dak.....	23	19		.21		.21
Spokane, Wash.....	31	12		.48		.25
Wallawalla, Wash.....	37	9		.46		.39
Baker City, Oreg.....	25	15		.43		.43
Winnemucca, Nev.....	35	5		.21		.21
Salt Lake City, Utah.....	35	5		.35		.35
Lander, Wyo.....	24	12		.09		.09
Cheyenne, Wyo.....	29	9		.07		.07
North Platte, Nebr.....	28	14		.10		.10
Denver, Colo.....	34	10		.14		.14
Pueblo, Colo.....	36	6		.17		.17
Dodge City, Kans.....	34	9		.14		.14
Oklahoma City, Okla.....	42	4		.28		.14
Abilene, Tex.....	50	5		.28	.01	
Santa Fe, N. Mex.....	34	4		.14		.14
El Paso, Tex.....	51	0		.14		.12
Phoenix, Ariz.....	55	6		.24		.24
<b>Pacific Coast :</b>						
Port Angeles, Wash.....	38			.70		
Port Canby, Wash.....	43	9		1.73		.28
Astoria, Oreg.....	45	5		1.89		
Portland, Oreg.....	43	7		1.68		.88
Roseburg, Oreg.....	44	5		1.12		1.06
Eureka, Cal.....	47	5		1.80		1.64
Red Bluff, Cal.....	50	7		.82		.82
Carson City, Nev.....	37	7		.42		.42
Sacramento, Cal.....	51	7		.71		.71
San Francisco, Cal.....	52	7		.89		.88
Fresno, Cal.....	51	8		.29		.29
Independence, Cal.....	44	7		.14		.14
Los Angeles, Cal.....	55	8		.85		.85
San Diego, Cal.....	55	6		.59		.59
Yuma, Ariz.....	60	5		.07		.07

\* The figures in these columns represent the average daily departure.

## FOREIGN.

[Reports received from United States consuls through the Department of State and from other sources.]

*Cholera and yellow fever as reported to the Supervising Surgeon-General Marine-Hospital Service, December 26, 1895, to March 3, 1896.*

## CHOLERA.

Places.	Date.	Cases.	Deaths.	Remarks.
Argentine Republic:				
Buenos Ayres.....	Dec. 21-Dec. 28...	3	.....	
Austria-Hungary .....	Nov. 19-Dec. 2...	43	25	} From outbreak (August 23, 1895) to date 453 cases, 296 deaths.
	Dec. 10-Dec. 30...	21	11	
	Dec. 31-Jan. 27...	16	11	
Egypt:*				
Ahmadiéh.....	Nov. 6-Nov. 12...	25	22	
Ahu-el-Chekuk.....	Dec. 23-Jan. 4...	2	1	
Alexandria .....	Dec. 24-Dec. 31...		1	
	Jan. 4.....	1		
	Jan. 11-Jan. 22...	14	11	
	Jan. 24-Jan. 29...	7	6	
Arnie.....	Jan. 12-Jan. 14...	7	2	
	Jan. 25.....		1	
Ayat.....	Jan. 15.....	1	1	
Bigalat.....	Nov. 4-Nov. 13...	7	7	
Bossat.....	Jan. 6-Jan. 9...	2	.....	
Bousrate.....	Nov. 4-Nov. 22...	36	35	
Borachia.....	Nov. 20-Dec. 17...	22	34	
	Jan. 2.....	2	2	
Cairo.....	Dec. 7-Dec. 11...	1	2	
	Jan. 10-Jan. 11...	1	1	
Charkieh.....	Dec. 30-Dec. 31...	2	2	
	Jan. 11-Jan. 13...	1	1	
Damietta.....	Nov. 7-Dec. 23...	86	79	
El Daraksa.....	Nov. 7-Nov. 14...	2	1	
El Kurdi.....	Nov. 4-Nov. 11...	7	7	
	Dec. 29.....	1	1	
Ezbet el Berg.....	Nov. 7-Nov. 25...	32	25	
Ezbet Khalafala Pacha.....	Nov. 7-Nov. 13...	5	2	
Farascoor.....	Nov. 14-Dec. 22...	48	39	
	Dec. 29-Jan. 7...	2	2	
Hehya.....	Dec. 8-Dec. 13...		1	
Kafr el Battekh.....	Dec. 6-Dec. 24...	22	17	
Kafr el Zoonar.....	Nov. 16-Nov. 20...	4	2	
Kafr Galailah.....	Dec. 19-Dec. 24...	6	5	
Kolonghil.....	Nov. 6-Nov. 9...	1	1	
Mansurah.....	Nov. 21-Dec. 17...	1	1	
	Dec. 29-Jan. 1...	2	2	
Matarieh.....	Nov. 4-Nov. 22...	20	20	
	Dec. 8.....	1	1	
Menzaleh.....	Nov. 4-Nov. 16...	35	41	
Mit Chaddad.....	Jan. 7.....	1	.....	
Salamann.....	Nov. 8-Nov. 18...	10	8	
San el Hagar.....	Jan. 2-Jan. 3...	1	1	
Sawalem.....	Jan. 9-Jan. 27...	1	1	
Zarka.....	Dec. 6-Dec. 24...	8	4	
	Dec. 29-Jan. 8...	6	4	
Zagazig.....	Nov. 22-Dec. 18...	6	4	
	Jan. 1-Jan. 11...	3	3	
	Jan. 23-Jan. 25...	2	2	
India:				
Bombay.....	Nov. 19-Dec. 24...		15	
	Jan. 14-Jan. 28...		7	
Calcutta.....	Nov. 10-Dec. 28...		332	
	Dec. 28-Jan. 4...		41	
	Jan. 4-Jan. 18...		84	
Japan:				
Yokohama.....	Nov. 8-Nov. 15...	1	1	
Chiba Ken.....	Jan. 6-Jan. 25...	20	13	
	Jan. 24-Feb. 3...	12	16	
Ibaraki Ken.....	Jan. 24-Feb. 3...	3	.....	
Morocco:				
Casa Blanca.....	Jan. 11.....			Cholera reported.
Mazagan.....	Jan. 11.....			Do.
Stellen.....	Dec. 15.....		13	

\* To date of December 18, 1895, 1,056 cases of cholera, with 874 deaths, have been reported throughout Egypt.

*Cholera and Yellow Fever, etc.—Continued.*

## CHOLERA—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
<b>Russia:</b>				
Kiev (government).....	Oct. 13-Nov. 11...	156	64	
	Nov. 11-Dec. 21...	52	24	
	Dec. 22-Jan. 11...	10	5	
Orlov.....	Nov. 3-Dec. 7...	17	6	
Orel (government).....	Nov. 3-Dec. 7...	17	6	
St. Petersburg.....	Nov. 16-Dec. 1...	85	31	Cholera.
	Dec. 1-Dec. 28...	275	178	Do.
	Dec. 28-Jan. 11...	79	43	
	Jan. 25-Feb. 8...	14	12	
St. Petersburg (government)	Nov. 17-Dec. 7...	21	.....	
	Dec. 8-Dec. 28...	27	11	
	Dec. 29-Jan. 11...	8	8	
Volhynia (government).....	Oct. 13-Nov. 10...	2,297	952	
	Nov. 10-Nov. 30...	609	294	
	Dec. 1-Dec. 14...	104	55	
	Dec. 14-Dec. 28...	24	12	
<b>Turkey:</b>				
Constantinople.....	Dec. 17-Jan. 15...	3	3	Reports dated January 21, 1896, state "about 1 death per week."
Brenia.....	Jan. 17.....	.....	.....	Cholera reported.
Bitlis and Seert.....	Jan. 15-Jan. 20...	11	7	
Diarbekir.....	Jan. 16.....	.....	.....	Cholera reported in 3 localities.
Gazran.....	Dec. 21-Jan. 14...	67	42	

## YELLOW FEVER.

<b>Brazil:</b>				
Ceara.....	Nov. 30.....	1	1	
	Dec. 24-Dec. 31...	.....	4	
Rio de Janeiro.....	Nov. 9-Nov. 30...	.....	43	
	Dec. 1-Dec. 28...	.....	136	
	Dec. 28-Jan. 11...	.....	190	
	Jan. 11-Jan. 18...	.....	137	
Pernambuco.....	Nov. 1-Nov. 15...	8	.....	
	Jan. 1-Jan. 31...	5	3	
<b>Cuba:</b>				
Cienfuegos.....	Dec. 8-Dec. 22...	.....	2	
	Dec. 29-Jan. 19...	.....	5	
	Feb. 16-Feb. 23...	.....	1	
Habana.....	Nov. 28-Dec. 19...	40	14	
	Dec. 26-Jan. 2...	7	3	In military hospital.
	Jan. 2-Feb. 27...	40	11	
Santiago.....	Dec. 7-Dec. 21...	.....	29	
	Dec. 21-Dec. 28...	.....	12	
	Dec. 28-Jan. 4...	.....	15	
	Jan. 4-Feb. 15...	.....	47	
Sagua la Grande.....	Dec. 1-Dec. 21...	43	3	
	Dec. 25-Jan. 25...	31	6	
	Feb. 1-Feb. 15...	8	.....	
<b>Mexico:</b>				
Tuxpan.....	Jan. 11-Jan. 25...	.....	4	
<b>Puerto Rico:</b>				
San Juan.....	Nov. 29-Dec. 20...	63	23	
	Dec. 20-Jan. 17...	104	21	

*Cholera Notes.*

[Translated in this Bureau from the "Veröffentlichungen des Kaiserlichen Gesundheitsamtes," Berlin, February 12, 1896.]

**AUSTRIA-HUNGARY.**—No new cases have been reported in Galicia since January 26. The total number of cases reported since August 23, 1895, is 453; deaths, 296.

**RUSSIA.**—Cases and deaths were reported as follows to the medical department up to January 20:

In the city of St. Petersburg, from January 4 to 18, 74 cases, 31 deaths;

in the government of Volhynia, from December 14 to 28, 24 cases, 12 deaths; government of Kiew, from December 22 to January 11, 10 cases, 5 deaths; government of St. Petersburg, from December 29 to January 11, 8 cases, 3 deaths.

EGYPT.—Cases and deaths have been reported up to January 31 as follows: Zagazig, from January 23 to 25, 2 cases, 2 deaths; Alexandria, from January 24 to 29, 7 cases, 6 deaths; Sawalem, on January 27, 1 case, 1 death; Arnie, on January 25, 1 death.

EAST INDIES—*Calcutta*.—From December 29, 1895, to January 4, 1896, there were 41 cholera deaths.

#### GIBRALTAR.

##### *Quarantine notice.*

GIBRALTAR, *February 10, 1896.*

With reference to the board of health, notices of December 3d and 11th ultimo, it has been decided by the board to remove the quarantine on arrivals from Rabat and Mazagan.

By order,

JOHN C. KING,  
*Secretary to the Board of Health.*

##### *Statistical reports.*

BERMUDA.—Two weeks ended February 21, 1896. Estimated population, 15,013. One death. No deaths from contagious disease.

BRAZIL—*Pernambuco*.—Month of January, 1896. Estimated population, 200,000. Total deaths not reported. Three deaths from yellow fever, with 5 cases, and 52 deaths from smallpox, with 203 cases.

CUBA—*Habana*.—Under date of February 29, 1896, the United States sanitary inspector reports as follows:

There were 134 deaths in this city during the week ended February 27, 1896. One of those deaths was caused by yellow fever, with 7 new cases approximately, 3 were caused by enteric fever, 2 by pernicious fever, 9 by enteritis, 5 by dysentery, 4 by smallpox, 1 by scarlet fever, 7 by pneumonia, 1 by grippe, and 2 by puerperal fever. The 1 death by yellow fever during the week occurred in the military hospital.

GREAT BRITAIN—*England and Wales*.—The deaths registered in 33 great towns of England and Wales during the week ended February 15 correspond to an annual rate of 19.3 a thousand of the aggregate population, which is estimated at 10,860,971. The lowest rate was recorded in Croydon, viz, 12.8, and the highest in Norwich, viz, 26.4 a thousand.

*London*.—One thousand seven hundred and twenty-seven deaths were registered during the week, including measles, 91; scarlet fever, 23; diphtheria, 45; whooping cough, 72; enteric fever, 10; and diarrhea and dysentery, 6. The deaths from all causes corresponded to an annual rate of 20.3 a thousand. In greater London 2,189 deaths were registered, corresponding to an annual rate of 18.6 a thousand of the population. In the "outer ring" the deaths included 7 from diphtheria, 7 from scarlet fever, 22 from measles, and 15 from whooping cough.



*Ireland.*—The average annual death rate represented by the deaths registered during the week ended February 15 in the 16 principal town districts of Ireland was 22 a thousand of the population. The lowest rate was recorded in Galway, viz, 3.8, and the highest in Lurgan, viz, 31.9 a thousand. In Dublin and suburbs 151 deaths were registered, including scarlet fever, 2; enteric fever, 2; and whooping cough, 2.

*Scotland.*—The deaths registered in 8 principal towns during the week ended February 15 corresponded to an annual rate of 19.1 a thousand of the population, which is estimated at 1,500,435. The lowest mortality was recorded in Leith, viz, 11.9, and the highest in Greenock, viz, 24.4 a thousand. The aggregate number of deaths registered from all causes was 557, including measles, 5; scarlet fever, 7; diphtheria, 5; and whooping cough, 30.

## MORTALITY TABLE, FOREIGN CITIES.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—							
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.
											Whooping cough.
Acapulco.....	Feb. 9.....	5,000	5								
Aix la Chapelle.....	Feb. 8.....	110,641	42								
Amherstburg.....	Feb. 22.....	2,300	1								
Amsterdam.....	Feb. 15.....	456,192	178						3	3	
Antwerp.....	Feb. 8.....	269,623	88			1					
Belfast.....	Feb. 15.....	277,354	120					3	2	1	4
Berlin.....	Feb. 1.....	1,687,735	582					1	10	12	1
Birmingham.....	Feb. 15.....	496,751	173					2	4	4	10
Bologna.....	Feb. 19.....	146,973	113						1		
Bombay.....	Jan. 28.....	853,926	551	5							
Bradford.....	Feb. 15.....	221,616	76					2	1	2	
Bremen.....	Feb. 8.....	141,937	49					1		1	
Bristol.....	Feb. 15.....	230,263	78						3	1	5
Brussels.....	Feb. 8.....	507,985	194					1		1	1
Calcutta.....	Jan. 18.....	681,560	579	48							
Cardenas.....	Feb. 1.....	23,517	11								
Do.....	Feb. 8.....	23,517	14								
Do.....	Feb. 15.....	23,517	12								
Cardiff.....	do.....	162,690	51							2	
Catania.....	Feb. 11.....	120,000	76				1	1	2		
Chatham.....	Feb. 22.....	9,052	3								
Christiania.....	Feb. 15.....	174,717	33					1			
Cienfuegos.....	Feb. 23.....	23,000	20		1						
Coaticook.....	Feb. 22.....	2,500	0								
Cologne.....	Feb. 8.....	320,973	120								3
Colombo.....	Jan. 18.....	130,000	97								
Do.....	Jan. 25.....	130,000	87								
Dublin.....	Feb. 15.....	350,000	151					1			
Dundee.....	do.....	161,620	61					1	2		2
Dusseldorf.....	Feb. 8.....	175,861	61						3		1
Edinburgh.....	Feb. 15.....	276,514	105							3	2
Flushing.....	do.....	16,200	9								
Frankfort on the Main.....	do.....	228,750	70						1	1	1
Girgenti.....	Feb. 8.....	24,428	12								
Glasgow.....	Feb. 15.....	705,052	271					2	2	3	18
Gothenburg.....	Feb. 8.....	111,234	40							6	
Guayaquil.....	Feb. 14.....	50,000	65			2		26			3
Halifax.....	Feb. 22.....	38,700	12								
Hamburg.....	Feb. 15.....	625,552	223					1	1	1	5
Kehl, Strasburg.....	Feb. 8.....	141,156	49					2		2	
Kingston, Canada.....	Feb. 21.....	17,955	10								
Do.....	Feb. 29.....	17,955	3								
Konigsberg.....	Feb. 15.....	171,700								1	2
Leeds.....	do.....	395,546	147					2	2	2	6
Leghorn.....	do.....	103,434	45							1	
Leith.....	do.....	74,110	17								
Licata.....	Feb. 8.....	20,000	15							1	
Liège.....	Feb. 15.....	160,848	58					1	2		
Liverpool.....	do.....	641,063	287					3	6	2	6
London, Canada.....	Feb. 22.....	35,000	13								
London, England.....	Feb. 15.....	6,150,500	2,189					16	30	52	113
Lyons.....	Feb. 8.....	500,000	196						2	1	2
Madras.....	Jan. 24.....	452,518	292			1					
Madrid.....	Feb. 4.....	482,816	435			3		2	3	8	
Do.....	Feb. 11.....	482,816				9	3	4			5
Magdeburg.....	Jan. 4.....	214,494	84							2	
Manchester.....	Feb. 15.....	531,697	236					4	3	4	10
Mannheim.....	Feb. 8.....	88,400	26					1		2	
Maracaibo.....	do.....	42,000	20								
Matamoros.....	Feb. 21.....	8,000	5					1			
Mayence.....	Feb. 15.....	74,917	27								
Messina.....	do.....	107,000	54					1			
Moscow.....	Feb. 1.....	800,000	517					2	2	4	20
Do.....	Feb. 8.....	800,000	460					4	1	9	9
Munich.....	do.....	406,000	166						1	4	7
Nogales.....	Feb. 22.....	1,580	0								
Nuremberg.....	Feb. 1.....	162,380	67							2	
Odessa.....	Feb. 8.....	353,000	165					1	3	5	
Palermo.....	do.....	273,000	168						4	4	
Paris.....	do.....	2,424,705	1,048					5	3	16	33
Do.....	Feb. 15.....	2,424,705	1,053			1		4	5	10	21
Plymouth.....	do.....	86,781	36							1	
Prague.....	Feb. 8.....	196,377	100					1		3	1
Puerto Cortez.....	Feb. 19.....	1,856	0								

## MORTALITY TABLE, FOREIGN CITIES—Continued.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—							
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles. Whooping cough.
Rheims.....	Feb. 15.....	105,408	40	.....	.....	.....	.....	.....	.....	2	3
Rotterdam.....	.....do.....	276,338	126	.....	.....	.....	.....	.....	1	.....	.....
Sagua la Grande.....	Feb. 15.....	17,536	15	.....	.....	.....	.....	.....	.....	.....	.....
St. Georges.....	Jan. 25.....	2,150	0	.....	.....	.....	.....	.....	.....	.....	.....
Do.....	Feb. 1.....	2,150	0	.....	.....	.....	.....	.....	.....	.....	.....
St. Petersburg.....	Feb. 8.....	1,100,000	670	5	.....	5	1	26	24	12	4
St. Stephens.....	Feb. 22.....	3,000	2	.....	.....	.....	.....	.....	.....	1	.....
San Juan del Norte *	Feb. 8.....	1,280	0	.....	.....	.....	.....	.....	.....	.....	.....
San Juan, Porto Rico.....	Dec. 27.....	30,000	27	.....	7	.....	.....	.....	.....	.....	.....
Do.....	Jan. 3.....	30,000	17	.....	6	.....	.....	.....	.....	.....	.....
Do.....	Jan. 10.....	30,000	32	.....	4	.....	.....	.....	.....	.....	.....
Do.....	Jan. 17.....	30,000	20	.....	7	.....	.....	.....	.....	.....	.....
Schiedam.....	Feb. 15.....	26,233	11	.....	.....	.....	.....	.....	.....	.....	.....
Sheffield.....	.....do.....	346,823	117	.....	.....	.....	.....	4	1	1	4
Stettin.....	Feb. 8.....	140,000	62	.....	.....	.....	.....	.....	.....	.....	.....
Stockholm.....	.....do.....	259,304	73	.....	.....	.....	.....	1	2	.....	2
Stuttgart.....	Feb. 13.....	157,700	62	.....	.....	.....	.....	.....	.....	.....	.....
Swansea.....	Feb. 8.....	95,370	29	.....	.....	1	.....	.....	.....	.....	.....
Do.....	Feb. 15.....	95,370	32	.....	.....	.....	.....	.....	.....	.....	1
Tegucigalpa.....	Feb. 8.....	12,000	6	.....	.....	.....	.....	.....	.....	.....	.....
Truxillo.....	Jan. 25.....	4,000	0	.....	.....	.....	.....	.....	.....	.....	.....
Do.....	Feb. 1.....	4,000	1	.....	.....	.....	.....	.....	.....	.....	.....
Do.....	Feb. 8.....	4,000	1	.....	.....	.....	.....	.....	.....	.....	.....
Do.....	Feb. 16.....	4,000	0	.....	.....	.....	.....	.....	.....	.....	.....
Tuxpan.....	Feb. 1.....	10,280	11	.....	.....	1	.....	.....	.....	1	.....
Vera Cruz.....	Feb. 20.....	27,065	28	.....	.....	.....	.....	.....	.....	.....	.....
Winnipeg.....	Feb. 10.....	37,062	10	.....	.....	.....	.....	.....	.....	.....	.....
Do.....	Feb. 17.....	37,062	10	.....	.....	.....	.....	.....	.....	.....	.....
Do.....	Feb. 24.....	37,062	6	.....	.....	.....	.....	.....	.....	.....	.....
Zurich.....	Feb. 8.....	129,000	54	.....	.....	.....	.....	.....	.....	1	2

\* Five cases of yellow fever.

By authority of the Secretary of the Treasury :

WALTER WYMAN,  
*Supervising Surgeon-General Marine-Hospital Service.*