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A POSSIBLE EXPLANATION OF THE ABSENCE OF BUBONIC PLAGUE IN COLD COUNTRIES.¹

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A study of the reports of plague occurrence as published in the **PUBLIC HEALTH REPORTS**² shows that in the past 26 years bubonic plague has spread in an east and west direction from India until, at the present time, it may be found encircling the globe in a rather broad band, bounded, roughly, by the thirty-fifth degree parallel north and south of the Equator. This plague circle of the globe was completed as far back as 1914, when the disease appeared for the first time in one of the cities of our Southern States. Bubonic plague has appeared north of the thirty-fifth parallel north latitude rather extensively in southern Europe; in fact, it may be said that in that part of the world the forty-fifth latitude north more probably describes the northern boundary. It is also noted that in our own country this disease, appearing in San Francisco, is north of the thirty-fifth parallel. Reference to climatic conditions along the Mediterranean coasts and in San Francisco will show that the temperatures are markedly modified in these localities as compared with the temperatures in other parts of the United States and in other countries of this same latitude. This, of course, is due in great part to ocean currents and to the warm waters of the Mediterranean.

While bubonic plague has spread around the globe during this 26-year period, there has been no such corresponding spread to the north and south of parallels 35, with one notable exception, namely, the British Isles. And here we see again the climate modified to a great extent, in this instance by the Gulf Stream. Notwithstanding this modification of climate, and in spite of the fact that bubonic plague has appeared in different places in Great Britain as often as twenty times during the past 26 years, there has been no general spread of the disease in Great Britain during this time, nor any spread at any time from city to city; and during the year 1922 and up to May, 1923, no cases of or deaths from plague have been reported in Great Britain. In

¹ EDITORIAL NOTE.—The article here published is valuable as a summary of the history of plague during the periods studied; but, taking into consideration the past history of this disease, it is believed that the period of observation is much too short to justify definite conclusions. The Public Health Service has begun flea surveys at one or more North Atlantic ports.

² These reports are received from medical officers of the Public Health Service, American consuls, health authorities of foreign countries, and other sources.—Ed.

26 years there have been only 26 deaths from plague in all parts of Great Britain; and this, in spite of daily maritime contact with the plague centers of the world and, until recently, without any efforts being made at quarantine restriction or any extensive effort on the part of local authorities to suppress these outbreaks.

It is seen from this study of the PUBLIC HEALTH REPORTS that during this term of years bubonic plague has spread alike to countries which endeavored to prevent its entrance and to those which made no such efforts. It is seen, too, that this disease has failed to spread alike to colder countries which made no effort to prevent its entrance as well as to those which, like our own North Atlantic seacoast, have made strenuous effort to prevent its ingress. In other words, it appears that the efforts of man to control the world-wide spread of this disease have been of little or no avail. It would seem, too, that in this extended period of time bubonic plague would have spread to northern countries also, were it epidemiologically possible for it to have done so. That it has not so spread is not due, apparently, to efforts on the part of man, nor is it explained satisfactorily by considering it accidental. Plague has never been reported north of the sixtieth degree of latitude north; in the Western Hemisphere it has never been reported north of the fortieth degree of latitude, except in Seattle, Wash. The existence of the disease north of latitude 35 north has never, in any part of the world, constituted a serious sanitary problem, except in those warmer sections previously mentioned or in ages past under conditions with which we can not now be entirely familiar. What, then, is the explanation of the failure of this disease to spread to countries where the climate is cold or relatively cold?

In considering bubonic plague in its relation to human beings it is necessary, or usual, at this period of the world's history, to consider the disease in the rat as antecedent and necessary to its spread to the human population. The time may have been when man, dressing in skins and furs and living with lower animals in insanitary surroundings, contracted bubonic plague through fleas coming directly from a member of his own race. Such a transfer of this infection is not now of sanitary significance, and the three factors—man, the rat, and the flea—are taken together in any epidemiological study of bubonic plague.

We note that in the tropical sections of the world human plague is or has been reported in all months of the year, and for numbers of years in succession. The inference is (and this inference is supported by studies of the Indian Plague Commission) that all three factors are present throughout the entire year. The flea is the only factor which might be considered variable; but this insect is found at all seasons, though more plentiful during certain months. Man

and the rat must be active at all seasons in order to live. They are relatively long lived; they do not hibernate in any climate; and their young do not pass through the winter in the immature state. Neither the human nor the rat population changes extensively in any given area during short periods. The adult flea, on the other hand, lives usually not many months; and in a cold or cool climate the adult rarely passes through the winter. The flea, as a species, is prevented from dying out in cold countries by the ability of the immature forms to exist for periods which may range to more than a year. These long pupal stages are seen only in cool or cold weather. These facts are borne out by the studies of the Indian Plague Commission and by work done by investigators of the Bureau of Entomology, United States Department of Agriculture.

My own observations in regard to the absence of fleas in adult form in the winter months have been confined to cats. During two recent winters I was unable to find fleas on cats between December 15 and March 15, although the animals in question spent the entire winter months indoors in warm places, and the basements where they slept had been heavily infested with fleas during the previous summers. These observations were made in the vicinity of Philadelphia, Pa., at which place the mean midwinter temperature is about 31.5° F.

It was this observation that led me to speculate as to the probable absence of fleas from their rat hosts during the cold months of the year, and further led me to suspect that the freedom of certain countries from outbreaks of human cases of bubonic plague could be explained by the absence of fleas. During the past year I have advocated making a flea survey of the cities of our Atlantic coast in order to determine definitely whether I was correct in the above explanation.

Should this flea survey show that fleas are relatively abundant on rats at all seasons of the year, the absence of bubonic plague would, of necessity, be accidental, as all three factors needed in its spread would be present. If, on the other hand, it were shown that during certain cold months no fleas, or only a few fleas, occasionally, were found, an explanation of the absence of human plague would be at hand. Rat plague introduced into a locality where adult fleas are present would spread among the rats, the rapidity of this spread being dependent on the abundance of fleas and the number of rats. If the fleas should be present throughout the entire year, as in the Tropics, the infection among the rats would become so extensive as eventually to result in the appearance of human cases. Rat plague introduced into a community where fleas are absent for certain months must, of necessity, die out when the flea disappears, as one factor in the spread of the disease will be absent with their disappearance.

The question as to whether human plague will appear in a locality in which rat plague must disappear at the beginning of each winter can be answered only after consideration of several factors. Among these are the following: The number of fleas per rat in the months during which fleas are present; the number of months in which fleas are found present; and the relative number of rats in the locality under consideration. The character of the communication with active plague centers might also be taken into account. As regards the number of fleas per rat, this knowledge will be valuable only when compared with a like knowledge of similar conditions in localities where bubonic plague has prevailed throughout the entire year, as, for example, some cities in India. The number of months during which fleas may be found on rats should be fewer the farther north the locality is situated. In regard to communication with plague centers, we have noted that Great Britain, though in intimate maritime association with India, has not suffered seriously.

In order to have some definite data based on reported occurrence, which might sustain my belief that the absence or relative absence of fleas during the cold months determined the absence of bubonic plague from certain countries, a rather detailed study of the reports of cases of plague as given in the PUBLIC HEALTH REPORTS for the past 26 years was undertaken. A table was prepared giving the names of cities and countries in which plague had been reported in the PUBLIC HEALTH REPORTS for the years 1897 to 1922, inclusive. Each year was divided into two periods, corresponding to the semiannual summaries given in the last issues of the PUBLIC HEALTH REPORTS for the months of June and December, respectively. The total figures for the 52 six-month periods have been used in preparing the tables which follow. The cities and countries in which the reports showed the occurrence of plague, and other principal cities, have been combined into four temperature groups,³ namely, (1) those having mean midwinter temperatures⁴ of 35° F. or below; (2) those having mean midwinter temperatures of 36°–45° F.; (3) those having mean midwinter temperatures of 46°–55° F.; and (4) those countries having mean midwinter temperatures of 65° F. and higher (Tables I, II, III, and IV).

In this way it was possible to show at a glance where plague had actually occurred, how extensively, and what was its seeming relation to different temperatures. These temperature periods also explain the apparent exceptions to the spread of plague north of parallel 35° north.

³ These temperature groups were based on data contained in "The Climate of the Continents," by W. G. Kendrew. Oxford, 1922.

⁴ "Mean midwinter temperature" as used here would probably be more accurately stated as the mean January–February temperature for the Northern Hemisphere and the mean July–August temperature for the Southern Hemisphere.

No question is raised in this statistical study of the accuracy and completeness of the reports. It is obvious that in some instances in certain countries they are far from complete, yet there is no reason to suspect that any reported cases are incorrect. It is more likely that fairly complete returns have been made for those cities and countries in Tables I and II than for those in Tables III and IV, as the cities given in the former tables are those which have for years paid much attention to sanitary matters and from which correct reports of all kinds might be expected.

Table I lists the principal seaports of the world in which the mean midwinter temperature is 35° F. or below. In only four of these cities has plague been reported, the others being given because of the rather prevalent belief that plague had already spread to the principal seaports of the world. Two inland cities are also included because they have reported plague.

Table II shows those cities of the world having a mean midwinter temperature of 36° to 45° F., in which plague has been reported, and the number of cases in each.

Table III shows those cities and countries in which plague has been reported, in which the mean midwinter temperature is between 46° and 55° F.

Table IV shows those countries having a mean midwinter temperature of 56° F. and over, in all of which bubonic plague has been reported during the 26 years under consideration.

Table V shows the total number of cases of bubonic plague occurring in each of the four temperature groups, and the percentage of cases reported for each one of those temperature divisions. The percentages are given exclusive and inclusive of the cases reported from India.

TABLE I.—Number of cases of bubonic plague reported in seaport cities (except two) with mean midwinter temperatures 35° F. or below. (The principal cities of the world having such temperatures.) Reports received from January 1, 1897—December 31, 1922.

City.	Number of cases reported.	Remarks.	City.	Number of cases reported.	Remarks.
Washington.....	0		Antwerp.....	0	
Baltimore.....	0		Bahia Blanca.....	0	
Philadelphia.....	0		Punta Arenas, Chile.....	0	
New York.....	0		Otaru, Japan.....	0	
Boston.....	0		Peking.....	2	Jan. 24, 1911.
Portland, Me.....	0		St. Petersburg.....	7	May, July, November.
St. Johns.....	0		Moscow.....	14	12 in winter; 2 in August.
Halifax.....	0		Odessa.....	140	July to November, 1910
Montreal.....	0		Do.....	8	June to August, 1911.
Bergen.....	0		Do.....	3	Dec. 29, 1911.
Christiania.....	0		Do.....	49	To November, 1901.
Stockholm.....	0		Total.....	1 223	
Göteborg.....	0				
Danzig.....	0				
Hamburg.....	0				
Bremen.....	0				
Copenhagen.....	0				
Amsterdam.....	0				
Rotterdam.....	0				

¹ It will be noted that 203 of the 223 cases occurred in the one port, Odessa.

TABLE II.—Number of cases of bubonic plague reported in seaport cities principally with mean midwinter temperatures 36° to 45° F.¹ (Only those cities in which plague has been reported are included.) Reports received from January 1, 1897–December 31, 1922.

City.	Number of cases reported.	City.	Number of cases reported.
Trieste.....	2	Cardiff.....	1
Piñne.....	4	Govan.....	1
Cattaro.....	3	Shanghai.....	73
Auckland.....	17	Seattle.....	5
Paris.....	54	Batoum.....	39
Saloniki.....	26	Constantinople.....	10
Glasgow.....	35	Nagasaki.....	36
Bristol, England.....	3	Yokohama.....	86
Hull.....	2	Tokyo.....	58
Dublin.....	1	Kobe.....	310
Liverpool.....	27	Osaka.....	604
Suffolk (County), England.....	4		
London.....	4	Total.....	1,409
Leith.....	4		

¹ The cities of Norfolk, Va., and Wilmington, N. C., belong in this temperature division.

² It will be noted that 914 of the 1,409 cases in this group occurred in Kobe and Osaka, Japan.

TABLE III.—Number of cases of bubonic plague reported in seacoast countries and cities with mean midwinter temperatures 46° to 55° F. (Only those in which bubonic plague has been reported are included.) Reports received from January 1, 1897–December 31, 1922.

City or country.	Number of cases reported.	City or country.	Number of cases reported.
Algeria.....	325	Australia.....	1,361
Tunis.....	19	Rosario and Buenos Aires (all of Argentina).....	316
Morocco.....	48	South Africa.....	3,359
Tripoli.....	56	San Francisco.....	279
Bagdad and vicinity.....	2,691	Galveston.....	18
Lisbon.....	122	New Orleans.....	49
Oporto.....	564	Pensacola.....	10
Naples and Catania.....	79	Beaumont.....	14
Barcelona.....	39		
Marseilles.....	92	Total.....	19,578
Piræus and islands nearby.....	137		

¹ Nearly two-thirds of these cases were reported from Bagdad and vicinity and from South Africa.

TABLE IV.—Number of cases of bubonic plague reported in countries with mean midwinter temperatures of 56° F. and over—Reports received from January 1, 1897–December 31, 1922.

Country.	Number of cases reported.	Country.	Number of cases reported.
Cuba.....	68	Cape Verde.....	12
Trinidad.....	62	Hawaii.....	204
Granada.....	1	Philippines.....	1,446
Panama.....	2	Mexico.....	515
Venezuela.....	229	Porto Rico.....	71
Chile.....	2,576	China (Southeast).....	33,207
Brazil.....	4,770	New Caledonia.....	290
Paraguay.....	91	Japan (Formosa).....	35,540
Uruguay.....	14	Ecuador.....	5,807
West Africa.....	296	Peru.....	13,247
East Africa.....	3,963	Egypt.....	15,217
Mauritius.....	7,732	Java.....	69,105
Reunion Island.....	12	India (Indo-China, etc.).....	8,864,50½
Madagascar.....	627		
Persia.....	2,044	Total.....	9,067,080
Arabia.....	2,469		
Ceylon.....	1,481	Cases exclusive of India.....	202,576
Turkey.....	890	Cases from India.....	8,864,504
Azores.....	583		

TABLE V.—Total number of cases of bubonic plague reported from the four temperature groups as given in Tables I, II, III, and IV, and percentage of cases occurring in each group.

[Because of the fact that some of the cases reported from India occurred in the extreme northern part of the country, where the mean midwinter temperatures are below 56° F., the percentages are computed both inclusive and exclusive of India.]

Mean midwinter temperature.	Including India.		Excluding India.	
	Number of cases.	Per cent of total.	Number of cases.	Per cent of total.
Degrees F.:				
35 and below.....	223	0.0025	223	0.1043
36-45.....	1,409	.0155	1,409	.6591
46-55.....	9,578	.1055	9,578	4.4802
56 and over.....	9,067,080	99.8765	202,576	94.7564
Total.....	9,078,290	100	213,786	100

Table VI compares the percentages computed for the entire period of 26 years with those computed only for the last 15½ years of that period.

Table VII shows the relation between the number of reported cases of bubonic plague and the mean midwinter temperatures in certain Chinese and Japanese cities. It is interesting to note that Peking, China, in 26 years has reported only two cases of plague, though tens of thousands of cases of the bubonic type occurred during that period in southeastern China and two disastrous epidemics of pneumonic plague visited Manchuria to the north during that time.

Table VIII shows the dates of occurrence or of beginning and ending of those scattered outbreaks of plague which occurred during the 26-year period in cities with a mean midwinter temperature of 36° to 45° F. It will be noted that with scarcely any exceptions these outbreaks have occurred in the late summer and fall. Being absent during the winter months, it seems that these human outbreaks occur only after plague has gradually increased in the rat population through the spring and early summer. The time of these outbreaks seems to coincide with the season in which fleas are known to be most plentiful. It is also noted that there is a disappearance of this disease not later than November or early December in nearly all cases reported. This coincides with the suggestion that I have advanced that this disease would disappear with the disappearance of the fleas at the beginning of the cold season—up to a certain temperature which remains to be determined.

TABLE VI.—Comparison of the percentages for the temperature groups given in Table V (excluding India), with percentages based on reports for the 15½-year period, July 1, 1907–December 31, 1922.

Mean midwinter temperature.	26-year period, Jan. 1, 1897–Dec. 31, 1922.	15½-year period, July 1, 1907–Dec. 31, 1922.
Degrees F.:		
35 and below.....	0.10	0.17
36–45.....	.66	1.30
46–55.....	4.48	4.60
56 and over.....	94.76	93.93

It will be seen that the percentages are practically the same for each period, although more than 5,000,000 cases of bubonic plague were reported in the various countries between January 1, 1897, and June 30, 1907. If the cases reported from India are included, the percentage of cases occurring in the highest temperature group is 99.8 in each period.

TABLE VII.—Relation between the number of reported cases of bubonic plague and mean midwinter temperatures in certain cities of China and Japan.¹

City.	Popula- tion (approximate).	Mean mid- winter temperatures.	Number of cases reported.	Remarks.
China:		(Degrees F.)		
Hongkong.....	330,000	59	20,000	In round numbers; more reported.
Shanghai.....	835,000	37	73	
Peking.....	700,000	25	2	In winter of 1911; probably pneu- monic.
Japan:				
Taiwan Island (Formosa).....	3,700,000	60	20,000	In round numbers; more re- ported.
Tokyo.....	2,173,000	37	58	
Otaru.....	92,000	*23	0	

¹ Factors such as difference in amount of shipping, suppressive measures employed, whether seaport or not (Peking an inland city), etc., are not considered here.

It may be said that this same relation between the number of reported cases of bubonic plague and mean midwinter temperature is markedly noticeable in India, although no compilation has been made separating the number of plague cases reported in India into temperature groups. However, of the 322,560 cases reported between October, 1919, and October, 1922, none was stated as occurring north of Delhi, at which place the mean midwinter temperature is 59.5° F. It has already been noted that cases of bubonic plague were reported in the northern part of India, but the number is relatively very small.

TABLE VIII.—*Period of year at which bubonic plague appeared (and disappeared) in cities with mean midwinter temperatures 36° to 45° F.*

City.	Date.
Dublin.....	Oct. 18.
Bristol (England).....	Aug. 18-31.
Hull.....	Do.
Liverpool.....	Sept. 22-Oct. 6.
Do.....	August; June 20-26.
Suffolk County.....	October; September; June 19.
Glasgow.....	August to October.
London.....	August.
Leith.....	May 7-14.
Cardiff.....	February (1 death).
Govan.....	September.
Saloniki.....	October-December; April and May.
Volo.....	September and October.
Paris.....	June to October; August; January (3 suspected cases).
Auckland, New Zealand (Southern Hemisphere).....	March-May; Ma. h; June; (September; November; September; December. Southern Hemisphere).
Trieste.....	Nov. 1-8.
Fiume.....	Sept. 21.
Cattaro.....	Feb. 23 (in French troops).
Shanghai.....	August-December; June.
Nagasaki.....	To November.
Tokyo.....	June and August.
Batoum.....	Nov. 24 to Dec. 3.
Kobe.....	September to December; May to November.
Yokohama.....	May 22 to Nov. 12.
Osaka.....	May to December; November to May.

In looking over Tables I and II for facts that would tend to discredit the deductions made as to the occurrence and disappearance of bubonic plague in accordance with the seasonal prevalence of fleas, we are confronted with a few data that seem inconsistent with those deductions. In Table I only 4 cities out of 27 have ever reported plague. Of these 4, Moscow reported 12 cases in two outbreaks between December and February. If this was bubonic plague it is incompatible with the belief that fleas disappear in climates such as Moscow in cold weather. No mention is made, however, in the Public Health Reports as to whether these cases were bubonic or pneumonic. In any event, no further cases were reported in Moscow in the summers following these two outbreaks.

The cases appearing in St. Petersburg in May, 1910, also occurred somewhat too early in the year to be in accord with the belief that fleas have not become plentiful at this season. As in the case of the winter cases in Moscow, no mention is made as to whether these cases were bubonic or pneumonic. It is noted in the Public Health Reports, however, that in the years in which these winter cases were reported in St. Petersburg and Moscow, pneumonic plague was reported in Asiatic Russia and in the Astrakhan District.

Three cases of plague occurred in Odessa in January, 1911, and were probably pneumonic.

In Peking, China, the only two cases reported in 26 years occurred in January. It is significant that these two cases occurred in the winter in which 50,000 deaths were reported in Manchuria from

pneumonic plague, and it is more than possible that these two cases were pneumonic, though they were not so reported.

The only city listed in Table I in which plague was reported as occurring in the summer and fall months is Odessa, Russia. This disease was reported in Odessa as follows:

Year.	Months of occurrence.	Number of cases.
1901.....	To November.....	49
1910.....	July 18 to Nov. 25.....	140
1911.....	June 18 to Aug. 8.....	8

In a grain-shipping port such as Odessa, in a country where, possibly, little attention is paid to sanitation and where the human and rat populations may be both numerous and closely associated, it is possible for an outbreak of bubonic plague to occur, and the last three outbreaks reported for Odessa are probably such.

It may be mentioned here that only in Russia and China has plague of any type been reported in localities having a mean mid-winter temperature of 35° F. or below.

In Table II are mentioned 25 cities in which bubonic plague occurred during the period 1897 to 1922. Of 1,409 cases reported during this period, 914 occurred in Kobe and Osaka, Japan. The only reported outbreaks in this list which seem to controvert the theory that the seasonal prevalence of fleas governs the spread of bubonic plague will be mentioned below. It should be noted at this time, however, that we are dealing here with mean midwinter temperatures considerably higher than those in Table I, and it is possible that while fleas may be definitely absent in the winter months where the temperature is 35° F. or below, they may be sufficiently numerous in the next temperature division—36° to 45° F.—to make possible the continuance of the disease through the winter. Yet the exceptions are so few as to make it difficult to believe that some explanation of the discrepancy might not be found if the correct records of the cities involved were accessible.

The outbreaks (Table II) which appear to cast some doubt on the correctness of the theory advanced are as follows:

Paris, January: Three cases reported as suspected plague. They possibly were not plague.

Cattaro, port of Cettinje, February: Three cases reported in French troops. These were possibly imported, but it is not so stated.

Japan: In the 19 outbreaks reported in 5 cities in Japan, all but 2 show the disease occurring between May and December. Both of these outbreaks were in Osaka, one occurring between January and April and the other between November and May. This last was an

outbreak of 297 cases, reported in the midyear summary of Public Health Reports as occurring between November and May. Reference to the Public Health Reports, January to June of that year, show that 234 of these cases occurred between November 17 and December 21; 31 cases between December 21 and January 11, and the remaining 32 cases between January 12 and May 9—at the rate of about 2 cases a week. While there was a decided drop in the number of cases reported weekly—from 47 per week in November and December to 2 per week from January 11 to May 9—during the cold months, the fact remains that in Osaka human cases of bubonic plague were reported throughout the winter. The mean January and February temperature of Osaka is about 39.5° F. The December and March temperatures are 43° F. Whether this particular winter was an exceptionally warm winter in Japan has not been determined.

All of the 35,500 cases of plague reported in Japan, with the exception of something over 1,000 cases, were reported from the island of Formosa (Taiwan Island).

It should be mentioned in considering the cities of Table I that the principal seaports have all more or less intimate maritime relations with the plague centers of the Tropics and with those occasionally infected areas which are found in the regions adjoining the Tropics. At many of these cities vessels have been reported from time to time in the Public Health Reports as arriving with human cases of plague aboard, and it must be that many plague-infected rats have been brought into them during the period of years under consideration. In studying the outbreaks listed in Table II it is seen that they are short lived, apparently self-limited, and practically never result in a recurrence the following season after dying out during the winter season. The only exception to this is the outbreak in the Kobe-Osaka vicinity in the year 1908. Excluding the 914 cases reported in these two cities, only 495 cases of bubonic plague were reported in the remaining 23 cities in this group during a period of 26 years.

The outbreaks shown in Table III indicate, in a general way, a rather definite seasonal prevalence for plague. This seems not always to coincide with the rise and fall in temperature, and it is possible that at the temperatures 46°–55° F. the prevalence of fleas is influenced both by rainfall or humidity and temperature variations. Further study of the records and flea surveys of localities in this temperature division are necessary before any accurate deductions can be made as to what it is reasonably possible to predict for such localities. It is, however, obvious that some rather important factor is involved in localities even of these high temperatures in limiting the spread of bubonic plague in 23 cities and countries over a period of 26 years

to less than 10,000 cases, nearly two-thirds of which were reported from two localities, Bagdad and vicinity and South Africa.

The periodic and infrequent occurrence of bubonic plague in cities and countries of this group is in rather striking contrast to the almost constant presence of this disease in the countries which are mentioned in the last group. The countries listed in the last temperature group are really tropical countries, and it is in these that 94.5 per cent of cases reported in the 26-year period have occurred. Bubonic plague has been reported continuously for the past 26 years, or since first reported, in the following countries: India, Java, Ceylon, Egypt, southeast China, Peru, Brazil, and Ecuador. This is in rather marked contrast to its irregular periodicity in those cities and countries in the third temperature group which have a lower mean midwinter temperature. It is in much more marked contrast to those cities mentioned in Tables I and II in which bubonic plague occurs at rare intervals and at definite seasons in most instances.

Mention must be made of the report of plague in two sections of the world where it has been often reported and where it has caused many thousands of deaths. These two areas are Manchuria and the districts surrounding the Caspian Sea. In this study it has not been possible to examine the weekly records of cases reported. The semiannual summaries of cases given in the Public Health Reports sometimes refer to the outbreaks in these regions as "pneumonic," but not always so. From the relatively short periods in which so many cases and deaths were reported and the exceedingly high mortality rate mentioned, it is believed that all or most of this plague was of the pneumonic variety. Further detailed study will be necessary, however, should more accurate data as to the reports from these areas be desired.

CONCLUSIONS.

The more obvious conclusions to be drawn from this discussion and these tables are as follows:

(1) Bubonic plague is essentially a disease of hot climates, and, having been introduced into tropical countries, it tends to persist indefinitely.

(2) Outside of the immediate Tropics, this disease is rather definitely limited in the extent to which it will spread.

(3) In countries with a mean midwinter temperature of 45° F. or below, bubonic plague is occasional, accidental, and distinctly self-limited, and it seems possible for it to occur in the colder regions only for short periods under unusual conditions.

This study appears to me to sustain the deduction that the seasonal prevalence of fleas regulates the spread of bubonic plague; otherwise

it becomes necessary to find at least some equally reasonable explanation for the absence of bubonic plague in cold countries.

Any estimate of the practical results that would ensue from a determination of the correctness of the theory advanced in this article and the conclusions drawn therefrom must await confirmation by an actual and comparative flea survey of any given locality.

VENTILATION OF SHIPS AFTER FUMIGATION WITH POISONOUS GASES.

In a recent report by Mr. Stephen Olop, Superintendent of Construction and Recorder of the Board of Fumigation and Ventilation, United States Public Health Service, the following suggestions and recommendations are submitted:

In connection with the problems in ventilation related to freeing vessels from poison gas after fumigation, the writer recommends: (a) That special attention be given to the adjustment of ventilator cowls, and (b) that the bilge pumps be operated as soon as the ship's crew may be allowed access to same with safety. The reasons are stated as follows:

Upon further study of observations made by him in the experiments conducted on the *Hartford*, set forth in his report of December 6, 1922, and from miscellaneous inquiries, experiments, and observations made by him since that time, the writer concludes that special attention should be accorded the adjustment of ventilator cowls aboard ship. Observations made on the *Hartford* indicate that, generally, elimination of gas proceeds most slowly in the windward portion of the average hold. This appears to be the case not only where the hatch opening is the sole means for ventilation, but also where it is augmented by ventilators. The air will travel downward mainly at the leeward side, thence in counter-windward direction, thence upward and finally out. If the cowls of windward ventilators are set to face the wind, much air will enter through them, which is met by air currents within the hold moving in counter-windward direction, causing a conflict of currents and thus reducing their ventilating values considerably. Pockets occur mainly in windward portions of the average holds.

The writer observed that on vessels carrying highly perishable cargo, such as fruit, particular attention is given to careful adjustment of the ventilator cowls, and that those at the windward side of a hold are turned away from the wind and those at the leeward side to face the wind, thus inducing a downward flow of air in the leeward and an upward flow in the windward portion of a hold. That such arrangement of the ventilator cowls is the most efficient appears

fully plausible from the observations made on the *Hartford* and the practice on well-managed ships. It was further observed that, as stated in the writer's report mentioned above, efficiency of ventilators as inlets and outlets, respectively, diminishes materially and rapidly as the horizontal axis of the cowl departs from the direction of the wind, or, in other words, as the angle formed by the horizontal axis of the ventilator cowl and the direction of the wind is increased.

In view of the foregoing, the writer recommends that special attention be given to the facing of ventilator cowls, and that: (a) Ventilators at windward side of a hold be faced *away* from the wind, and ventilators at leeward side of a hold be faced *toward* the wind; (b) the horizontal axis of cowls of such ventilators be made coincident, as nearly as possible, with the direction of the wind, and that adjustment of cowls be corrected accordingly as changes in direction of wind or position of ship occur during ventilation after fumigation.

The considerations prompting the foregoing apply also largely to spaces other than holds, such as lockers, storerooms, etc., where the phenomena involved occur, but are less distinguishable because of greater irregularity of shape as compared with cargo holds.

It has been noted that shut-in spaces, with little or even almost no provision for ventilation, exist on most ships. Often such spaces are difficult of access. It has occurred that from known and, at times, unknown causes, gas remained or accumulated in certain spaces below. It may be that the gas was not properly eliminated because of lack of ventilating facilities, or that it condensed in contact with cool objects and diffused after the time when the hold was believed to be clear; and there may have been instances when the gas was absorbed by the cargo, or by the bilge water, and subsequently liberated.

The writer finds that on some ships plying in tropical waters, where noxious odors and gases quite readily form from decomposition of highly perishable cargo (such as bananas, mangoes, etc.), the bilge pumps are called into action to relieve the situation. This is done not only to remove bilge water (which would, under the conditions referred to, be especially foul) but also to induce air currents in spaces insufficiently or not at all reached by the regular ventilating apparatus. Thus it was found that operation of the bilge pumps is of value even after the bilges are dry. The writer learned from one ship's captain that he usually operates the bilge pumps for some time after the ship has been fumigated and cleared at quarantine, finding that he has then less trouble from gas that is still noticeable below or that makes its appearance later. The writer observed on a recent steamship trip that operation of the bilge pumps dry (sucking air) will set up air currents and induce ventilation in most of the places that are especially difficult to free from gas.

In view of the somewhat obscure properties of concentration and condensation of some gases, and the certainty that it is desirable to empty the bilges (*a*) for sanitary reasons in general, (*b*) because of possible gas condensation and absorption by the bilge water, and (*c*) to improve ventilation of remote spaces, which latter point in itself is of commanding importance, the writer recommends that consideration be given to the issuance of new instructions ordering the operation of the bilge pumps until the bilges are fully drained, and continued thereafter for a period of not less than 20 minutes, and preferably longer, such operation to be commenced as soon after fumigation as the ship's crew may safely be allowed access to the pumps.

THE NATIONAL HEALTH COUNCIL AS AN AID TO ORGANIZED HEALTH AGENCIES.

The following report was prepared by the National Health Council committee on programs and budgets and presented before the annual conference of State and Provincial health authorities at its meeting in May, 1923, by Dr. S. J. Crumbine, the representative of the conference on the council, secretary of the Kansas State Board of Health. This report furnishes a comprehensive statement in regard to the National Health Council as an aid to organized health agencies.

A. INTRODUCTION.

By the national unofficial health agencies associated in the National Health Council two main obligations are universally recognized:

1. The support of official health department work and of other governmental agencies interested in various types of preventive medicine, the encouragement of their development, and the handing over of voluntary activities to official groups after adequate experiment and demonstration when such activities have been initiated under private auspices.

2. The education of the public to the general support of official health activities and the advocacy of active cooperation with the public health officials by voting funds, by observing sanitary laws, and by practicing personal hygiene.

This report will deal primarily with those organizations having an extensive program, organized field service, and definite contacts with local or State groups. An effort will be made to present the types of field and central office services that may be placed at the command of the State health officials. Of course, it should be understood that the total number of individuals available for service is limited. Demands are great, and requests for service have always to be considered in relation to commitments already made.

B. GENERAL RELATIONS OF VOLUNTARY AGENCIES TO PUBLIC HEALTH OFFICIALS; GENERAL SERVICES ALL MAY PERFORM.

A primary purpose of nonofficial agencies is the encouragement of the organization or extension of official health activities in one or more ways:

1. Experiment, demonstration, and research in unestablished fields.
2. The promotion of legislation and appropriations.

3. The development of standards—educational, statistical, medical, nursing, etc.
4. The encouragement of adequate institutional provisions.
5. The recruiting and training of personnel and the continued education of workers.
6. The development of State and local private organizations to support and cooperate with official activities.
7. The education of the public along health lines by means of journals, literature, films, exhibits, lectures, etc.
8. Information, consultation, and advisory service on official procedure in cooperation with the United States Public Health Service and the State health departments (especially as projected by the American Public Health Association).

C. SPECIAL ACTIVITIES OF PARTICULAR AGENCIES CONSIDERED IN THE LIGHT OF THE USUAL DIVISIONS OF STATE HEALTH DEPARTMENT ORGANIZATIONS.

In this and the following section there are presented summaries of the more important services of certain of the agencies in the National Health Council. The more specialized organizations are carrying on particular services referred to in the present section. In the following section reference is made to one or two organizations whose services are for the most part general in character. It must be understood that certain organizations have functions which fall in each group.

I. *Maternity, Infancy, and Child Health:*

Coinciding to a large degree with the work ordinarily carried out in this division of State health departments are the services offered by the American Child Health Association—the organization recently formed by the amalgamation of the American Child Hygiene Association and the Child Health Organization of America. Particular mention should be made of—

- (a) Health supervision and education for (1) parents, infants, young children; (2) school age groups.
- (b) Development of methods and procedures for health education and supervision.
- (c) Stimulation of training of professional workers; scholarships.
- (d) Preparation of scientific and popular literature relating to child and maternal health.
- (e) Publication of magazine, "Mother and Child."
- (f) A service of information, consultation, and assistance to State and local groups.
- (g) Bureau of research and statistics in child health problems.

II. *Public Health Nursing:*

While many of the agencies in the council are directly concerned with this field, agencies such as the American Child Health Association, the National Tuberculosis Association, and the American Red Cross, yet particular mention should be made here of the services of the National Organization for Public Health Nursing.

- (a) Through the vocational department, fitting "the right nurse to the right work," and developing uniformity in public health nursing:
- (b) Through the National Health Library, offering services in the preparation of bibliographies, the distribution of loan package libraries, advice on health literature, etc.
- (c) Through the field service, assisting in the organization of State and local nursing groups.
- (d) Through the educational department, offering services in studying problems of the education of nurses for public health nursing.
- (e) Through the eligibility department, the establishment and maintenance of standards of nursing education.
- (f) Through the membership and publicity department, supplying material for nurses' recruiting campaigns, publicity campaigns, etc.
- (g) Publishes a monthly magazine, "The Public Health Nurse."

III. Tuberculosis:

Special mention should be made here of the work of the National Tuberculosis Association:

(a) The medical service, offering consultation on surveys of tuberculosis institutions, advice on occupational therapy, sanatorium and home treatment, industrial rehabilitation, etc.

(b) A crusade service, promoting the modern health crusade in the schools—a service which also has a bearing upon the interests of the division of maternity, infancy, and child health.

(c) A field service, giving special attention to organization problems, programs and budgets of State and local tuberculosis associations, interrelations between voluntary and official groups, etc.

(d) Publicity and publications service, making available newspaper and special articles, motion pictures, and other educational material.

(e) Statistical service, offering assistance in health surveys, consultation on morbidity and mortality statistics, etc.

(f) Library service on tuberculosis and general health through the National Health Library.

(g) Publishes "The Review of Tuberculosis" and "The Journal of Outdoor Life."

(h) The training of personnel through the Tuberculosis Institute.

IV. Venereal Diseases:

Special mention should be made here of the services offered by the American Social Hygiene Association:

(a) The general promotion of public opinion in support of the venereal disease programs of State and local health departments.

(b) The making and distribution of films desired by health authorities; placing the program before physicians, social workers, officers of courts, and police departments, and other important groups.

(c) Similarly, the making and distribution of exhibits, pamphlets, and other publicity.

(d) The provision of full or part time personnel when voluntary aid is desired for surveys of clinics, lectures, conferences, vice investigations, etc.

(e) In addition the association carries on its general activities, which are not usually considered as within the public health field, but which indirectly have a bearing upon reduction of the total number of exposures to the venereal diseases:

1. The publication of the monthly Journal of Social Hygiene, devoted to articles and discussions on social hygiene research and activities.

2. The promotion of education in social hygiene with particular reference to accurate, wholesome instruction for youth.

3. The promotion of protective measures.

4. The promotion of legal measures.

5. Other activities in the general field of social hygiene.

(f) General sex education and home and child hygiene promotion—an activity also bearing on the division of child hygiene.

(g) Library service through the National Health Library.

V. Division of Mental Hygiene:

Obviously there should be mentioned here the services of the National Committee for Mental Hygiene:

(a) A statistical research and advisory service on mental hygiene and insanity problems.

(b) Public education through lectures, literature, exhibits, monthly and quarterly bulletins, etc.

(c) Institutional and other surveys and promotion of adequate facilities.

- (d) Delinquency and other child health and welfare contacts.
- (e) Information and expert advice on general mental hygiene problems.
- (f) Library service through the National Health Library.

VI. *A Division of Public Health Education:*

Many of the agencies devote a major portion of their resources to health education, including the American Child Health Association, the American Social Hygiene Association, the National Committee for Mental Hygiene, the National Tuberculosis Association, the American Society for the Control of Cancer, and the National Organization for Public Health Nursing.

In addition, one agency, the American Red Cross, considers that public health education constitutes one of the first factors in its future health program, through the health study class, lectures, exhibits, classes in first aid, life saving, home hygiene, nutrition, etc. Through the Junior Red Cross, the American Red Cross also offers facilities of interest to child health divisions; and, through its public health nursing service, it is in close touch with the corresponding division of State health departments.

VII. *Division of Vital Statistics:*

Most of the agencies have some facilities for service in this field and could be called upon by State health departments more extensively than is the case at present.

The following agencies provide practically full-time statistical personnel, either directly or through purchases of service from the National Health Council, or in both ways:

1. The National Tuberculosis Association.
2. The National Committee for Mental Hygiene.
3. The American Social Hygiene Association.
4. The National Organization for Public Health Nursing.
5. The American Child Health Association.

D. SPECIAL ORGANIZATIONS TOUCHING DISTINCT FIELDS OF STATE HEALTH DEPARTMENT INTEREST, BUT NOT ORGANIZED PRIMARILY ALONG RECOGNIZED AND ESTABLISHED DIVISIONAL LINES.

I. *The American Society for the Control of Cancer:*

The particular services of this organization include—

- (a) Publications of three types: Pamphlets for the profession, for nurses, and for the general public.
- (b) Exhibits—a number of sets being in constant circulation.
- (c) Films—the society possesses one popular dramatized cancer film in two reels.
- (d) The organization of cancer committees and cancer weeks in cooperation with State and local health authorities.
- (e) The promotion of medical standards of diagnosis and treatment.

II. *The American Public Health Association:*

Last, but by no means least, this organization, composed primarily of official health workers, is in a position to offer valuable and extensive service to public health officials, State and local, along the following lines:

- (a) A clearing house, through its sections and annual meetings, for questions of general administrative interests, organization procedure, etc.
- (b) Through its committees standards are set as to laboratory, statistical, sanitary engineering, and other procedures.
- (c) Through the committee on municipal health department practice, in cooperation with the United States Public Health Service, information about official health organization in general is kept current, and a consulting advisory service offered at the present time to municipalities, and perhaps, subsequently, to States.
- (d) Through the Journal, general information, employment service, etc.

E. PERSONNEL SPECIFICALLY AVAILABLE ON A PART OR FULL-TIME BASIS, FOR CONCRETE SERVICES TO STATE HEALTH DEPARTMENTS AND OTHER AGENCIES.

1. *The American Child Health Association.*—For the services previously outlined, this association has available a relatively extensive personnel which may be stated in part as follows: and all of which is presumably available part time at least to advise with reference to child health problems:

Mr. Courtenay Dinwiddie, general executive.

Miss Ella Phillips Crandall, assistant general executive.

Dr. Richard A. Bolt, director of medical service.

Miss Sally Lucas Jean, director of health education division.

Dr. George T. Palmer, director of research.

Miss Ellen C. Babbitt, research editor.

2. *The American Public Health Association.*—Plans for the immediate future of this Association call for the establishment of a field service, to be conducted in cooperation with the United States Public Health Service, to follow up the findings of the committee on municipal health department practice, and to be available at the start for municipal health activities. It is not inconceivable that this service might ultimately become available for State health interests as well.

3. *The American Red Cross.*—This organization anticipates the addition to its headquarters staff before long of a health director to work under the specifications laid down in the recent report of the advisory committee on the health program of the Red Cross.

At the present time there are available and at work 51 supervising public health nurses, operating with definite understandings with State health departments. In addition, there is a large staff available among division and chapter personnel to advise with reference to classes in home hygiene, nutrition, first aid, life saving, Junior Red Cross, etc.

4. *American Society for the Control of Cancer.*—This organization has available one full-time field director, Dr. J. E. Rush, whose services may be secured without cost to give addresses, to attend conferences, to assist in the organization of cancer committees, to stimulate interest in the establishment of diagnostic and advisory cancer clinics, etc.

5. *The American Social Hygiene Association.*—This organization has a staff of full or part-time personnel available to assist State and local organizations along the following lines:

(a) Surveys of clinics and other treatment facilities.

(b) Lectures to lay or technical groups.

(c) Conferences with legislators or other officials.

(d) Investigations of vice conditions.

(e) Study and preparation of special material for promoting cooperation of racial groups, protective facilities, social service follow-up, State laws and health regulations, and measures dealing with delinquency cases.

(f) Stimulation of selected volunteer agencies when desired, to supplement official efforts.

6. *The National Committee for Mental Hygiene.*—In addition to the medical director, Dr. Frankwood E. Williams, and the secretary, Mr. Clifford W. Beers, mention should be made of the following:

Dr. V. V. Anderson, director division of prevention of delinquency.

Dr. Thomas H. Haines, director department of mental deficiency.

Dr. Samuel W. Hamilton, director division on hospital service.

Miss Edith M. Furbush, director division on information and statistics.

7. *National Organization for Public Health Nursing*.—Associated with Miss Anne A. Stevens, the general director of this organization, the following staff are available for field work:

Miss Frances V. Brink, field secretary.

Miss Theresa Kraker, assistant director (part time).

Miss Gertrude Hodgman, educational secretary for field work in connection with the education of nurses for public health nursing.

8. *The National Tuberculosis Association*.—Under the direction of Dr. Linsly R. Williams and his associate, Mr. Frederick D. Hopkins, the following are available for specific field services:

Dr. H. A. Pattison, on medical, institutional, industrial, occupational therapy, sanatorium, and home-treatment problems.

Mr. T. B. Kidner, on institution sites, plans for tuberculosis institutions, occupational therapy, etc.

Dr. Edgar T. Shields, on medical field service.

Mr. Charles M. De Forest and associates, on child health education and the modern health crusade.

Mr. A. J. Strawson, on general field organization, association relationships, etc.

Mr. P. P. Jacobs, on publicity and education problems, the training of special workers, etc.

Miss Jessamine S. Whitney, on health service, statistics, etc.

F. THE NATIONAL HEALTH COUNCIL ITSELF.

In addition to the foregoing services a number of joint activities are offered by the member agencies through the council organization itself, the more important of which may be mentioned as follows:

1. The monthly digest of current information of activities of members.
2. The Federal legislative statements.
3. The State legislative statements in cooperation with the Public Health Service.
4. Conference calendar, in cooperation with the American Public Health Association.
5. Washington contacts and informal representation for the State health officers and others.
6. Informal temporary New York headquarters for traveling health officers.
7. The publication of reports summarizing the organization and service of national health agencies.
8. The promotion of coordination of voluntary organizations in the States, in cooperation with the State health departments.

BIRTHS, DEATHS, AND MARRIAGES IN SCOTLAND.

RATES FOR THE FIRST QUARTER OF 1923 AND FOR 1913 TO 1922, INCLUSIVE, BY QUARTERS.

The tables given below were compiled from figures published in the "Quarterly Return of the Births, Deaths, and Marriages Registered in Scotland during the Quarter Ending March 31, 1923," issued by the Registrar General of Scotland.

The following extracts are taken from the Return:

"Deaths registered in Scotland during the quarter numbered 17,672. This number is 1,977 more than that of the previous quarter, but is 8,590 less than that of the first quarter of last year. * * *

"The quarterly death rate was 14.6 per thousand. This death rate is 1.9 more than that of the previous quarter, but is 7.1 less than that of the first quarter of last year, 4.1 less than the mean of those of the first quarters of the preceding 5 years, and 3.9 less than the mean of those of the first quarters of the preceding 10 years. It is the lowest first quarter Scottish death rate yet recorded. * * * In the larger burghs, taken collectively, the death rate was 15.2; in the smaller burghs, 14.8; and in the county districts, 13.5.

"Deaths of children less than 1 year old numbered 2,807. * * * The infantile mortality rate (98 per thousand births) is three more than that of the previous quarter, but is 43 less than that of the first quarter of last year. It is 30 less than the mean of the infantile mortality rates of the first quarters of the preceding 5 years, and 31 less than the mean of those of the preceding 10 years. * * * In the larger burghs, taken collectively, this rate was 101; in the smaller burghs, 105; and in the county districts, 90."

Birth, death, and marriage rates per 1,000 population in Scotland January 1, 1913, to March 31, 1923, by quarters.

BIRTH RATES.

	Estimated population June 30.	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Year.
Mean for 10 years.....		24.3	25.2	22.8	23.0	23.8
1913.....	4,728,132	25.6	27.3	24.7	24.3	25.5
1914.....	4,747,167	26.3	28.0	25.5	25.1	26.1
1915.....	4,770,798	26.4	25.9	22.3	21.3	23.9
1916.....	4,794,708	22.9	25.0	22.5	21.1	22.9
1917.....	4,810,338	21.4	21.8	19.0	18.8	20.3
1918.....	4,812,274	19.6	21.7	20.4	20.3	20.5
1919.....	4,820,077	18.9	19.9	20.9	28.4	22.0
1920.....	4,864,396	31.1	29.9	25.8	25.2	28.1
1921.....	4,882,497	24.8	27.5	24.4	24.2	25.2
1922.....	4,904,455	25.5	24.6	22.7	21.2	23.5
1923.....	4,915,500	23.5				

DEATH RATES.

Mean for 10 years.....		18.5	14.9	12.1	15.1	15.2
1913.....		18.2	15.4	13.6	14.6	15.5
1914.....		17.7	15.4	13.6	15.5	15.5
1915.....		21.2	17.2	13.2	16.9	17.1
1916.....		16.3	15.3	12.4	14.8	14.7
1917.....		18.4	15.5	11.3	12.7	14.4
1918.....		15.1	13.9	12.5	23.6	16.3
1919.....		24.4	13.8	11.0	13.4	15.6
1920.....		15.6	15.0	11.4	13.9	14.0
1921.....		16.6	13.2	11.4	13.1	13.6
1922.....		21.7	14.5	10.7	12.7	14.9
1923.....		14.6				

MARRIAGE RATES.

Mean for 10 years.....		7.4	7.6	8.0	7.4	7.6
1913.....		6.7	7.2	7.6	7.0	7.1
1914.....		7.4	7.7	7.9	6.7	7.4
1915.....		6.8	7.8	8.0	7.8	7.6
1916.....		7.2	6.4	6.4	6.2	6.6
1917.....		6.1	6.1	6.5	6.7	6.3
1918.....		6.9	6.7	7.8	7.3	7.2
1919.....		7.4	9.7	10.1	9.4	9.1
1920.....		9.7	9.8	10.4	8.6	9.6
1921.....		9.1	7.8	7.9	7.4	8.0
1922.....		6.5	7.1	7.6	6.8	7.0
1923.....		6.7				

Deaths and annual death rates by cause of death per 100,000 population in Scotland during the first quarter of 1923.

Disease.	Number of deaths.	Rate per 100,000 population.	Disease.	Number of deaths.	Rate per 100,000 population.
Cerebrospinal meningitis.....	29	2.4	Puerperal diseases—Contd.		
Diarrhea and enteritis (under 2 years).....	171	14.1	Other diseases of the puerperal state.....	120	9.9
Diphtheria.....	170	14.0	Scarlet fever.....	95	7.8
Dysentery.....	1	.1	Smallpox.....	0	.....
Erysipelas.....	50	4.1	Syphilis.....	48	4.0
Influenza:			Tetanus.....	2	.2
Sole cause of death.....	46	3.8	Tuberculosis:		
With pneumonia.....	62	5.1	Pulmonary.....	1,119	92.3
With other diseases.....	98	8.1	Other forms.....	482	39.8
Lethargic encephalitis.....	49	4.0	Typhoid fever.....	21	1.7
Malaria.....	3	.2	Typhus fever.....	1	.1
Measles.....	304	25.1	Whooping cough.....	362	29.0
Pneumonia:			Bright's disease.....	402	33.2
Lobar and unspecified.....	720	59.4	Cancer.....	1,554	128.2
Broncho.....	798	65.8	Diabetes.....	115	9.5
Poliomyelitis.....	1	.1	Diseases of the heart ¹	1,648	136.0
Puerperal diseases:			All causes.....	17,672	1,458.0
Puerperal sepsis.....	55	4.5			

¹ No. 90 in the International List of Causes of Death.

LOCAL HEALTH STATUTE HELD VOID.

The Supreme Court of North Carolina has decided¹ that a statute authorizing the board of commissioners of Gaston County to issue bonds for the construction of a tuberculosis hospital was void because the constitution of the State prohibits the enactment of any local, private, or special statute concerning various specified subjects, including laws appertaining to "health, sanitation, or the abatement of nuisances."

This case emphasizes the importance when drafting legislation of a thorough understanding of basic constitutional provisions applicable in a particular State.

DEATHS DURING WEEK ENDED JUNE 23, 1923.

Summary of information received by telegraph from industrial insurance companies for week ended June 23, 1923, and corresponding week of 1922. (From the Weekly Health Index, June 26, 1923, issued by the Bureau of the Census, Department of Commerce.)

	Week ended June 23, 1923.	Corresponding week, 1922.
Policies in force.....	54,080,761	49,543,148
Number of death claims.....	9,646	8,405
Death claims per 1,000 policies in force, annual rate.....	9.3	8.8

¹ *Armstrong et al. v. Board of Com'rs of Gaston County*, 117 S. E. 388.

Deaths from all causes in certain large cities of the United States during the week ended June 2^d, 1923, infant mortality, annual death rate, and comparison with corresponding week of 1922. (From the Weekly Health Index, June 26, 1923, issued by the Bureau of the Census, Department of Commerce.)

City.	Week ended June 23, 1923.		Annual death rate per 1,000, corresponding week, 1922.	Deaths under 1 year.		Infant mortality rate, week ended June 23 1923. ³
	Total deaths.	Death rate. ¹		Week ended June 23, 1923.	Corresponding week, 1922.	
Total.....	6,683	12.0	10.2	830	693	.....
Akron, Ohio.....	17	4.3	6.0	2	1	24
Albany, N. Y. ²	34	15.1	13.0	4	0	88
Atlanta, Ga.....	88	20.6	14.7	12	14	.....
Baltimore, Md. ²	194	13.1	10.3	23	22	68
Birmingham, Ala.....	72	19.2	13.1	15	12	.....
Boston, Mass.....	195	13.2	11.1	26	23	74
Bridgeport, Conn.....	33	13.1	11.6	7	1	97
Buffalo, N. Y.....	113	11.0	9.6	14	15	59
Cambridge, Mass.....	28	13.1	9.4	5	4	89
Camden, N. J. ²	17	7.1	9.8	3	4	50
Chicago, Ill.....	585	10.6	8.6	71	59	.....
Cincinnati, Ohio.....	107	13.7	12.8	12	11	70
Cleveland, Ohio ²	168	9.9	7.6	29	22	79
Columbus, Ohio.....	59	11.8	10.9	7	5	73
Dallas, Tex.....	42	12.4	15.8	5	10	.....
Dayton, Ohio.....	28	8.8	8.4	5	5	82
Denver, Colo.....	82	15.7	9.4	9	7	.....
Des Moines, Iowa.....	35	13.0	.....	3	.....	.....
Detroit, Mich.....	246	12.9	8.1	44	30	88
Duluth, Minn.....	16	7.8	.....	1	.....	23
Eric, Pa.....	26	12.0	11.4	2	3	41
Fall River, Mass. ²	29	12.5	11.2	2	6	28
Flint, Mich.....	23	10.2	.....	5	.....	69
Fort Worth, Tex.....	19	6.9	9.1	0	2	.....
Grand Rapids, Mich.....	33	11.8	8.7	7	2	110
Houston, Tex.....	29	9.8	6.9	14	7	.....
Indianapolis, Ind.....	107	16.3	15.3	7	8	54
Jersey City, N. J.....	74	12.5	9.0	13	9	87
Kansas City, Mo.....	97	14.4	12.9	11	10	.....
Los Angeles, Calif.....	204	16.0	12.4	22	23	82
Lowell, Mass.....	31	14.0	10.0	4	3	70
Lynn, Mass.....	22	11.2	.....	1	.....	26
Memphis, Tenn.....	65	19.9	20.2	9	4	.....
Milwaukee, Wis.....	77	8.3	9.1	10	12	50
Minneapolis, Minn.....	91	11.6	11.7	13	14	71
Nashville, Tenn. ³	38	16.4	19.9	5	6	.....
New Bedford, Mass.....	37	14.8	6.5	7	4	100
New Haven, Conn.....	35	10.6	12.9	5	3	65
New Orleans, La.....	125	16.1	15.5	14	17	.....
New York, N. Y.....	1,199	10.5	9.3	153	124	61
Bronx Borough.....	133	8.3	7.9	11	12	39
Brooklyn Borough.....	395	9.6	8.2	57	39	60
Manhattan Borough.....	541	12.4	11.1	65	66	63
Queens Borough.....	111	10.8	7.3	19	5	102
Richmond Borough.....	19	7.8	13.0	1	2	18
Newark, N. J.....	103	12.2	11.0	18	17	84
Norfolk, Va.....	42	13.8	12.1	5	8	88
Oakland, Calif.....	45	9.8	7.4	2	2	26
Omaha, Nebr.....	57	14.5	12.2	8	4	87
Paterson, N. J.....	47	17.6	10.9	5	3	80
Philadelphia, Pa.....	431	11.7	10.1	35	40	45
Pittsburgh, Pa.....	174	14.8	11.2	26	14	90
Portland, Oreg.....	61	11.6	10.3	7	9	71
Providence, R. I.....	63	13.6	10.6	13	5	106
Richmond, Va.....	60	17.3	11.1	10	5	123
Rochester, N. Y.....	47	7.7	7.9	5	6	39
St. Louis, Mo.....	204	13.2	10.9	15	12	.....
St. Paul, Minn.....	46	9.9	8.9	3	4	28
Salt Lake City, Utah ³	24	9.9	12.2	3	4	49
San Antonio, Tex.....	74	20.9	.....	8	.....	.....
San Francisco, Calif.....	125	12.1	11.9	7	8	42
Seattle, Wash.....	48	7.9	11.6	2	6	18
Spokane, Wash.....	23	11.5	10.0	2	2	44
Springfield, Mass.....	37	13.4	7.8	3	0	43

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1922. Cities left blank are not in the registration area for births.

³ Deaths for week ended Friday, June 22, 1923.

Deaths from all causes in certain large cities of the United States during the week ended June 23, 1923, infant mortality, annual death rate, and comparison with corresponding week of 1922—Continued.

City.	Week ended June 23, 1923.		Annual death rate per 1,000, corresponding week, 1922.	Deaths under 1 year.		Infant mortality rate, week ended June 23, 1923.
	Total deaths.	Death rate.		Week ended June 23, 1923.	Corresponding week, 1922.	
Syracuse, N. Y.....	53	15.0	11.2	6	7	78
Tacoma, Wash.....	16	8.2	.....	2	.....	50
Toledo, Ohio.....	55	10.7	10.8	3	7	30
Trenton, N. J.....	37	15.1	14.6	3	4	51
Utica, N. Y.....	14	7.1	.....	1	.....	21
Washington, D. C.....	149	17.8	12.0	17	8	97
Wilmington, Del.....	28	12.4	9.9	6	2	122
Worcester, Mass.....	42	11.4	16.2	2	4	23
Yonkers, N. Y.....	22	10.7	9.9	5	3	108
Youngstown, Ohio.....	33	13.0	7.9	7	7	95

PREVALENCE OF DISEASE.

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

UNITED STATES.

CURRENT STATE SUMMARIES.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

Reports for Week Ended June 30, 1923.

ALABAMA.		CALIFORNIA.	
	Cases.		Cases.
Diphtheria.....	8	Cerebrospinal meningitis:	
Dysentery.....	207	Alameda.....	1
Influenza.....	6	Bakersfield.....	1
Malaria.....	229	Los Angeles.....	1
Measles.....	352	San Francisco.....	1
Mumps.....	3	Diphtheria.....	134
Paratyphoid fever.....	1	Influenza.....	4
Pellagra.....	24	Leprosy—Sacramento.....	1
Pneumonia.....	19	Lethargic encephalitis—Los Angeles.....	1
Scarlet fever.....	6	Measles.....	501
Tuberculosis.....	44	Poliomyelitis:	
Typhoid fever.....	62	Contra Costa County.....	1
Whooping cough.....	106	Los Angeles.....	1
		Rabies in man—Los Angeles County.....	1
		Scarlet fever.....	74
		Smallpox.....	11
		Typhoid fever.....	18
		COLOREADO.	
		(Exclusive of Denver.)	
		Chicken pox.....	15
		Diphtheria.....	17
		Influenza.....	1
		Measles.....	149
		Mumps.....	31
		Pneumonia.....	1
		Rabies.....	1
		Scarlet fever.....	4
		Tuberculosis.....	108
		Typhoid fever.....	3
		Whooping cough.....	11
		CONNECTICUT.	
		Cerebrospinal meningitis.....	1
		Chicken pox.....	26
		Diphtheria.....	49
		German measles.....	8
		Influenza.....	1

CONNECTICUT—continued.

	Cases.
Lethargic encephalitis.....	1
Malaria.....	3
Measles.....	137
Mumps.....	7
Pneumonia.....	10
Poliomyelitis.....	1
Scarlet fever.....	33
Smallpox.....	2
Tetanus.....	1
Tuberculosis (all forms).....	30
Typhoid fever.....	5
Whooping cough.....	68

FLORIDA.

Cerebrospinal meningitis.....	2
Diphtheria.....	1
Leprosy.....	1
Malaria.....	13
Pneumonia.....	1
Scarlet fever.....	1
Typhoid fever.....	8

GEORGIA.

Chicken pox.....	3
Diphtheria.....	54
Dysentery (amebic).....	1
Dysentery (bacillary).....	18
German measles.....	1
Hookworm disease.....	11
Influenza.....	3
Malaria.....	35
Measles.....	98
Mumps.....	2
Paratyphoid fever.....	1
Pellagra.....	1
Pneumonia.....	5
Scarlet fever.....	4
Septic sore throat.....	3
Smallpox.....	27
Tuberculosis (all forms).....	11
Typhoid fever.....	28
Typhus fever.....	1
Whooping cough.....	25

ILLINOIS.

Cerebrospinal meningitis—Chicago.....	2
Diphtheria:	
Cook County (including Chicago).....	82
Chicago.....	78
Coles County.....	10
Scattering.....	17
Influenza.....	1
Lethargic encephalitis—Chicago.....	2
Pneumonia.....	125
Poliomyelitis—Cook County.....	1
Scarlet fever:	
Cook County (including Chicago).....	37
Chicago.....	33
Scattering.....	27
Smallpox:	
Kane County.....	8
Scattering.....	11
Typhoid fever.....	13
Whooping cough.....	176

INDIANA.

	Cases.
Cerebrospinal meningitis:	
Clay County.....	2
DeKalb County.....	1
Vigo County.....	1
Wabash County.....	1
Diphtheria.....	18
Measles.....	287
Pneumonia.....	1
Scarlet fever.....	17
Smallpox.....	20
Tuberculosis.....	19
Typhoid fever.....	6

IOWA.

Diphtheria.....	30
Scarlet fever.....	23
Smallpox.....	28

KANSAS.

Cerebrospinal meningitis.....	2
Chicken pox.....	27
Diphtheria.....	19
German measles.....	3
Influenza.....	4
Lethargic encephalitis.....	1
Measles.....	313
Mumps.....	20
Pneumonia.....	8
Scarlet fever.....	27
Smallpox.....	6
Tuberculosis.....	73
Typhoid fever.....	16
Whooping cough.....	177

LOUISIANA.

Anthrax.....	2
Cerebrospinal meningitis.....	1
Diphtheria.....	10
Influenza.....	4
Measles.....	87
Poliomyelitis.....	2
Rabies.....	1
Smallpox.....	4
Typhoid fever.....	42
Whooping cough.....	32

MAINE.

Cerebrospinal meningitis.....	1
Chicken pox.....	7
Diphtheria.....	10
German measles.....	15
Measles.....	87
Mumps.....	2
Paratyphoid fever.....	1
Pneumonia.....	8
Scarlet fever.....	11
Tuberculosis.....	4
Typhoid fever.....	2
Whooping cough.....	8

MARYLAND.¹

Cerebrospinal meningitis.....	1
Chicken pox.....	29
Diphtheria.....	27

¹ Week ended Friday.

MARYLAND—continued.		MISSOURI.	
	Cases.	(Exclusive of Kansas City.)	Cases.
Dysentery.....	3	Chicken pox.....	15
Influenza.....	10	Diphtheria.....	26
Malaria.....	2	Epidemic sore throat.....	1
Measles.....	309	Measles.....	169
Mumps.....	14	Mumps.....	12
Ophthalmia neonatorum.....	1	Scarlet fever.....	8
Pneumonia (all forms).....	39	Smallpox.....	2
Scarlet fever.....	48	Tetanus.....	1
Septic sore throat.....	1	Trachoma.....	5
Tuberculosis.....	61	Tuberculosis.....	55
Typhoid fever.....	13	Typhoid fever.....	8
Whooping cough.....	142	Whooping cough.....	170
MASSACHUSETTS.		MONTANA.	
Cerebrospinal meningitis.....	1	Diphtheria.....	4
Chicken pox.....	115	Rocky Mountain spotted fever:	
Conjunctivitis (suppurative).....	10	Clemons.....	1
Diphtheria.....	128	Ingomar.....	1
German measles.....	13	Valentine.....	1
Influenza.....	1	Winifred.....	1
Lethargic encephalitis.....	3	Winston.....	1
Measles.....	478	Scarlet fever.....	2
Mumps.....	116	Smallpox.....	3
Ophthalmia neonatorum.....	11	NEBRASKA.	
Pneumonia (lobar).....	31	Chicken pox.....	1
Poliomyelitis.....	2	Diphtheria.....	10
Scarlet fever.....	159	Lethargic encephalitis.....	1
Septic sore throat.....	3	Measles.....	17
Trachoma.....	1	Mumps.....	7
Tuberculosis (all forms).....	143	Pneumonia.....	1
Typhoid fever.....	13	Scarlet fever.....	2
Whooping cough.....	130	Tuberculosis.....	3
MICHIGAN.		NEW JERSEY.	
Diphtheria.....	84	Cerebrospinal meningitis.....	2
Measles.....	1,162	Chicken pox.....	120
Pneumonia.....	55	Diphtheria.....	76
Scarlet fever.....	130	Dysentery.....	1
Smallpox.....	16	Malaria.....	3
Tuberculosis.....	36	Measles.....	403
Typhoid fever.....	17	Pneumonia.....	40
Whooping cough.....	205	Poliomyelitis.....	2
MINNESOTA.		Scarlet fever.....	58
Cerebrospinal meningitis.....	3	Typhoid fever.....	16
Chicken pox.....	7	Whooping cough.....	115
Diphtheria.....	40	NEW MEXICO.	
Measles.....	154	Diphtheria.....	18
Pneumonia.....	1	Measles.....	25
Poliomyelitis.....	2	Pneumonia.....	4
Scarlet fever.....	84	Scarlet fever.....	3
Smallpox.....	14	Tuberculosis.....	1
Trachoma.....	1	Typhoid fever.....	6
Tuberculosis.....	38	Whooping cough.....	1
Typhoid fever.....	5	NEW YORK.	
Whooping cough.....	9	(Exclusive of New York City.)	
MISSISSIPPI.		Cerebrospinal meningitis.....	2
Diphtheria.....	6	Diphtheria.....	56
Poliomyelitis.....	1	Influenza.....	10
Smallpox.....	5	Lethargic encephalitis.....	2
Typhoid fever.....	18	Measles.....	1,476

NEW YORK—continued.

	Cases.
Pneumonia.....	94
Poliomyelitis.....	4
Scarlet fever.....	156
Whooping cough.....	151
Smallpox.....	1
Typhoid fever.....	13

NORTH CAROLINA.

Chicken pox.....	31
Diphtheria.....	15
German measles.....	1
Measles.....	899
Scarlet fever.....	13
Septic sore throat.....	6
Smallpox.....	37
Trachoma.....	1
Typhoid fever.....	58
Whooping cough.....	358

OREGON.

Chicken pox.....	12
Diphtheria.....	10
Lethargic encephalitis.....	11
Measles.....	2
Mumps.....	1
Pneumonia.....	12
Scarlet fever.....	7
Septic sore throat.....	1
Smallpox:	
Portland.....	9
Scattering.....	12
Tuberculosis.....	7
Whooping cough.....	5

SOUTH DAKOTA.

Chicken pox.....	11
Diphtheria.....	2
Measles.....	67
Scarlet fever.....	16
Tuberculosis.....	6
Typhoid fever.....	2
Whooping cough.....	4

TEXAS.

Anthrax.....	3
Cerebrospinal meningitis.....	1
Chicken pox.....	7
Dengue.....	1
Diphtheria.....	8
Influenza.....	3
Leprosy.....	1
Lethargic encephalitis.....	1
Measles.....	37
Mumps.....	12
Pellagra.....	3
Pneumonia.....	4
Rabies.....	1
Scarlet fever.....	8
Typhoid fever.....	21

TEXAS—continued.

	Cases.
Tuberculosis.....	14
Whooping cough.....	64

VERMONT.

Chicken pox.....	7
Diphtheria.....	4
Measles.....	133
Mumps.....	31
Pneumonia.....	1
Scarlet fever.....	6
Smallpox.....	1
Typhoid fever.....	1
Whooping cough.....	30

WASHINGTON.

Chicken pox.....	28
Diphtheria.....	9
Lethargic encephalitis—Skamania County.....	1
Measles:	
Seattle.....	30
Spokane.....	17
Spokane County.....	16
Scattering.....	4
Mumps.....	11
Pneumonia.....	1
Scarlet fever.....	15
Smallpox.....	9
Tuberculosis.....	42
Typhoid fever.....	4
Whooping cough.....	57

WEST VIRGINIA.

Scarlet fever.....	1
Typhoid fever.....	12

WISCONSIN.

Milwaukee:	
Chicken pox.....	21
Diphtheria.....	15
German measles.....	1
Measles.....	9
Scarlet fever.....	28
Tuberculosis.....	11
Typhoid fever.....	1
Whooping cough.....	6
Scattering:	
Cerebrospinal meningitis.....	1
Chicken pox.....	25
Diphtheria.....	33
German measles.....	1
Influenza.....	4
Measles.....	642
Pneumonia.....	6
Poliomyelitis.....	1
Scarlet fever.....	75
Smallpox.....	13
Tuberculosis.....	23
Typhoid fever.....	5
Whooping cough.....	40

¹ Deaths.

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Fellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
<i>May, 1923.</i>										
California.....	7	791	599	17	6,165	4	8	875	169	67
Colorado.....		216	3		2,362			172	2	12
Hawaii.....		11	988		43			2		12
Idaho.....		16			13			11	3	
Iowa.....		72			738		1	367	153	1
Kansas.....	2	109	7		3,347			175	53	22
Maine.....	4	19	7		833			143	21	6
Mississippi.....	6	40	961	6,194	3,996	674	4	23	9	125
Oregon.....		70			13			63	111	2
Pennsylvania.....	9	939			11,819		3	1,153	32	96
South Dakota.....	3	44			406			156	17	13
Virginia.....	10	131	676	240	9,593	20	3	85	96	59
Washington.....		91			376			127	170	12
Wisconsin.....		211	195		5,449		4	1,522	179	22

PLAGUE-INFECTED GROUND SQUIRRELS.

Contra Costa County, Calif.

Five plague-infected ground squirrels were found June 5 and 6, 1923, in Contra Costa County, Calif., about 2 miles northeast of Alamo.

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923.

ANTHRAX.

City.	Cases.	Deaths.
Texas:		
Houston.....	1	

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 16, 1923.		City.	Median for previous years.	Week ended June 16, 1923.	
		Cases.	Deaths.			Cases.	Deaths.
California:				New York:			
Bakersfield.....	0	1		New York.....	9	1	1
San Bernardino.....	0		1	Niagara Falls.....	0	1	1
Illinois:				North Carolina:			
Chicago.....	1	1	1	Salisbury.....			1
Louisiana:				Ohio:			
New Orleans.....	0	1	1	Cleveland.....	0	1	1
Maryland:				Pennsylvania:			
Baltimore.....	0		1	Bradford.....	0	1	
Massachusetts:				York.....	0	1	
Lowell.....	0	1	1	Texas:			
North Adams.....	0	1	1	San Antonio.....		1	
Michigan:				Washington:			
Ann Arbor.....	0	1		Spokane.....	0	1	
Detroit.....	1		1	West Virginia:			
Minnesota:				Wheeling.....	0	1	
Minneapolis.....	0	1		Wisconsin:			
New Jersey:				Milwaukee.....	1	5	4
Newark.....	0		1				

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

DIPHTHERIA.

See p. 1553; also Current State summaries, p. 1543, and Monthly summaries by States, p. 1547.

INFLUENZA.

City.	Cases.		Deaths, week ended June 16, 1923.	City.	Cases.		Deaths, week ended June 16, 1923.
	Week ended June 17, 1922.	Week ended June 16, 1923.			Week ended June 17, 1922.	Week ended June 16, 1923.	
Alabama:				Maryland:			
Birmingham		1		Baltimore		1	
Montgomery	1		1	Cumberland	1	1	
California:				Massachusetts:			
Long Beach		1	1	Cambridge		2	
Los Angeles		9	1	Michigan:			
Oakland	1			Detroit		1	
San Diego	1			Nebraska:			
San Francisco	1		1	Lincoln			1
Connecticut:				New Jersey:			
Greenwich	1			Newark		2	
New Britain	1			New York:			
Florida:				New York	5	14	5
Tampa	4			Saratoga Springs		1	
Georgia:				Ohio:			
Atlanta		2		Akron	1		
Illinois:				Cincinnati			1
Chicago	5	1	3	Toledo			1
Jacksonville		1		Pennsylvania:			
Indiana:				Philadelphia	3	4	3
Hammond			1	Pittsburgh			1
Kentucky:				Tennessee:			
Louisville		1		Nashville			1
Louisiana:				Virginia:			
New Orleans		1		Lynchburg			1

LEPROSY.

City.	Cases.	Deaths.
Maryland:		
Baltimore	1	

LETHARGIC ENCEPHALITIS.

California:		
San Francisco		2

MALARIA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			New Jersey:		
Birmingham	5		Paterson	1	
Montgomery	1		Trenton	1	
Tuscaloosa	1		New York:		
Arkansas:			New York	3	
Little Rock	1		Tennessee:		
Georgia:			Memphis	3	
Atlanta	1		Texas:		
Brunswick	4		Houston		2
Savannah	2	1	San Antonio		1
Louisiana:			Virginia:		
New Orleans	2		Norfolk	1	
Massachusetts:					
Boston	1				

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

MEASLES.

See p. 1553; also Current State summaries, p. 1543, and Monthly summaries by States, p. 1547.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Texas:		
Birmingham.....	1	1	Dallas.....	1	1
Michigan:			Houston.....		1
Kalamazoo.....		1	Waco.....		1
New Mexico:					
Albuquerque.....	1				

PNEUMONIA (ALL FORMS).

Alabama:			Maryland:		
Birmingham.....	8	5	Baltimore.....	22	21
Mobile.....		1	Cumberland.....	1	
Montgomery.....		1	Massachusetts:		
California:			Adams.....	2	1
Glendale.....		1	Arlington.....	1	
Long Beach.....		3	Belmont.....		1
Los Angeles.....	25	7	Beverly.....		1
Oakland.....	6	3	Boston.....		15
Pasadena.....		1	Braintree.....	1	
Sacramento.....		3	Brookline.....		1
San Diego.....	2	1	Cambridge.....	5	3
San Francisco.....	12	8	Chelsea.....	1	
Santa Ana.....		1	Chicopee.....	1	
Santa Barbara.....		1	Fall River.....		1
Stockton.....	1		Gardner.....		2
Vallejo.....	2	1	Greenfield.....	1	
Colorado:			Haverhill.....	1	
Denver.....		8	Lowell.....		4
Pueblo.....		1	Lynn.....	1	
Connecticut:			Malden.....		1
Bridgeport.....	1		Methuen.....		1
Greenwich.....	1		New Bedford.....		2
Hartford.....		3	Pittsfield.....		1
New Haven.....		2	Salem.....		1
District of Columbia:			Springfield.....		1
Washington.....		7	Woburn.....		1
Florida:			Worcester.....		1
Tampa.....		1	Michigan:		
Georgia:			Alpena.....	1	
Atlanta.....	9	8	Battle Creek.....		1
Savannah.....		1	Benton Harbor.....	1	
Illinois:			Detroit.....	69	31
Aurora.....		2	Flint.....	6	5
Chicago.....	142	50	Grand Rapids.....	1	
Decatur.....	1		Highland Park.....	6	5
Galesburg.....		1	Muskegon.....		1
Kewanee.....	1		Pontiac.....	3	2
La Salle.....		1	Minnesota:		
Oak Park.....		1	Duluth.....	2	
Rockford.....		1	Faribault.....		4
Springfield.....		3	Minneapolis.....		2
Indiana:			St. Paul.....		2
Anderson.....		1	Missouri:		
Gary.....		1	Kansas City.....		5
Hammond.....		2	St. Joseph.....		1
Indianapolis.....		7	Nebraska:		
Mishawaka.....		1	Lincoln.....		1
Muncie.....		2	Omaha.....		4
Iowa:			New Jersey:		
Burlington.....	2	1	Bloomfield.....	1	
Council Bluffs.....		1	Elizabeth.....		1
Kansas:			Garfield.....		1
Topeka.....	1		Hoboken.....		2
Wichita.....		1	Jersey City.....	1	
Kentucky:			Kearny.....		1
Louisville.....		4	Newark.....	25	1
Louisiana:			Orange.....	1	
New Orleans.....		3	Passaic.....		2
Maine:			Paterson.....	1	
Auburn.....		1	Perth Amboy.....		1
Bangor.....	2		Plainfield.....	2	1
Bath.....		1	Trenton.....	2	1

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
New Mexico:			Ohio—Continued.		
Albuquerque.....		1	New Philadelphia.....	1	
New York:			Newark.....		1
Albany.....	6		Toledo.....		1
Amsterdam.....	2		Youngstown.....		1
Auburn.....	1		Zanesville.....		1
Buffalo.....	16	10	Oregon:		
Cohoes.....		1	Portland.....		1
Glens Falls.....		1	Pennsylvania:		
Hornell.....	2		Philadelphia.....	44	26
Jamestown.....		2	Pittsburgh.....		23
Lackawanna.....	7		Rhode Island:		
Middletown.....	2	1	Cranston.....	3	2
Mount Vernon.....	2		Fawtucket.....		2
New York.....	144	80	Providence.....		4
Newburgh.....		2	South Carolina:		
Niagara Falls.....		1	Charleston.....		1
North Tonawanda.....		1	Columbia.....		1
Rochester.....	18	9	Tennessee:		
Rome.....	1		Memphis.....		5
Saratoga Springs.....		1	Nashville.....		2
Schenectady.....	1		Texas:		
Syracuse.....	5	5	Dallas.....		1
Troy.....	2		El Paso.....		1
Yonkers.....		1	Fort Worth.....		1
North Carolina:			San Antonio.....		4
Greensboro.....		1	Utah:		
Raleigh.....		1	Provo.....		1
Wilmington.....		1	Salt Lake City.....		3
Ohio:			Virginia:		
Akron.....	6		Lynchburg.....		1
Ashtabula.....		1	Norfolk.....	4	2
Barberton.....	1		Petersburg.....		2
Canton.....		1	Richmond.....		2
Cincinnati.....		8	West Virginia:		
Cleveland.....	25	12	Clarksburg.....		1
Columbus.....		3	Wisconsin:		
Dayton.....	1		Eau Claire.....	1	
Hamilton.....		3	Madison.....		1
Lima.....		2	Milwaukee.....	5	
Lorain.....	1		Oshkosh.....		1
Mansfield.....	1		Racine.....		1
Martins Ferry.....		1			

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median or previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 16, 1923.		City.	Median for previous years.	Week ended June 16, 1923.	
		Cases	Deaths.			Cases.	Deaths.
California:				New York:			
San Francisco.....	0	1		New York.....	1	1	
Massachusetts:				Texas:			
Boston.....	0	1		Houston.....	0	1	
Michigan:							
Kalamazoo.....	0	2					

RABIES IN ANIMALS.

City.	Cases.	City.	Cases.
California:		Missouri:	
Los Angeles.....	18	Kansas City.....	4
Pasadena.....	1	Tennessee:	
Kentucky:		Memphis.....	1
Louisville.....	1		
Massachusetts:			
Arlington.....	1		

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

SCARLET FEVER.

See p. 1553; also Current State summaries, p. 1543, and Monthly summaries by States, p. 1547.

SMALLPOX.

The column headed "Median or previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 16, 1923.		City.	Median for previous years.	Week ended June 16, 1923.	
		Cases.	Deaths.			Cases.	Deaths.
California:				North Carolina:			
Los Angeles.....	1	11	.....	Durham.....	0	8	.....
Georgia:				Greensboro.....	0	2	.....
Atlanta.....	4	6	.....	Winston-Salem.....	0	7	.....
Rome.....	0	1	.....	North Dakota:			
Savannah.....	0	2	.....	Grand Forks.....	1	1	.....
Illinois:				Ohio:			
Chicago.....	0	5	.....	Cincinnati.....	1	2	.....
Kewanee.....	0	1	.....	Columbus.....	1	1	.....
Rock Island.....	1	2	.....	Dayton.....	1	2	.....
Indiana:				Mansfield.....	0	1	.....
Fort Wayne.....	1	11	.....	Middletown.....	0	1	.....
Gary.....	2	5	.....	Niles.....	0	4	.....
Huntington.....	0	2	.....	Sandusky.....	0	3	.....
Indianapolis.....	5	7	.....	Oklahoma:			
Michigan City.....	3	1	.....	Oklahoma.....	5	4	.....
Mishawaka.....	0	2	.....	Tulsa.....	2	6	.....
Muncie.....	0	1	.....	Oregon:			
Iowa:				Portland.....	8	3	.....
Davenport.....	2	5	.....	Pennsylvania:			
Des Moines.....	3	2	.....	Steelton.....	0	1	.....
Kansas:				South Carolina:			
Wichita.....	8	2	.....	Greenville.....	0	1	.....
Michigan:				Tennessee:			
Detroit.....	6	5	.....	Chattanooga.....	0	3	.....
Highland Park.....	1	3	.....	Knoxville.....	2	9	.....
Jackson.....	0	1	.....	Texas:			
Port Huron.....	0	1	.....	Dallas.....	4	2	.....
Minnesota:				Fort Worth.....	0	2	.....
Duluth.....	3	8	.....	Waco.....	0	1	.....
Minneapolis.....	16	2	.....	Washington:			
St. Paul.....	5	4	.....	Everett.....	0	1	.....
Missouri:				Seattle.....	4	12	.....
St. Louis.....	3	1	.....	Wisconsin:			
Nebraska:				Eau Claire.....	0	1	.....
Omaha.....	5	2	.....	Kenosha.....	0	7	.....
New York:				Madison.....	1	1	.....
Buffalo.....	0	2	.....	Racine.....	0	2	.....
Niagara Falls.....	0	2	.....	Superior.....	1	2	.....

TETANUS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
California:			North Carolina:		
Los Angeles.....	1	1	Salisbury.....		1
Connecticut:			Pennsylvania:		
New Haven.....	1	1	Philadelphia.....	1	1
Illinois:			Texas:		
Chicago.....	3	3	Dallas.....		2
Montana:					
Billings.....		1			

TUBERCULOSIS.

See p. 1553; also Current State summaries, p. 1543.

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 16, 1923.		City.	Median for previous years.	Week ended June 16, 1923.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				New Jersey:			
Birmingham.....	5	5		Bayonne.....	0	1	
Montgomery.....	0	1		Kearny.....	0	1	
California:				Paterson.....	0	1	
Los Angeles.....	2		1	Trenton.....	0		1
Oakland.....	1	1		New York:			
Richmond.....	0	1		Albany.....	1	2	
Stockton.....	0	1		New York.....	9	10	4
District of Columbia:				Rome.....	0	1	
Washington.....	3	1	1	North Carolina:			
Florida:				Raleigh.....	0	1	
Tampa.....	0		1	Ohio:			
Georgia:				Cincinnati.....	1	3	
Atlanta.....	2	4	1	Cleveland.....	2	3	
Macon.....	1	1		Piqua.....	0	1	1
Savannah.....	2	1		Sandusky.....	0		1
Idaho:				Oregon:			
Boise.....	0	1		Portland.....	0	1	
Illinois:				Pennsylvania:			
Chicago.....	4	3		Allentown.....	0	1	
Decatur.....	0		1	Beaver Falls.....	0	1	
Indiana:				Bethlehem.....	0	2	
Indianapolis.....	2	1	1	Bristol.....	0	1	
Logansport.....	0	1	1	Coatesville.....	0	1	
Iowa:				Hazleton.....	0	1	
Sioux City.....	0	1		Lancaster.....	0	1	
Kentucky:				Mahanoy City.....	0	1	
Louisville.....	1	1		Norristown.....	0	1	
Louisiana:				Philadelphia.....	7	2	1
New Orleans.....	4	2		Pittsburgh.....	1	3	
Maine:				Pottsville.....	0	2	
Portland.....	0		1	Rhode Island:			
Maryland:				Providence.....	1	1	
Baltimore.....	4	1		South Carolina:			
Massachusetts:				Columbia.....	1	1	1
Holyoke.....	0	1		Tennessee:			
Lynn.....	0	1	1	Nashville.....	3	3	
North Adams.....	0	3	1	Texas:			
Waltham.....	0	1		Dallas.....	1	3	
Watertown.....	0	1		El Paso.....	0		1
Michigan:				Fort Worth.....	2	2	
Flint.....	0	1		Houston.....	1	1	1
Highland Park.....	0	2		San Antonio.....		1	
Muskegon.....	0	1		Waco.....	0		1
Minnesota:				Virginia:			
Duluth.....	0		1	Alexandria.....	0	1	
Minneapolis.....	0	1		Richmond.....	2	1	
St. Paul.....	0		1	Roanoke.....	0	1	
Missouri:				West Virginia:			
St. Louis.....	3	4	1	Huntington.....	0	1	
Nebraska:				Wisconsin:			
Omaha.....	0	3		Appleton.....	0	1	
New Hampshire:				Janesville.....	0	1	
Dover.....	0		1				

TYPHUS FEVER.

City.	Cases.	Deaths.
New York:		
New York.....	1	

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Birmingham.....	178,806	68			59	3			9	6
Mobile.....	60,777	21	1		5				2	1
Montgomery.....	43,461	13			6			1		
Tuscaloosa.....	11,998				9					
Arkansas:										
Fort Smith.....	28,870				2					
Little Rock.....	65,142				7		1		1	
North Little Rock.....	14,048				9		1			
California:										
Alameda.....	28,806	2	2		46		1		2	
Bakersfield.....	18,638	7					1		1	
Eureka.....	12,923	7			29		1			
Glendale.....	13,536	21			6					3
Long Beach.....	55,593	21			6		5			
Los Angeles.....	576,673	180	41	1	141		41		53	15
Oakland.....	216,261	44	6	1	43	1	10		1	
Pasadena.....	45,354	17	1		5				1	
Richmond.....	16,943	1					2			
Riverside.....	19,341	8	1	1	3					1
Sacramento.....	65,908	14	2		44		3	1	6	1
San Bernardino.....	18,721	11			10					2
San Diego.....	74,683	27	14	1	15		2		8	3
San Francisco.....	506,676	112	29		173		14		27	7
Santa Ana.....	15,485	6			1		1			1
Santa Barbara.....	19,441	8								
Santa Cruz.....	10,917	3								
Stockton.....	40,296	9	1		1		1		1	
Vallejo.....	21,107	4					1			1
Colorado:										
Denver.....	256,491	76	18		144	3	7			11
Pueblo.....	43,050	7			8		1			
Trinidad.....	10,908		3		6					
Connecticut:										
Bridgeport.....	143,555	26	9	1	4		6		5	1
Fairfield (town).....	11,475	0							1	
Greenwich (town).....	22,123				9					
Hartford.....	138,036	43	10	1	2		2		4	
Manchester.....	18,370	1	2				1			
Milford (town).....	10,193	1								
New Haven.....	162,537	29	2		16		2		2	1
New London.....	25,688	8	1	1	2				1	1
District of Columbia:										
Washington.....	437,571	92	4		104	2	11		10	6
Florida:										
St. Petersburg.....	14,237	2			9					
Tampa.....	51,608	20	1		12				1	2
Georgia:										
Albany.....	11,555				1				1	
Atlanta.....	200,616	82	1		30	1	5		3	5
Brunswick.....	14,413	2								
Macon.....	52,995				21					
Rome.....	13,252				3					
Savannah.....	83,252	20			13		1		2	2
Valdosta.....	10,783	2								
Idaho:										
Boise.....	21,393						1			
Pocatello.....	15,001	8		1						
Illinois:										
Alton.....	24,682	4			6					
Aurora.....	36,397	7	3		12				1	1
Bloomington.....	28,725	6	1		9				3	1
Centralla.....	12,491	4			3					
Champaign.....	15,873				7					
Chicago.....	2,701,705	582	94	2	366	7	54	2	184	59
Cicero.....	44,995	5			30		1	1	3	
Decatur.....	43,818	6	1		40				2	
East St. Louis.....	66,767	12	2						1	
Elgin.....	27,454	6			17					
Evanston.....	37,234	9	1		28	1				
Forest Park.....	10,768		3		26			1		
Freeport.....	19,669	8			32		3			
Galesburg.....	23,534	9			4					
Jacksonville.....	15,713	4								
Kewanee.....	16,026	3			2				1	

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tubercu- losis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts:										
Adams (town).....	12,967	1								
Arlington (town).....	18,665	1	1		3		2		1	
Attleboro.....	19,731	3			1				5	
Belmont (town).....	10,749	2			50					
Beverly.....	22,561	5					2		1	
Boston.....	748,060	187	59	2	210		60		49	21
Braintree (town).....	10,580	1			7					
Brookline.....	37,748	8	1		28				2	
Cambridge.....	109,694	29	1	1	17		13		6	3
Chelsea.....	43,184	7			3		4		4	1
Chicopee.....	36,214	5	1		1					3
Clinton.....	12,979	3			1					1
Danvers.....	11,108	1	2	1					1	
Dedham.....	10,792	1								
Easthampton.....	11,261	1			1		2			1
Everett.....	40,120	10	2		5		2		3	1
Fall River.....	120,485	30	2		2		2		6	4
Frammingham.....	17,033	4			3		2		2	
Gardner.....	16,971	7			6				1	
Greenfield.....	15,462	3					1			
Haverhill.....	53,884	13			61		7			
Holyoke.....	60,203	12	4				1			1
Lawrence.....	94,270	21	1		48	3	1		2	1
Leominster.....	19,744	3					2			
Lowell.....	112,759	33			13		7		9	2
Lynn.....	99,148	25	5				6		5	1
Malden.....	49,103	12			17		4		2	2
Medford.....	39,038		5		3		4		1	
Melrose.....	18,204	3			3					
Methuen.....	15,189	5			8				1	
New Bedford.....	121,217	26	2		3				13	
Newburyport.....	15,618	3			4					
Newton.....	46,054	7	4		6		10			1
North Adams.....	22,282	3					2		1	
Northampton.....	21,951	11					3		1	
Pittsfield.....	41,763	7								
Plymouth.....	13,045	5								
Quincy.....	47,876	14			5		4		2	
Salem.....	42,529	2	4	1	2		1			
Somerville.....	93,091	17	5		6		4		3	2
Southbridge.....	14,245	4			12				1	1
Springfield.....	129,614	33	2		2		5		4	5
Taunton.....	37,137	7					3			
Wakefield.....	13,025	2	1		14					
Waltham.....	30,915	9			4		2			1
Watertown.....	21,457	1			24		5		4	1
Webster.....	13,258	1							1	
Westfield.....	18,604	2					3		2	
Winthrop.....	15,455	2			2		1		1	
Woburn.....	16,574	7								
Worcester.....	179,754	33	14	2			21			5
Michigan:										
Alpena.....	11,101		2		1		1			
Ann Arbor.....	19,516	13	1		37					
Battle Creek.....	36,164	1			50		3			
Benton Harbor.....	12,233	2			6					
Detroit.....	993,678	233	26	5	253	6	53		65	24
Flint.....	91,599	25	10	1	86		1		2	2
Grand Rapids.....	137,634	29	7	2	267		5		1	1
Hamtramck.....	48,615	5	2		1		1			
Highland Park.....	46,499	27			49	1	8	2	3	
Holland.....	12,183				1		6			
Jackson.....	48,374	6	1		77		2			
Kalamazoo.....	48,487	18	2		36		2		2	
Marquette.....	12,718	5	6	2			1			
Muskegon.....	36,570	7	4	1	23					
Pontiac.....	34,273	10	1		74		16		1	1
Port Huron.....	25,944	6			37		1	1		
Sault Ste Marie.....	12,096	4					1			
Minnesota:										
Duluth.....	98,917	14			3		9		1	1
Faribault.....	11,089	8			1		3			
Minneapolis.....	380,582	68	9		76	3	25		41	9

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.
DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Minnesota—Continued.										
Rochester.....	13, 722	13			4					
St. Cloud.....	15, 873						2			
St. Paul.....	234, 694	53	23		46		23		11	9
Winona.....	19, 143	7			3					1
Missouri:										
Cape Girardeau.....	10, 252	3			1					
Joplin.....	29, 902				3					
Kansas City.....	324, 410	81	7		54	3	6	1	5	6
St. Joseph.....	77, 939	28			20					2
St. Louis.....	772, 897	170	25		59		12		49	10
Springfield.....	39, 631	10								
Montana:										
Billings.....	15, 100	1	1							
Great Falls.....	24, 121	7					1		1	1
Helena.....	12, 037	5			8					
Missoula.....	12, 668	10					4			
Nebraska:										
Lincoln.....	54, 948	11			1		2		2	
Omaha.....	191, 601	32	6		4		2			3
Nevada:										
Reno.....	12, 016	5					1			
New Hampshire:										
Berlin.....	16, 104	1					1		1	
Concord.....	22, 167	5			10		1			
Dover.....	13, 029	2			1					
Keene.....	11, 210	3			2					
Manchester.....	78, 384	14	1		1					1
Nashua.....	28, 379	8			35		1			
New Jersey:										
Asbury Park.....	12, 400	1			2		1			
Atlantic City.....	50, 707	12			1		1		1	
Bayonne.....	76, 754		1						2	
Belleville.....	15, 660				4					
Bloomfield.....	22, 019	2	1		4					
Clifton.....	26, 470	1	1		4					
East Orange.....	50, 710	3	2		22				4	
Elizabeth.....	95, 783	2	5		16		3		4	1
Englewood.....	11, 627	2	2		13				1	
Garfield.....	19, 381	4	1		1				1	
Hackensack.....	17, 667	5			13		1			
Harrison.....	15, 721		1							
Hoboken.....	68, 166	15	1		1		1		3	1
Jersey City.....	298, 103		1		9		5		17	
Kearny.....	26, 724	5	1		16		1			
Long Branch.....	13, 521	1							1	
Montclair.....	28, 810	3	1		34		2		2	2
Morristown.....	12, 548	8			2		1			
Newark.....	414, 524	89	5		106		6		20	15
Orange.....	33, 268	6	1		2				2	
Passaic.....	63, 841	13	5		5		4		2	
Paterson.....	135, 875		9		48		1		4	
Perth Amboy.....	41, 707	3	1		7		1		2	
Plainfield.....	27, 706	7	1		1		1		1	
Summit.....	10, 174	3	1		5					
Trenton.....	119, 289	33	3		1		6		2	2
Union (town).....	20, 651						1			
West Hoboken.....	40, 074	2			1		1		1	
West New York.....	29, 926	3	1		5				4	
West Orange.....	15, 573	6	1		1					
New Mexico:										
Albuquerque.....	15, 157	5	3		12		1		7	1
New York:										
Albany.....	113, 344		1		158		5		1	
Amsterdam.....	33, 524	4	1		3		1			2
Auburn.....	36, 192	12			11					1
Buffalo.....	506, 775	113	1		60	2	15	2	21	5
Cohoes.....	22, 987	7			2					1
Dunkirk.....	19, 336	7			2					1
Geneva.....	14, 648	1								
Glens Falls.....	16, 638	6								
Hornell.....	15, 025	1			36					
Hudson.....	11, 745	2			1		2			
Ithaca.....	17, 004	8			34				1	

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New York—Continued.										
Jamestown.....	38,917	2	1	.....	21	.....	3	.....	2	.....
Lackawanna.....	17,918	5	3	1	23	.....	.....	2	.....
Little Falls.....	13,029	1	.....	.....	.....	.....	.....	1	1	
Lockport.....	21,308	6	.....	.....	1	.....	1	.....	1	
Middletown.....	18,420	.....	.....	.....	2	.....	.....	1	.....
Mount Vernon.....	42,726	5	1	.....	.....	.....	.....	.....	1	
New York.....	5,620,048	1,166	148	8	621	15	151	1	230	1105
Newburgh.....	30,366	7	.....	.....	2	.....	3	.....	.....
Niagara Falls.....	50,760	17	.....	.....	8	.....	2	.....	.....
North Tonawanda.....	15,482	6	.....	.....	10	.....	.....	.....	.....
Peekskill.....	15,868	7	.....	.....	2	.....	3	.....	2	
Poughkeepsie.....	35,000	5	.....	.....	2	.....	1	.....	.....
Rochester.....	295,750	66	8	.....	50	1	6	.....	10	5
Rome.....	26,341	4	4	.....	5	.....	3	.....	.....	1
Saratoga Springs.....	13,181	4	.....	.....	.....	.....	2	.....	2	
Schenectady.....	88,723	17	4	.....	96	.....	.....	.....	1	.....
Syracuse.....	171,717	41	13	.....	287	1	6	.....	6	.....
Troy.....	72,013	15	2	.....	3	3	.....	.....	3	.....
Watertown.....	31,285	3	.....	.....	11	.....	.....	.....	.....
White Plains.....	21,031	4	1	.....	5	.....	2	.....	1	.....
Yonkers.....	100,176	15	7	.....	21	.....	6	.....	.....	1
North Carolina:										
Durham.....	21,719	4	.....	.....	7	.....	.....	.....	3	1
Greensboro.....	43,525	7	.....	.....	65	.....	1	.....	.....	1
Raleigh.....	24,418	14	.....	.....	17	1	.....	.....	.....	.....
Salisbury.....	13,884	9	.....	.....	.....	.....	.....	.....	.....	.....
Wilmington.....	33,372	5	1	.....	.....	.....	.....	.....	.....	.....
Winston-Salem.....	48,395	25	.....	.....	127	.....	.....	.....	1	2
North Dakota:										
Fargo.....	21,961	.....	1	.....	1	.....	.....	.....	.....	.....
Grand Forks.....	14,010	.....	.....	.....	.....	.....	1	.....	.....	.....
Ohio:										
Akron.....	208,435	27	3	.....	33	.....	3	.....	6	.....
Ashtabula.....	22,082	6	.....	.....	9	.....	.....	.....	.....	.....
Barberton.....	18,811	5	.....	.....	1	.....	2	.....	.....	.....
Bucyrus.....	10,425	3	.....	.....	4	.....	1	.....	2	1
Cambridge.....	13,104	3	.....	.....	.....	.....	.....	.....	.....	.....
Canton.....	87,091	9	4	.....	6	.....	2	.....	.....	.....
Cincinnati.....	401,247	115	4	.....	77	.....	12	.....	14	11
Cleveland.....	796,841	148	24	1	207	2	62	2	59	16
Columbus.....	237,031	57	.....	.....	6	.....	4	.....	8	5
Coshocton.....	10,847	.....	.....	.....	1	.....	.....	.....	.....	.....
Dayton.....	152,559	35	7	.....	9	.....	11	.....	.....	.....
East Cleveland.....	27,292	1	.....	.....	17	.....	.....	.....	1	.....
East Youngstown.....	11,237	2	.....	.....	.....	.....	2	.....	.....	.....
Findlay.....	17,021	4	.....	.....	.....	.....	.....	.....	.....	.....
Fremont.....	12,468	4	.....	.....	4	.....	.....	.....	.....	.....
Hamilton.....	39,675	12	.....	.....	1	.....	1	.....	.....	.....
Kenmore.....	12,683	.....	.....	.....	43	.....	.....	.....	.....	.....
Lancaster.....	14,706	4	.....	.....	1	1	1	.....	1	1
Lima.....	41,326	16	.....	.....	60	.....	.....	.....	.....	1
Lorain.....	37,295	.....	.....	.....	6	.....	.....	.....	.....	.....
Mansfield.....	27,824	5	1	1	16	.....	5	.....	2	1
Marion.....	27,891	.....	.....	.....	2	.....	2	.....	2	.....
Martins Ferry.....	11,634	5	.....	.....	.....	.....	.....	.....	.....	.....
Middletown.....	23,594	6	.....	.....	.....	.....	.....	.....	1	.....
New Philadelphia.....	10,718	.....	.....	.....	2	.....	.....	.....	.....	.....
Newark.....	26,718	8	.....	.....	18	.....	1	.....	.....	.....
Niles.....	13,080	1	.....	.....	.....	.....	.....	.....	.....	.....
Norwood.....	24,966	4	.....	.....	14	.....	.....	.....	.....	.....
Piqua.....	15,044	8	.....	.....	.....	.....	.....	.....	.....	.....
Salam.....	10,305	2	.....	.....	23	.....	.....	.....	1	.....
Sandusky.....	22,897	5	.....	.....	.....	.....	.....	.....	1	1
Springfield.....	60,840	9	1	1	1	.....	1	.....	2	.....
Staubenville.....	28,508	12	.....	.....	2	.....	.....	.....	1	.....
Tiffin.....	14,375	2	.....	.....	3	.....	.....	.....	.....	.....
Toledo.....	243,164	55	6	1	29	.....	56	1	3	6
Youngstown.....	132,358	31	12	.....	47	2	2	.....	3	5
Zanesville.....	29,569	11	2	.....	.....	.....	.....	.....	.....	.....
Oklahoma:										
Oklahoma.....	91,295	20	.....	.....	6	.....	3	.....	1	2
Tulsa.....	72,075	.....	.....	.....	1	.....	.....	.....	.....	.....

¹ Pulmonary only.

CITY REPORTS FOR WEEK ENDED JUNE 16, 1923—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Oregon:										
Portland	258,288	86	10	2	4		4		6	9
Pennsylvania:										
Allentown	73,502		1		9		1		3	
Altoona	60,331				4					
Ambridge	12,730				8		5			
Beaver Falls	12,862		3				1			
Bethlehem	40,358				36		1		3	
Braddeck	20,879						3			
Bradford	15,525				13				1	
Bristol	10,273		2							
Butler	23,778		1		2		1			
Canonsburg	10,632								1	
Carbondale	18,640		1							
Carnegie	11,516						1			
Chambersburg	13,171						1			
Charleroi	11,516				4					
Coatesville	14,515				1					
Easton	33,813				3					
Erie	93,372		6		129		2		3	
Farrell	15,588		1		1		2			
Greensburg	15,033				1		1			
Harrisburg	75,917				5		2			
Hazleton	32,277				5					
Homestead	20,452								2	
Jeannette	10,627				1					
Johnstown	67,327		4		27		2			
Lancaster	53,159				4		2			
McKeesport	46,763				4					
Meadville	14,568				3					
Monessen	18,179		2							
Nanticoke	22,614				1				1	
New Castle	44,938				2					
New Kensington	11,987								1	
Norristown	82,819				3		3			
North Braddeck	14,928		1		1					
Oil City	21,274				5					
Philadelphia	1,823,779	430	42	3	41		45		94	35
Phoenixville	10,484				4					
Pittsburgh	568,843	159	18	1	72		31	4		16
Pottstown	17,431				1					
Pottsville	21,876				1					
Reading	167,761		3		4				2	
Scranton	187,788				30		2			
Shamokin	21,204				3					
Sharon	21,747						1			
Steelton	13,423				1					
Sumbury	15,721		1		1					
Swissvale	16,908		4							
Tamaqua	12,363				3					
Uniontown	15,692		1		3					
Warren	14,272				28					
Washington	21,480				18					
Wilkes-Barre	73,833		2		24		1		2	
Wilkinsburg	24,408				4					
Williamsport	26,196		1		10		2			
Woodlawn	12,495				2					
York	47,512		1		3					
Rhode Island:										
Cranston	29,407	8			3		1			
Cumberland (town)	16,677	3								
Pawtucket	64,248	15					2			
Providence	237,595	63	12	1	16	1	3			3
South Carolina:										
Charleston	67,957	17			2					4
Columbia	37,524	22			7					1
Greenville	23,127	9								1
South Dakota:										
Sioux Falls	25,202	4	1							
Tennessee:										
Chattanooga	57,895		3							
Knoxville	77,818				9				4	4
Memphis	162,351	38	1		1		2		17	2
Nashville	118,342	45			11	1			9	6

FOREIGN AND INSULAR.

“ALASTRIM” ON VESSEL.

Steamship “Makura”—Auckland, New Zealand.

Under date of May 26, 1923, two cases of “alastrim” (smallpox) were reported on the Royal Mail steamship *Makura* in quarantine at Auckland, New Zealand.

The *Makura* left Victoria, British Columbia, April 28, for Auckland; left Honolulu May 5, arrived Auckland May 17; sailed for Sydney, Australia, May 28; sailed from Auckland June 2, 1923.

CZECHOSLOVAKIA.

Communicable Diseases—January-March, 1923.

During the first quarter of the year 1923, communicable diseases were reported in Czechoslovakia as follows:

January-March, 1923.

Disease.	Cases.	Deaths.	Provinces reporting the greatest number of cases and deaths.
Cerebrospinal meningitis.....	55	16	Bohemia; cases, 23; deaths, 10.
Diphtheria.....	816	73	Bohemia; cases, 460; deaths, 34.
Scarlet fever.....	2, 157	199	Slovakia; cases, 722; deaths, 74.
Smallpox.....	15	.....	Russia; cases, 12.
Trachoma.....	686	.....	Slovakia; cases, 305.
Typhoid fever.....	994	80	Bohemia; cases, 383; deaths, 46.
Typhus fever.....	191	6	Russia; cases, 127; deaths, 2.

Other Diseases—January-March, 1923.

During the period under report other diseases were reported in Czechoslovakia as follows: Anthrax, 8 cases; dysentery, 127 cases; malaria, 5 cases; paratyphoid A, 2 cases; paratyphoid B, 12 cases; rabies, 3 fatal cases.

CUBA.

Communicable Diseases.

Communicable diseases have been notified in Cuba as follows:

Habana.

JUNE 1-10, 1923.

Disease.	New cases.	Deaths.	Remaining under treatment June 10, 1923.
Chicken pox.....	14	.....	12
Diphtheria.....	2	.....	3
Leprosy.....	.....	.....	1 12
Malaria.....	21	.....	29
Measles.....	3	.....	5
Paratyphoid fever.....	.....	.....	1
Typhoid fever.....	18	3	29

From abroad, 1.

² From the interior, 16.

³ From the interior, 18.

Habana—Continued.

JUNE 11-20, 1923.

Disease.	New cases.	Deaths.	Remaining under treatment June 20, 1923.
Chicken pox.....	7	.....	6
Diphtheria.....	2	.....	2
Leptosy.....	.....	.....	112
Malaria.....	34	1	31
Measles.....	5	.....	8
Scarlet fever.....	2	.....	2
Typhoid fever.....	17	3	32

¹ From abroad, 1.² From the interior, 13.³ From the interior, 22.

Provinces.

NEW CASES REPORTED MAY 1-10, 1923.

Province.	Chicken pox.	Diphtheria.	Infantile tetanus.	Malaria.	Paratyphoid fever.	Scarlet fever.	Typhoid fever.
Camaguey.....	1	.....	.....	7	.....	.....	2
Habana.....	6	3	.....	25	4	.....	15
Matanzas.....	3	.....	.....	.....	.....	.....	6
Oriente.....	9	.....	.....	54	2	.....	16
Pinar del Rio.....	.....	1	.....	.....	.....	.....	4
Santa Clara.....	5	.....	.....	.....	2	1	12
Total.....	24	4	.....	86	8	1	55

NEW CASES REPORTED MAY 11-20, 1923.

Camaguey.....	1	.....	1	3	.....	.....	9
Habana.....	2	.....	.....	23	1	1	21
Matanzas.....	6	1	.....	.....	1	.....	5
Oriente.....	3	.....	.....	66	1	.....	14
Pinar del Rio.....	.....	.....	.....	.....	2	.....	6
Santa Clara.....	6	1	.....	.....	2	.....	11
Total.....	18	2	1	92	7	1	66

ECUADOR.

Icterohemorrhagic Leptospirosis—Guayaquil.

Information dated May 25, 1923, shows the occurrence of a new case of icterohemorrhagic leptospirosis at Guayaquil, Ecuador. The case occurred in a man from the mountains, 20 years old, with a history of residence of three or four months on the coast. The case was admitted to hospital April 9, 1923, and terminated fatally April 13, 1923, with nearly all the indications of the disease.

HAWAII.

Plague-Infected Rats.

The finding of plague-infected rats has been reported in Hawaii, as follows: May 23, 1923, one plague rat found at Pohakea, Hamakua; June 2, one plague rat in the vicinity of the Pacific Sugar Co. mill, Hamakua.

HUNGARY.**Typhus Fever—January 1-May 19, 1923.**

Information received under date of June 14, 1923, shows the occurrence of typhus fever in Hungary as follows: During the period January 1 to May 19, 1923, 318 cases with 36 deaths, and 30 cases remaining under treatment May 19, 1923. The cases occurred in 11 counties. For the city of Budapest, 45 cases with 11 deaths and 8 cases remaining in hospital May 19, were reported. It was officially stated that 90 per cent of the cases reported throughout Hungary occurred among gypsies and that the remaining 10 per cent were contact cases. Infected persons and contacts were stated to be kept in isolation for from two to three weeks and frequently deloused.¹

MADAGASCAR.**Plague.**

During the period April 1 to 15, 1923, 22 cases of plague with 19 deaths were reported in the Island of Madagascar, occurring in the Province of Tananarive. The cases were distributed according to type, as follows: Bubonic, 5; pneumonic, 1; septicemic, 16.

MARTINIQUE.**Epidemic Smallpox (Reported as Alastrim)—Preventive Measures.**

Information dated June 6, 1923, in regard to the smallpox (alastrim) epidemic at Martinique indicates that control measures have been instituted. Approximately 1,200 fumigations were reported to date. The disease was stated to be more or less restricted to the northern and western portions of the island. It was stated that the majority of American vessels had been notified in time to restrict communication with the shore and that they have employed ships' crews for discharging cargo. Quarantine against the island was stated to be enforced only by American and British masters of vessels.

MEXICO.**Fatal Case of Malaria—Frontera.**

The sudden fatal termination of a case of supposed malaria, sick for one day, was reported at Frontera, Mexico, June 23, 1923.

Plague-Infected Rat—Tampico.

During the week ended April 21, 1923, the finding of a plague-infected rat was reported at Tampico, Mexico.

¹ Public Health Reports, June 29, 1923, p. 1502.

PERU.

Plague—May 1-15, 1923.

During the period May 1 to 15, 1923, 21 cases of plague with 11 deaths were reported in Peru, occurring in nine localities. For distribution according to locality, see table below.

SYRIA.

Lethargic Encephalitis—Damascus.

During the week ended May 21, 1923, two cases of lethargic encephalitis were reported at Damascus, Syria.

CHOLERA, PLAGUE, SMALLPOX, AND TYPHUS FEVER.

The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended July 6, 1923.¹

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India.....				Apr. 15-21, 1923: Cases, 3,475; deaths, 2,603.

PLAGUE.

Ceylon:				
Colombo.....	May 6-12.....		3	
China:				
Amoy.....	May 13-19.....		1	
Hongkong.....	Apr. 29-May 5....	3	1	
Hawaii:				
Hamakua.....				Plague-infected rats: Pohakaa, May 23, 1923, 1 rat; vicinity of Pacific Sugar Co. mill, June 2, 1 rat.
India:				
Karachi.....	May 13-19.....	26	23	
Madras Presidency.....	do.....	88	58	
Rangoon.....	May 6-12.....	34	32	
Java:				
East Java—				
Soerabaya.....	Apr. 1-30.....	487	487	
Madagascar:				
Province—				
Tananarive.....	Apr. 1-15.....	22	19	Apr. 1-15, 1923: Cases, 22; deaths, 19. Bubonic, 5; pneumonic, 1; septicæmic, 16.
Mexico:				
Tampico.....				Apr. 15-21, 1923: 1 plague rat.
Peru:				May 1-15, 1923: Cases, 21; deaths, 11.
Locality—				
Callao.....	May 1-15.....	2	1	
Cerro Azul.....	do.....	2		
Chiclayo.....	do.....	5		
Cutervo.....	do.....	2	1	
Huanabamba.....	do.....	3	6	
Lima (city).....	do.....	1		
Lima (country).....	do.....	2	1	
Salaverry.....	do.....	3	2	
Trujillo.....	do.....	1		
Siam:				
Bangkok.....	Apr. 29-May 12....	5	4	

¹ From medical officers of the Public Health Service, American consuls, and other sources. For reports received from Dec. 30, 1922, to June 29, 1923, see Public Health Reports for June 29, 1923. The tables of epidemic diseases are terminated semiannually and new tables begun.

CHOLERA, PLAGUE, SMALLPOX, AND TYPHUS FEVER—Continued.**Reports Received During Week Ended July 6, 1923—Continued.****SMALLPOX.**

Place.	Date.	Cases.	Deaths.	Remarks.
Canada:				
Alberta—				
Calgary	May 27-June 2	1	.....	Infection from Deer Lodge, Mont
Quebec—				
Quebec	June 10-16	1	.....	Varioloid.
Ceylon:				
Colombo	May 6-12	18	.....	From outside city.
China:				
Amoy	May 13-19 .....	.....	1	
Antung	May 14-20	1	.....
Hongkong	Apr. 29-May 5	9	15	
Nanking	May 13-26 .....	.....	.....	Present.
Czechoslovakia				Jan.-Mar., 1923: Cases, 15.
Great Britain:				
Cardiff	June 3-9	5	.....
India				
Karachi	May 13-19	7	6	Apr. 15-21, 1923: Cases, 1,780;
Madras	do	2	.....	deaths, 491.
Rangoon	May 6-12	37	16	
Japan:				
Kobe	May 28-June 3	1	.....
Java:				
East Java—				
Soerabaya	Apr. 22-23	27	4	
West Java—				
Batavia	May 5-11	6	.....	Province.
Mexico:				
Mexico City	May 19-26	36	.....	Including municipalities in Fed- eral district.
Portugal:				
Lisbon	May 20-June 2	20	.....
Portuguese West Africa:				
Angola—				
Loanda	Apr. 1-21 .....	.....	2	
Siam:				
Bangkok	Apr. 29-May 12	21	8	
Sierra Leone:				
Kaballa	May 1-15	1	.....
Spain:				
Valencia	May 15-June 2	8	.....
Syria:				
Damascus	May 15-21	2	.....
Union of South Africa:				
Orange Free State	Apr. 29-May 5 .....	.....	.....	Outbreaks.
Southern Rhodesia	May 3-9	4	.....
On vessel:				
S. S. Makura	May 26	2	.....	Two cases, in quarantine (re- ported as alastrim). Vessel left Victoria, B. C., Apr. 28, 1923. Touched at Honolulu

TYPHUS FEVER.

Chile:				
Talcahuano	May 13-19	1	.....
China:				
Hankow	May 19-25	1	.....
Czechoslovakia				Jan.-Mar., 1923: Cases, 191;
Egypt:				deaths, 6.
Alexandria	May 14-20	1	2	
Germany:				
Coblenz	May 27-June 2 .....	.....	1	
Guatemala:				
Guatemala City	Apr. 1-May 31 .....	.....	4	
Hungary				Jan. 1-May 19, 1923: Cases, 318;
Budapest	Jan. 1-May 19	45	11	deaths, 36. In 11 counties.
Mexico:				
Mexico City	May 20-26	15	.....	Including municipalities in Fed- eral District.
Syria:				
Aleppo	do	3	1	
Tunis:				
Tunis	May 28-June 3	1	.....
Union of South Africa:				
Cape Province	Apr. 29-May 5 .....	.....	.....	Outbreaks.