PUBLIC HEALTH REPORTS

VOL. 44 JANUARY 18, 1929 NO. 3

INFLUENZA PREVALENCE IN THE UNITED STATES

From a general survey of the reports (see p. 138) it appears that the center of the epidemic of influenza is still moving eastward. A comparison of the reports of cases of the disease for the week ended January 5, 1929, with the reports for the preceding week showed little change in the Pacific and Mountain States, although New Mexico and Washington showed continued increase in prevalence of the disease.

Missouri reported nearly 22,000 cases for the later week, as compared with 1,800 cases for the earlier week, but the other West North Central States showed improvement over reports for the preceding weeks. There was a decided increase in the numbers of cases in the West South Central States—Arkansas, Louisiana, Oklahoma, and Texas.

All groups of States east of the Mississippi, except the East North Central States, reported more cases for the week ended January 5, 1929, than they reported for the preceding week. The increase was especially noticeable in Alabama and Tennessee. Mississippi reported fewer cases than it did for the week ended December 29, 1928.

It is probable that the holidays interfered more or less with the reporting of cases and the transmission of the reports. Irregularities in the reports for the last three weeks may be the result of delays in the receipt of reports rather than of fluctuations in the number of cases.

MORTALITY OF THE CURRENT INFLUENZA EPIDEMIC [1]

Any doubt as to the reality of the current influenza epidemic is promptly dispelled by an examination of the mortality statistics.

According to the following conservative estimate, there have been to January 5, 1929, no less than 26,000 deaths in the United States attributable to the epidemic.

[1] From the Office of Statistical Investigation, United States Public Health Service.

TABLE 1.—*Excess mortality from influenza and pneumonia (all forms) per 100,000 population in cities of various geographical districts*

[Norm=mean of past four years]

	November, 1928				December, 1928					Jan. 5, 1929
	3	10	17	24	1	8	15	22	29	
EXCESS ANNUAL RATE PER 100,000										
Total	−14	−21	−9	+11	+35	+60	+122	+233	+276	+392
Pacific	+35	+54	+62	+162	+358	+458	+431	+240	+253	+212
Mountain	−1	−10	+35	+30	+349	+627	+1,148	+764	+369	+196
West South Central	0	−29	−79	−10	+23	+43	+36	+246	+544	+809
East South Central	+23	−2	−38	−54	−47	+128	+96	+36	+219	+807
West North Central	−8	−14	−17	−13	+32	+77	+224	+336	+379	+373
East North Central	−9	−16	−46	−3	+30	+27	+87	+241	+500	+567
South Atlantic	−42	−88	−30	+15	+10	+33	+152	+138	+268	+254
Middle Atlantic	−40	−28	−33	−2	−1	+4	+54	+142	+229	+328
New England	−10	−22	−45	+3	−36	−43	−16	+20	+24	+99
ANNUAL RATE PER 100,000 (CURRENT EPIDEMIC)										
Total	101	107	125	144	170	299	274	398	493	607
Pacific	115	166	162	264	480	588	556	382	413	437
Mountain	115	124	168	196	512	849	1,362	991	615	471
West South Central	144	127	103	160	193	229	275	459	803	1,131
East South Central	152	172	178	152	183	340	304	288	445	1,139
West North Central	75	67	79	75	112	169	328	442	491	501
East North Central	89	86	92	109	134	153	215	379	637	740
South Atlantic	104	81	138	173	166	216	332	359	508	526
Middle Atlantic	88	117	113	143	151	166	217	312	408	568
New England	92	85	66	115	102	93	117	173	188	268
AVERAGE ANNUAL RATE PER 100,000, 1924–1927										
Total	115	128	134	133	135	149	152	165	171	215
Pacific	80	112	100	102	122	130	125	142	160	225
Mountain	116	134	135	166	163	222	214	227	246	275
West South Central	144	156	182	170	170	186	239	213	259	322
East South Central	129	174	216	206	230	212	208	252	226	332
West North Central	83	81	96	88	89	92	104	106	112	128
East North Central	98	102	138	112	104	126	128	138	137	173
South Atlantic	146	169	168	158	156	183	180	221	240	272
Middle Atlantic	128	145	146	145	152	162	163	170	179	230
New England	102	107	111	112	138	136	133	153	164	178

[1] The data for 1924–1927 are based on cities reporting to the Public Health Service. For 1928 this is true for the geographical districts, except for the last two weeks when the Weekly Health Index of the Census Bureau was used. Although the cities are not identical in the two cases, a test has shown that the effect on the rates is slight. For the "Total" line, the 1928 data were taken entirely from the Weekly Health Index.

During the seven weeks from November 18, 1928, to January 5, 1929, the cumulated annual mortality rates (Table 1) from influenza and pneumonia in excess of the average for the corresponding period of the last four years was 1,129 per 100,000 population in 78 large cities reporting to the Bureau of the Census. This is equivalent to an actual rate for the seven weeks of 21.7 per 100,000.[2] Applying this rate to the population of the United States of approximately 120,000,000 yields an estimate of 26,000 excess deaths for the seven weeks, at the end of which the mortality had entered a definite decline only in the Western States.

[2] The cumulation or summation of the excess annual rates divided by 52 (weeks in a year) gives the actual excess rate during the period for which the summation is made.

It is believed that this estimate is highly conservative. In turning to the deaths from all causes, it is noted that during the single week ended January 5, 1929, there were 11,148 deaths from all causes in 65 cities with a total population of 30,000,000, an excess of 3,338 deaths over the corresponding week of the preceding year.[3] Assuming a similar mortality for the United States as a whole, an estimate of 13,000 deaths in this single week is obtained in excess of the corresponding week of last year.

If excess mortality from all causes over the average of recent years is calculated, the estimated deaths attributable to the epidemic is considerably greater than the quoted figure of 26,000.

EXCESS MORTALITY OF MOUNTAIN STATES

The heaviest mortality rate thus far has been in the Mountain States,[4] where the cumulated annual mortality rates (Table 1) over eight weeks was 3,518 per 100,000 population, equivalent to 67.8 deaths per 100,000 population during the eight weeks. This mortality is considerably higher than that yet experienced in the other regions, partly because the epidemic in the mountain region apparently came to a peak earlier than elsewhere except on the Pacific coast. While recognizing that the Mountain States may not be representative of the United States as a whole, it is nevertheless significant that the excess mortality rate of 67.8 in the Mountain States is about one-seventh of the excess mortality of the 1918 pandemic, which was estimated to be about 500 per 100,000 population for the United States as a whole.

MORTALITY PEAK BY REGIONS

The mortality had entered upon a definite decline by January 5, 1929, only in the Pacific and the mountain regions, although it is possible that in the South Atlantic and in some of the Central States the peak may have been reached.

In the Pacific States the mortality peak was reached during the week ended December 8, 1928, but in the New England States the first pronounced increase in mortality apparently had only begun during the first week in January. (See Table 1.)

It will be recalled that in the 1926 epidemic the peak of the incidence in New England came 10 to 12 weeks after that of California.[5]

EXCESS MORTALITY IN CERTAIN CITIES

In Table 2 are shown the excess mortality rates from influenza and pneumonia in a selected group of the larger cities.

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[3] Weekly Health Index of the Bureau of the Census.

[4] Billings, Great Falls, Helena, and Missoula, Mont.; Boise, Idaho; Denver and Pueblo, Colo.; Albuquerque, N. Mex.; Salt Lake City, Utah; and Reno, Nev.

[5] Public Health Reports, Aug. 20, 1926, p. 1767.

TABLE 2.—*Excess of annual death rates per 100,000 from influenza and pneumonia (all forms) by weeks, October 6, 1928, to January 5, 1929, over the average of the rates in the corresponding week of the years ended June 30, 1921, 1924, and 1925*

City	Week ended—													
	October, 1928				November, 1928				December, 1928					Jan. 5, 1929
	6	13	20	27	3	10	17	24	1	8	15	22	29	
Albany, N. Y.					+131	+39	+32	+199	+237	+319	+100	+312	+483	+565
Atlanta, Ga.	−51	−48	−121	+20	−99	−115	−153	−170	−44	+68	+179	+883	+1,281	
Baltimore, Md.	+8	−5	+58	−1	−23	−33	+19	+44	+13	+55	+65	+1	+191	+351
Birmingham, Ala.	+52	−8	+44	−165	−26	−4	−100	−120	−43	−33	+4	−214	+105	+1,712
Boston, Mass.	−74	−23	+66	−6	−15	−57	−2	0	−43	−21	−18	+52	+7	+73
Bridgeport, Conn.	+22	+19	+120	−33	−11	+123	+75	+102	−54	+45	−36	−31	−123	+159
Buffalo, N. Y.	+94	+16	+106	+17	−9	+40	+51	+5	+25	+16	+93	+226	+232	+390
Cambridge, Mass.					−8	−98	−24	−32	−42	−92	−19	−70	+90	+127
Chicago, Ill.	+18	+14	+26	+3	+14	−20	−5	+20	+22	+42	+144	+298	+409	+312
Cincinnati, Ohio.	+107	+64	+108	+36	+38	+89	+40	+65	+65	+18	+59	+61	+263	+1,169
Cleveland, Ohio.	+7	−27	−27	0	−2	+3	−49	−33	−35	−22	−19	+173	+446	+731
Columbus, Ohio.	+40	−56	−27	−19	−64	+14	−31	−42	−51	−41	−69	+221	+669	+996
Dayton, Ohio.					−6	−12	+179	−27	−64	+128	−20	+141	+305	+327
Denver, Colo.	−29	+15	−84	+6	−46	−63	−96	−49	+227	+614	+1,641	+1,084	+531	+315
Des Moines, Iowa.					+19	−58	−65	−105	−112	+88	+150	+1,376	+515	+200
Detroit, Mich.	+5	−11	+7	−6	−21	−11	+20	−26	+33	+26	+7	+149	+507	+778
Fall River, Mass.	−15	+17	−32	−45	−56	−105	−80	−14	−143	0	−132	+8	+71	+97
Grand Rapids, Mich.	−8	+54	+21	+51	+47	−19	+9	+102	+35	+126	+439	+690	+748	+208
Indianapolis, Ind.	+7	+12	−10	+24	−12	−59	+29	+130	+55	+158	+380	+645	+692	+672
Jersey City, N. J.					−9	−33	+54	+60	−48	+4	+54	+151	+109	+213
Kansas City, Mo.	−27	−31	+2	−46	+39	−52	−77	−73	+63	+197	+679	+773	−38	+216
Los Angeles, Calif.	−11	+57	+124	+129	+160	+127	+128	+383	+887	+1,121	+1,021	+578	+421	
Louisville, Ky.	−24	+30	−10	+14	+38	−31	+25	−62	−37	+64	−5	−9	+65	+424
Lowell, Mass.					+83	−23	−34	0	−61	−71	+14	+55	−89	+50
Memphis, Tenn.	+4	−7	−157	−30	−08	−81	+14	+26	−128	+264	−81	+69		
Milwaukee, Wis.	+35	+20	−3	−18	+6	+18	−44	−69	−28	−11	−46	+189	+316	+472
Minneapolis, Minn.	+80	−26	+36	−14	+23	+27	+110	−44	−9	+89	+5	+284	+416	+422
Nashville, Tenn.	+12	−36	−118	−55	+44	+142	−22	−37	+23	+232	−120	+55	+191	+330
New Haven, Conn.	+45	−18	+1	−60	+66	−29	+13	−54	−67	−105	+50	−17	−52	+24
New Orleans, La.	+5	+107	+27	−9	+64	+52	+51	−9	+71	+46	+129	+491	+945	+781
New York, N. Y.	+39	+23	+40	+10	−14	+11	0	+9	+3	+12	+30	+39	+58	+128
Newark, N. J.	−22	+18	+35	+8	+2	−26	−1	+1	−30	+27	−17	−16	+56	+326
Oakland, Calif.					+52	+47	+81	+74	+316	+64	+58	+127	+121	+175
Omaha, Nebr.	−24	−5	−13	−43	−51	+9	+48	−9	+27	+85	+634	+715	+780	+261
Paterson, N. J.					−23	+75	−4	−53	−30	−7	−54	+43	−107	+499
Philadelphia, Pa.	+21	−20	−8	−34	−44	−28	−6	−24	−17	+34	+57	+209	+234	+428
Pittsburgh, Pa.	−45	−99	−65	−116	−160	−117	−68	−25	−43	−158	+105	+877	+1,893	+2,169
Portland, Oreg.	+27	+5	+31	+24	−20	−45	+19	+34	+13	−23	+241	+223	+398	+416

Providence, R. I.	+69	+63	+90	+30	−52	−23	+58	−58	+39	−6	−34	−9	−20	+26
Richmond, Va.	+26	+125	+7	+24	−40	−130	−86	+9	−29	−41	0	−94	+266	+309
Rochester, N. Y.	+39	−11	+82	0	−2	−19	+73	+38	+51	−16	+46	+23	+51	+93
San Francisco, Calif.	−24	−27	−5	+52	+56	+104	+59	+78	+104	+51	+92	+53	+61	+52
Seattle, Wash.	----------	----------	----------	----------	+47	+3	−26	+37	+75	+127	+248	+299	----------	+205
Spokane, Wash.	----------	----------	----------	----------	+48	−52	−12	+78	+72	+352	+823	+820	+298	----------
St. Louis, Mo.	----------	----------	----------	----------	−54	−101	−46	−37	−41	−51	+13	0	+222	+279
St. Paul, Minn.	+117	+172	+65	+161	+113	+2	+15	+28	+19	−9	+130	+352	+555	+635
Syracuse, N. Y.	−29	+44	+117	+8	−24	+101	+94	+88	+56	+103	−33	+14	+271	+527
Toledo, Ohio	−20	+9	+6	−34	+75	−29	−1	+76	+70	+113	+155	+615	+973	+438
Washington, D. C.	+26	−35	+44	−20	+49	−53	+14	−7	−65	−7	+5	+45	+78	+112
Worcester, Mass.	−39	−43	−21	−80	−85	−13	−123	−22	−79	−57	−141	−145	−97	----------

The highest excess mortalities over the indicated nonepidemic years occurred in the following cities:

City	Highest excess mortality per 100,000 population (annual basis)	Experienced during the week ended—	City	Highest excess mortality per 100,000 population (annual basis)	Experienced during the week ended—
Pittsburgh	2,169	Jan. 5, 1929	Cincinnati	1,169	Jan. 5, 1929
Birmingham	1,712	Jan. 5, 1929	Los Angeles	1,121	Dec. 8, 1928
Denver	1,641	Dec. 15, 1928	Columbus	996	Jan. 5, 1929
Des Moines	1,376	Dec. 22, 1928	Toledo	973	Dec. 29, 1928
Atlanta	1,281	Dec. 29, 1928	New Orleans	945	Dec. 29, 1928

The extremely high mortality in Pittsburgh is noteworthy. In only four weeks that city has had a cumulated excess annual mortality from influenza and pneumonia of 5,044 per 100,000 population. In other words, almost one person per thousand has succumbed to the epidemic during the four weeks.

In Los Angeles the cumulated excess annual rate was about the same (5,136), but in that case that toll was taken over a period of 12 weeks.

Curiously enough, in certain other California cities the mortality was relatively light. In San Francisco, for example, the cumulative excess annual mortality rate aggregated only 762 in 11 weeks.

CONFERENCE ON THE PRESENT INFLUENZA EPIDEMIC

The conference called by the Surgeon General to discuss the influenza epidemic met in Washington, D. C., January 10. It was attended by State and local health officers, research workers, and others interested in the problems of influenza.

Although the meeting did not bring to light any new or unusual information regarding the disease, and it was not expected nor was its purpose that it should, it provided an opportunity for experienced health workers to set forth concisely their views on how best to meet the problems with the means at hand.

Three committees made reports, namely, the committee on epidemiology, the committee on preventive measures, and the committee on research.

Report of Committee on Epidemiology

The features which have distinguished influenza in its typical pandemic outbreaks, such as those of 1918 and 1889–90, are—

1. A great increase in the prevalence of illness of which the usual symptoms are: Fever, of more or less sudden onset, of moderately high range, and of only a few days' duration; aching of the body and limbs; inflammation of the upper respiratory passages; and marked prostration. In its manner of spread this disease has the characteristics of a highly contagious infection, transmitted directly from person to person.

2. Coincident increase in the prevalence of pneumonia, developing apparently as a complication of a certain proportion of the influenza cases.
3. A rise in the general mortality rate, due largely to increase in deaths certified as influenza or pneumonia. These deaths characteristically show an age distribution different from that of normal times, in that the proportion of young adults is increased.
4. In any given locality the epidemic develops and runs its course rapidly, so that its duration, even in a large city, is a matter of not more than five to ten weeks.
5. The tendency is to rapid and wide extension, different communities being attacked in such quick succession that the spread across a continent requires only a few weeks, and where the disease becomes pandemic it travels around the world within three to six months.

The epidemics which show the full development of all these features, including world-wide prevalence, are rather rare events, recurring at intervals which usually have exceeded 20 years. However, at much more frequent intervals we have minor epidemics, similar in general character, but differing from the typical picture in some respects, notably in lower prevalence, less severe clinical type, slighter effect on mortality, and less extensive area of spread. The exact relationship which these bear to true pandemic influenza is still a matter for investigation rather than fixed opinion; but the more distinct of the minor epidemics are generally accepted as true influenza of modified virulence and intensity. Since 1919 at least two such outbreaks have occurred in the United States—one in 1920 and one in 1926, with some more doubtful epidemics in other years.

The data available at this time for judging the nature, extent, and severity of the present epidemic are the following: Clinical accounts of the cases seen in communities already attacked; official morbidity reports, which are admittedly incomplete and uneven, but have nevertheless a certain significance; and, for the large cities listed in the Weekly Health Index, weekly reports of deaths from all causes and from influenza and pneumonia.

All this evidence agrees in indicating the existence of a definite epidemic of influenza. It seems to have developed first in the vicinity of San Francisco early in November. Since that time it has extended, with characteristic rapidity and in fairly regular sequence, until it has now become demonstrable in all sections of the United States except the Northeastern States.

The epidemic is already on the decline in those western cities which were first affected, and has apparently reached its peak in some middle-western cities, but in the East seems not yet to have reached its full development. The effect on mortality has not approximated that caused by the pandemic of 1918, and has been less than in the epidemic of 1920, but more severe than at any time since the latter date.

For the statistical and epidemiological study of the epidemic we recommend:

1. That the Public Health Service continue and extend its activity in the collection and compilation of morbidity and mortality statistics, to afford both a current and a permanent record of the epidemic.
2. That the Public Health Service undertake special surveys of morbidity in a sufficient number of localities to give a more exact picture of the prevalence and epidemiology of the disease.
3. That State and local health authorities, the military services, and institutions, in addition to collecting their usual records, undertake such statistical and field studies as circumstances will permit, and that they be especially on the alert to take advantage of any opportunities which may be presented for unusually instructive epidemiological observations.
4. We would also call attention to the need for extensive and careful clinical studies, particularly such as will give accurate descriptions of unselected cases, including the milder types of doubtful diagnosis.

In addition to the general subject, two specific questions have been referred to this committee.

First. Is it desirable that influenza be included in the list of notifiable diseases?

We believe that it should be so included, at least to the extent of simple numerical statements.

Second. Should an official clinical definition of influenza be adopted by this conference for the guidance of physicians in differentiating influenza from other respiratory disorders to the end that morbidity reports should be more uniformly comparable?

We believe that this is not advisable.

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WILLIAM H. HOWELL.
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Report of Committee on Preventive Measures

When influenza is prevalent or is believed to be approaching a community during the course of an epidemic, it is advisable to take advantage of the public interest and concern by emphasizing anew those public precautions and practices of personal hygiene upon which the prevention of communicable affections of the upper respiratory tract depend.

Measures for precaution fall naturally under those of a communal or administrative character and those which apply to the individual.

I. COMMUNAL OR PUBLIC PRECAUTIONS

1. Efforts should be made to reduce the opportunities for direct contact infection by avoiding crowds.

2. Schools or colleges should not be closed wherever adequate medical and nursing supervision is available and provision is made for the prompt exclusion of all persons showing suspicious catarrhal symptoms, especially when these are associated with a rise of temperature.

3. The reopening of boarding schools and colleges after vacation should not be encouraged in the presence of epidemic influenza unless there are generous accommodations for the bed care of those who may be attacked.

4. While the general closing of places of public assemblage is to be deprecated, there may be local conditions justifying such action at the discretion of the local health authorities.

5. In groups which can be brought under daily professional inspection, the isolation of early and suspicious cases of acute respiratory tract infection, particularly when these are accompanied by a rise in temperature, may result in delaying the spread of the disease.

6. In isolated communities and in institutions, infection may be delayed and sometimes avoided by the strict exclusion of visitors.

7. The person and sick room of an infected individual must be considered a definite focus of infection, and visitation to such persons or premises should be avoided by all persons except the necessary medical and other attendants.

II. EDUCATION IN CLEANLY PERSONAL HABITS

When influenza prevails or threatens, information on the subject of cleanly personal habits and personal hygiene should be spread widely, particularly with regard to the following points:

1. Avoidance of all uncovered acts as in coughing, loud talking, sneezing, or spitting.
2. Special emphasis upon the need of washing the hands frequently, more especially before eating; unclean articles and fingers should be kept out of the mouth and nose. This advice is particularly applicable to all persons in attendance upon the sick.
3. Avoidance of exposure, fatigue, and any bodily excess.
4. Persons in good health should continue their normal manner of life.

III. ADVICE TO INDIVIDUALS FOR GUARDING AGAINST COLDS, UPPER RESPIRATORY INFECTIONS, AND INFLUENZA

It would seem advisable that, in the presence of influenza or upper respiratory infections, individuals should make more than the ordinary effort to increase well-being. This may be obtained by—

1. Securing adequate sleep and rest (8 to 10 hours' sleep every night with windows open, but under enough covering to keep warm).
2. Eating a moderate, mixed diet, and partaking freely, at regular periods, of pure water (six to eight glasses daily).
3. Wearing clothing to suit the environment, particularly clothing which prevents chilling of the body surfaces and which keeps the body dry.
4. Avoiding people with colds, especially those who are sneezing or coughing. There is more danger from contact with those just beginning to feel sick than from those ill enough to be confined to bed.
5. Keeping out of crowds so far as possible, especially crowds in closed places.
6. Avoiding the use of common towels, wash basins, glasses, eating utensils, and toilet articles.
7. Washing the hands thoroughly before eating.
8. Avoiding the use of any so-called preventives. Vaccines, sera, and advertised preventives seem to be of no value and may be harmful in this disease.
9. Avoiding alcohol and stimulants of all sorts.

IV. WHAT TO DO TO PREVENT BECOMING SERIOUSLY ILL IF YOU GET THE DISEASE

1. If you have a cold, feel bad, or are feverish, go to bed at once, cover up warmly, and have the windows open; send for a physician and follow his instructions.
2. Do not take any so-called cures. There is no specific cure for this disease.
3. If you can not get a doctor, remain in bed, eat a simple diet, take plenty of fluids, such as water, fruit juices, milk, boullion, hot soups, at frequent intervals. Use a mild cathartic if constipated.
4. Remember that the most important measure of preventing pneumonia or other serious complications is to remain in bed until all symptoms have disappeared, and then, under the physician's advice, to return very gradually to your usual physical activities, being sure to rest before you get tired.

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TULARÆMIA IN SHEEP IN NATURE

By R. R. PARKER, *Special Expert, United States Public Health Service,* and J. S. DADE, *Chief Inspector, Idaho State Sheep Commission*

In the spring of 1923 there were reported to the field station of the Public Health Service at Hamilton, Mont., several instances of heavy losses among sheep that were believed to be due to the wood tick, *Dermacentor andersoni* Stiles. These reports were from eastern Montana and southern Idaho and were the first complaints of probable tick-caused trouble in sheep that had been received. Each report was investigated by Parker either by personal visit to the locality concerned or by correspondence, and in one instance ticks from affected eastern Montana sheep were tested at the Hamilton laboratory. Due to the short period during which the sheep were affected, and to the fact that most of the reports were received after the trouble was over, no very suggestive data were secured.

At the time it was thought likely that the losses were due to tick paralysis, which was first reported in sheep in British Columbia by Hadwen in 1914,[1] and has since been observed there by Bruce.[2,3] The symptoms reported from eastern Montana especially were suggestive of this condition, but the death, from a then undetermined infection,[4] of all guinea pigs into which the ticks noted above as secured from affected eastern Montana sheep were injected, did not seem to support this possibility. It was not until later in the season, however, after the demonstration by Parker, Spencer, and Francis [5] of the ability of *D. andersoni* to acquire and transmit tularæmia, and of the occurrence of tularæmia infection in overwintered adult ticks collected in nature, that the possibility that *Bacterium tularense* might be responsible for the reported trouble was seriously considered. This likelihood seemed the greater because in each of the several regions where trouble had occurred that spring, a record had been secured of a coincident high mortality among jack rabbits. Dead rabbits were also reported as being heavily tick infested. It was, therefore thought possible that infected overwintered ticks were transmitting tularæmia to rabbits, and also that infected ticks might be concerned in the coincident illness and mortality among sheep.

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[1] Hadwen, Seymour: On Tick Paralysis in Sheep and Man Following Bites of *Dermacentor venustus:* with Notes on the Biology of the Tick. Parasitology, vol. 6, pp. 283–287, 1914.

[2] Bruce, E. A.: Tick Paralysis in British Columbia. Health of Animals Branch, Can. Dept. Agri., Bull. No. 28, 1920.

[3] Bruce, E. A.: Tick Paralysis. Jour. Amer. Vet. Med. Assoc., vol. 48, N. S. 21, No. 2, Nov., 1925.

[4] In view of later experience this infection was almost certainly tularæmia. Ticks infected with *Bacterium tularense,* when ejected intraperitoneally into guinea pigs, frequently cause death without typical lesions. These usually become typical if transfer by tissue emulsion is made to a second guinea pig. This, however, was not known at the time of the above tests.

[5] Parker, R. R., Spencer, R. R., and Francis, Edward: Tularæmia Infection in Ticks of the Species *Dermacentor andersoni* Stiles in the Bitterroot Valley, Mont. Pub. Health Rep., vol. 39, No. 19, pp. 1057–1073, May 9, 1924.

It is now known that overwintered wood ticks are capable of transmitting tularæmia to rabbits experimentally.

We are indebted to Surg. Edward Francis, of the Hygienic Laboratory at Washington, for the bacteriological tests herein reported, which resulted in the recovery of *Bacterium tularense* from the spleens of guinea pigs that had been injected with ticks and tissues secured from affected sheep, and which confirmed the diagnoses made at the Hamilton Field Station.

The following data are presented on sheep found sick under natural conditions:

(1) LAMB

April 1, 1928: Acutely ill; down and unable to rise. Killed and autopsied. Ticks secured.

Tissue.—On April 4 a salt solution emulsion of pooled prescapular, cervical, and postpharyngeal glands was injected subcutaneously into two guinea pigs. Both were dead April 9, with typical lesions of tularæmia.

Ticks.—On April 4 two engorged females were injected subcutaneously into each of two guinea pigs and three partly fed females were placed on a single guinea pig for feeding. Both tick-inoculated pigs died typically on April 8. On April 17 the guinea pig on which the ticks were fed was still alive but very sick, and was killed and autopsied. Only one tick had fed. There were typical inguinal buboes, and the spleen was enlarged five times. Infection was apparently subacute, and transfer would certainly have produced typical lesions.

Bacteriological confirmation.—On April 8 the spleens of the two guinea pigs that had been injected with engorged female ticks were forwarded to the Hygienic Laboratory, and from them both Doctor Francis recovered *Bacterium tularense* in pure culture.

(2) LAMB

April 1, 1928: Dead 10 or 12 hours. Autopsied. Ticks secured.

Tissue.—On April 4 pooled tissues, tested as for Lamb (1), caused the death, from typical tularæmia, of two guinea pigs on April 7 and 8, respectively. From one, spleen emulsion transfers were made to four other guinea pigs, all of which died typically in two to four days.

Ticks.—On April 4 two engorged females were each injected subcutaneously into a guinea pig. Both died of typical tularæmia April 9. Two partially fed ticks were placed on a third guinea pig, which also died typically 12 days after infestation.

Bacteriological confirmation.—On April 8 the spleen of one of the guinea pigs injected with pooled gland emulsion from Lamb (2) was forwarded to the Hygienic Laboratory at Washington. A pure

culture of *Bacterium tularense* was recovered from inoculated guinea pigs. A strain started from this culture is still being maintained at the Hamilton station.

(3) YEARLING

April 12, 1928: According to the herder this yearling had been walking lame for several days. Blood sample and ticks were secured.

Ticks.—On April 16, three guinea pigs were each injected subcutaneously with two partially to fully engorged females. All were dead of typical tularæmia on the sixth day—April 22.

Agglutination test.—On May 4, complete agglutination of *Bacterium tularense* occurred in dilution of 1:1280 and was partial at 1:2560.

(4) LAMB

April 12, 1928: Recovering, but still showing evidence of illness by loss of weight and carriage of head. Blood sample only secured.

Agglutination test.—On May 4, complete agglutination for *Bacterium tularense* occurred in all dilutions up to and including 1:640; partial at 1:1280.

(5) OLD EWE

April 12, 1928: Recovered, but was coughing and showed loss of weight. Blood sample only secured.

Agglutination test.—May 5. Complete agglutination for *Bacterium tularense* in all dilutions up to and including 1 : 160.

(6) DEAD LAMB

April 12, 1928: Dead not over one day. Autopsied by Dadé and Parker and specimens taken of prescapular, cervical, and postpharyngeal glands and of liver and spleen. The prescapulars and postpharyngeals were injected, though not markedly, and the former were one-half enlarged. Ticks had detached and crawled away, but there was tick excrement in the wool, and the hide showed numerous points of attachment.

Tissue.—On April 16, tested by inoculating subcutaneously into guinea pigs.

Prescapular glands.—Three guinea pigs were injected. All were dead from typical tularæmia April 23, seven days after inoculation.

Postpharyngeal glands.—Three guinea pigs injected. April 23, all were dead of typical tularæmia.

Cervical glands, spleen, and liver.—Three guinea pigs were injected with each tissue. All were negative, as were also transfer guinea pigs inoculated with spleen and liver emulsions from the initial test animals.

(7) OLD EWE

April 12, 1928.—One of the three sheep noted as being "down". Had apparently been "down" several days. Ticks had been soaked with Kreso dip; many were still attached under the jaw, around base of ears, and on side and back of head. They were misshapen, were apparently unhealthy, were feeding but little, and many were either dead or nearly dead. Most of the female ticks were but slightly engorged; none fully. Scouring had been severe. They were unlikely to live. Ticks and blood sample were secured.

Ticks.—On April 16, 1928, four guinea pigs, each injected with two slightly fed females, remained afebrile and were apparently negative when killed and autopsied, May 4, 18 days after inoculation.

Agglutination test.—On April 30, complete agglutination for *Bacterium tularense* in dilution of 1:1280.

(8) OLD EWE

April 12, 1928.—Same data as for old ewe (7), except that condition was not quite as bad. Ticks were less numerous, but with same unhealthy appearance. Blood sample only.

Agglutination test.—May 5, complete agglutination for *Bacterium tularense* in all dilutions up to and including 1:640, partial at1:1280.

The above cases show that positive tests indicative of present or recent infection with *Bacterium tularense* were secured from each of the eight sheep concerned and that these findings were confirmed bacteriologically in two instances.

Previous Attempts to Infect Sheep Experimentally

The first attempt to infect sheep with tularæmia was made by McCoy and Chapin[6] in 1911. Five sheep were tested (no age data given), four by the subcutaneous injection of salt solution emulsions of spleen, liver, and other tissues from recently dead guinea pigs, and one by cutaneous inoculation with an infected spleen. Three of the injected sheep were infected and two died, while one that received only a small amount of emulsion and the one cutaneously inoculated remained well. Parker, in the course of studies at Hamilton, has three times attempted to infect yearling sheep (in prime condition), one by the feeding of infected ticks, and two by the repeated daily rubbing of infectious tick excrement into the denuded axillary region (where further rubbing of the contaminated area was assured by movements of the leg). The yearling on which ticks were fed remained well, and serum samples taken 14 and 21 days after the beginning of tick

[6] McCoy, G. W., Chapin, C. W.: Further Observations on a Plague-like Disease of Rodents, with a Preliminary Note on the Causative Agent, *Bacterium tularense*. Jour. Inf. Dis., vol. X, pp. 61–72, 1912.

feeding failed to agglutinate *B. tularense* even in low dilution. Of two sheep that were rubbed with tick excreta emulsion, the serum of one agglutinated *B. tularense* in dilution of 1 : 80 19 days after the first application, and in dilution of only 1 : 10 both 123 and 217 days after the last application. The serum of the second caused agglutination of *B. tularense* in dilution of 1:160, 47 days after the first application, and in dilution of 1:40, 12 days after the last application. Except that the second of the two sheep rubbed with tick excrement showed some loss of weight and was less lively than its mate, none of these three animals showed apparent evidence of illness. The sera of these sheep taken before test all failed to agglutinate *B. tularense*. Francis [7] records the death in 23 days of a sheep injected with a pure culture of *B. tularense*.

Sheep as Possible Sources of Human Infection

The proved occurrence of *B. tularense* in the tissues of sheep in nature opens the question of the possibility of human infection from the handling of infected carcasses. Infection is definitely possible through the primary contamination of the hands with the tissues of crushed infected ticks held in the wool or with tick excrement which is commonly present in large masses. The fingers might also become contaminated by contact with necrotic tissue which sometimes develops at the points where infected ticks have been attached. The chance that infected meat might reach the markets and be a source of danger to persons in slaughterhouses and packing houses and to the consuming public seems less likely, but can not be altogether dismissed, especially if animals are slaughtered for immediate local consumption.

Further and more carefully planned field and laboratory observations of tularæmia in sheep caused by the wood tick are desirable, (1) to determine the extent to which it is concerned in wood-tick-caused pathological conditions, (2) to determine the geographical limits of the occurrence, which certainly are wider than indicated by present data, (3) to secure more detailed epidemiological, symptomatological, and pathological data, and (4) to determine whether the meat of infected slaughtered sheep is a possible source of human infection.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Bacterial Polution of Bathing Beach Waters in New Haven Harbor. C.-E. A. Winslow and David Moxon. *American Journal of Hygiene*, vol. 8, No. 3, May, 1928, pp. 299–310. (Abstract by A. L. Dopmeyer.)

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[7] Francis, Edward: Tularamie. Handbuch Der Pathogenen Microorganismen. Kolle & Wassermann. Bd. 6, Lfg. 16, 1928.

A study was made of the pollution of water in the New Haven Harbor at bathing beaches. Eleven sampling stations were established on the west shore, 3 in the Quinnipiac River, and 16 on the east shore. Samples were collected at each harbor station on 11 different days in the period from November, 1926, to April, 1927.

A sketch of the harbor is presented showing the location of the sampling points. All samples were (*a*) plated on plain nutrient agar for incubation for 48 hours at 20° C., (*b*) plated on eosin-methylene blue agar for incubation for 36 hours at 37° C., and (*c*) inoculated in 0.1 and 0.01 c. c. dilutions of lactose broth for incubation at 37° C. and subsequent examination of tubes showing gas for *B. coli*. The results are recorded in tables for comparison at the various stations. The direction of the wind is given as the chief factor in the pollution of these bathing beach waters.

Among the conclusions drawn are that the bathing beach waters of New Haven Harbor are highly polluted and at certain points are so heavily polluted as to be manifestly unfit for bathing. A comparison is made in this article between the results of this study and the limits set by the Association of State Sanitary Engineers and the standard generally accepted in the State of California.

Swimming Pool Sanitation in Baltimore. M. H. Coblenz. *Public Works*, vol. 59, No. 8, August, 1928, pp. 305-306. (Abstract by John M. Henderson.)

A competitive scoring system used in Baltimore has aided the rise in sanitary quality of swimming pools from 67 per cent to 90 per cent. Individual problems are studied. Proper bather control is the hardest item to enforce and, therefore, is the paramount one. Ultra-violet rays have not satisfactorily maintained bacterial standards, while chlorine treatment has.

The following method of disinfecting pools with calcium hypochlorite is given: A filtered fresh warm solution of chlorinated lime is used and added "to the pool by means of a funnel on the stem of which is attached a piece of rubber tubing held rigid by a stick. The tubing is of sufficient length to reach within a foot of the bottom of the pool at the deep end and the opening at the end of the tube is of such size as to permit the solution to enter slowly. The temperature of the solution being warmer than that of the pool water, the chlorine makes its way toward the surface." The solution is used up in one round of the operator on surrounding walkways. Water is stirred with long pole after dosing. Residual chlorine and pH values are taken hourly with LaMotte outfit.

Carbohydrate Wastes Stimulate Growth of Undesirable Filamentous Organisms in Activated Sludge. E. H. Morgan and A. J. Beck. *Sewage Works Journal*, vol. 1, No. 1, October, 1928, pp. 46-51. (Abstract by J. K. Hoskins.)

The detrimental effect on sewage plant operation of wholesale violations of the prohibition law is described in this article. The Des Plaines River activated sludge treatment works of the Sanitary District of Chicago receives the sewage of Melrose Park, in which suburb illicit distilling and fermentation industries abounded. During the summer of 1927 the 5-day oxygen demand of the sewage increased enormously, as well as other constituents, including dextrose, which was present to the extent of 10,400 p. p. m., or approximately 12,800 pounds per day. Coincident with this condition, bulking of sludge occurred, as well as other indications of inefficient treatment. Microscopic examinations showed the occurrence of excessive amounts of *Sphaerotilus*, the growth of which appeared to be encouraged by the carbohydrates. Diversion of the Melrose Park sewage eliminated the difficulty.

Experiments with various chemicals to neutralize the detrimental effect of the organic growths were generally negative, except lime, which greatly improved the process.

Submerged Contact Aerators for Sewage Treatment. Karl Imhoff. (Translated from the German by A. M. Buswell). *Engineering News-Record*, vol. 101, No. 16, October 18, 1928, pp. 580–582. (Abstract by Paul S. Fox.)

Submerged contact aerators are now installed in special tanks with horizontal bottoms close to the contact bodies. The bottom is built on a slight curve to conform to the arc of the swinging air pipe which supplies the air to the submerged contact aerator. A motor, through a rack and pinion, produces the pendulum-like motion of the air pipe. Perforations are made at about 6-inch intervals, and their area is about 30 per cent greater than the area of the feed pipe. Their diameter is from 5 to 8 mm., and they are placed on the under side of the swinging pipe. This pipe makes from 2 to 6 oscillations per minute. Coke and brushwood were used as filling material, but it was impossible to keep them free from sludge. Veneer mats, suggested by Buswell, or wood laths are now used. Laths are placed on a slant so that no sludge will be deposited, and they are placed parallel to the swinging pipe.

The advantages of submerged contact aerators are small area, small construction cost, and simplicity. This method will provide additional purification when sedimentation is not sufficient and when complete biological treatment is not necessary.

Sewage Treatment Plants for Small Cities.—Chester A. Smith. *Bulletin* Arizona State Board of Health, July, 1928, pp. 25–29. (Abstract by Frank R. Shaw.)

Some of the history back of modern sewage treatment practice is briefly cited and the false claims originally made for the simple types and the erroneous ideas now existing among some laymen are touched upon. The author gives the reasons for sewage treatment, namely, to protect health and to avoid nuisance, and lists five general degrees of treatment: Dilution or broad irrigation; screens or skimming tanks; sedimentation by various methods; the nitrification of the effluent from the above-mentioned tanks by means of sand beds, contact beds, trickling filters and aeration; and sterilization by chlorine gas.

The following are the main advantages found in the small city problem: The sewage is usually fresh at the point of treatment or disposal; the absence of trade wastes of large industries; the availability of isolated sites; and, with an ample flow of diluting water, the relative small amount of sewage requires a lesser degree of treatment, if any.

The main disadvantage in a small city is that experienced operators or sufficient funds for the proper maintenance and operation of a treatment plant are not always available. The designing engineer must consider this factor. The per capita cost for cities of 2,000 to 5,000 population for the construction of preliminary treatment plants of the Imhoff or separate sludge digestion types with necessary sludge drying beds, yard piping, and incidentals will be from $2.50 to $4. Complete treatment plants of the trickling filter type will cost $8 to $15 per capita, and activated sludge from $5 to $10 per capita. Operation costs, when plants are properly operated, vary from $6 to $20 per million gallons of sewage treated for trickling filter type of plant and $20 to $35 per million gallons for the activated sludge type. Partial treatment costs may vary from $1 to $5 per million gallons. Sewage sterilization by chlorine will cost from $3 to $20 per million gallons, depending upon the degree of purification before chlorination.

The Effect of Age of Sewage Solids upon Their Digestibility. Gordon M. Fair and Louis Klein. *Sewage Works Journal*, vol. 1, No. 1, October, 1928, pp. 14–19. (Abstract by J. K. Hoskins.)

In Imhoff tank treatment fresh sewage solids are brought into immediate contact with ripened sludge, while by the separate sludge digestion method the

added sludge is more or less stale. Experiments to determine this effect of age upon the digestion process were conducted at two plants—one at Fitchburg, Mass., treating a domestic sewage, and the other at Brockton, Mass., where considerable leather-working wastes are present.

Sewage solids were collected in pails suspended in the settling tanks and after standing for definite intervals of time were mixed with well digested sludge in the ratio of two to one. These mixtures were then placed in sealed glass bottles, where the gas formation and pH could be observed.

The results, presented in the form of graphs, are not entirely consistent. The authors conclude: "There is seemingly no regular and progressive deterioration of the digestibility of fresh sewage solids that are left unseeded. Their behavior is different during various intervals of time. In the absence of interfering industrial wastes, however, it seems desirable that the settling solids reach the digestion tanks as soon as possible, even though at certain periods of decomposition unseeded material will digest very readily. In the presence of certain trade wastes or other modifying factors, digestion may proceed better if the solids remain unseeded for a limited number of days."

Experiments on the Purification of Beet Sugar Wastes by Stream Flow Aeration. Max Levine and A. H. Nelson. *Sewage Works Journal*, vol. 1, No. 1, October, 1928, pp. 40–45. (Abstract by J. K. Hoskins.)

This paper discusses the treatment of pulp waters from a beet sugar plant at Mason City, Iowa, using a stream flow aeration process described in an article in PUBLIC HEALTH REPORTS for September 28, 1928, page 2526.

The experimental unit consisted of a tank and forced circulation system into which was introduced a trough through which the liquid passed in a thin stream over a series of cleats that increased the turbulence and aeration. The plant was operated on the fill and draw principle, allowing 20 per cent of the tank contents, after settling for one hour, to remain from one run to the next. Examinations were made of the effluent at the end of 6 and 22 hours' aeration.

Average analytical results of three runs give the following analyses in parts per million of the raw waste and the per cent reduction obtained by treatment:

	Per cent reduction 6-hr.	22-hr.
Total solids, 2557	44. 0	61. 4
Suspended solids, 545	76. 6	79. 2
Volatile solids, 2155	51. 1	73. 0
Ammonia, 17. 9	84. 4	89. 0
Organic nitrogen 38. 1	49. 2	65. 2
Oxygen consumed 1287	58. 4	82. 3
Oxygen demand (5-day), 1120	67. 2	89. 6

Treatment of Laundry Wastes.—L. E. Sakers and F. M. Zimmerman. Proceedings of the Second Annual Conference, Maryland Water and Sewerage Association, April 10–11, 1928. pp. 70–73. (Abstract by J. B. Harrington.)

In 1926 the courts ordered the Franklin Wet Wash Laundry, Woodlawn, Md., to install some type of waste treatment plant. During a week approximately 300 pounds of soda, 200 pounds of soap chips, and 130 pounds of chlorine solution are used in treating 8,700 pounds of wet-wash laundry. The wastes from the laundry consisting of soapy water, dyes, grease, and dirt are discharged into a small run, causing nuisance.

As the result of experiments and investigations, a treatment plant, consisting of the following, was installed: Chemical equipment for feeding iron and lime, one tank 5½ feet square equipped with a mechanical agitator, and another tank of the same size which is used as a settling tank. From the second tank the

settled wastes flow through a baffled ditch of considerable area to a 30 by 33 foot cinder bed. Chemicals used consist of 10 pounds of lime and 2½ pounds of iron to each 1,000 gallons of waste, the cost of chemicals is approximately 12¼ cents per thousand gallons.

The sludge from the tanks is removed and placed on a 9 by 15 foot drying bed. Chemical analysis shows it to contain 2.6 per cent grease and 1 per cent nitrogen. Approximately 60 cubic feet of sludge is removed each week. Chemical tests of the raw wastes and treated wastes for turbidity, color, total solids, suspended solids, and oxygen consumed show an improvement of 92.9 per cent, 64.4 per cent, 66.5 per cent, 96.7 per cent, and 89.3 per cent, respectively, between the raw and treated wastes.

MORTALITY SUMMARY FOR 78 CITIES, 1928

Number of deaths, death rates, and infant mortality in 78 large cities, 1928, and comparison with 1927

[From the Weekly Health Index, Bureau of the Census, Department of Commerce]

City [1]	Total deaths [2]	Death rate [3]	Deaths under 1 year [2]	Provisional infant mortality rate, 1928 [3 4]	Infant mortality rate, 1927	Mortality data for calendar year, 1927 [5]		
						Total deaths	Death rate	Deaths under 1 year
Total (66 cities)	386,355	13.0	40,074	[6] 66	[6] 63	369,226	12.2	39,084
Akron [7]	2,318		323	64	62	1,917		303
Albany	1,979	16.5	174	66	67	1,899	15.9	170
Atlanta	4,109	16.2	504	101		3,833	15.4	509
White	2,128	(9)	239	(9)		2,001	(9)	224
Colored	1,981	(9)	265	(9)		1,832	(9)	276
Baltimore	11,814	14.3	1,292	80	81	11,578	14.1	1,332
White	8,867	(9)	873	68	70	8,613	(9)	905
Colored	2,947	(9)	419	128	127	2,965	(9)	427
Birmingham	3,708	16.8	499	87	78	3,446	15.8	479
White	1,716	(9)	232	67	58	1,616	(9)	229
Colored	1,992	(9)	267	118	111	1,830	(9)	259
Boston	11,469	14.4	1,440	77	76	11,109	14.0	1,457
Bridgeport [7]	1,713		184	60	43	1,514		133
Buffalo	7,628	13.8	859	71	72	7,225	13.1	865
Cambridge	1,468	11.7	147	51	54	1,393	11.2	156
Camden	1,663	12.3	227	76	68	1,645	12.4	221
Canton	1,140	9.8	175	80	64	1,101	9.7	143
Chicago	39,149	12.5	3,738	64	63	35,758	11.5	3,819
Cincinnati [7]	7,431		760	85	73	6,878		643
Cleveland	10,234	10.2	1,047	59	56	9,503	9.7	1,078
Columbus	4,130	13.9	378	68	64	3,908	13.4	368
Dallas [8]	2,617	12.1	336			2,431	11.5	323
White	1,972	(9)	258			1,900	(9)	260
Colored	645	(9)	78			521	(9)	58
Dayton	2,139	11.7	226	69	71	2,217	12.3	235
Denver	4,636	15.8	480	89		4,185	14.4	405
Des Moines	1,718	11.4	122	42	60	1,628	10.9	176
Detroit	15,778	11.5	2,453	76	70	14,455	10.8	2,343
Duluth	1,180	10.2	103	48	53	1,139	9.9	119
El Paso [8]	1,934	16.5	375			1,709	15.0	304
Erie [7]	1,313		131	52	58	1,276		143
Fall River	1,401	10.5	176	64	78	1,442	10.9	228
Flint	1,478	10.0	343	80	84	1,429	10.0	339
Fort Worth [8]	1,848	10.9	191			1,520	9.3	205
White	1,465	(9)	144			1,188	(9)	171
Colored	383	(9)	47			332	(9)	34
Grand Rapids	1,760	10.8	183	53	53	1,592	9.8	190
Houston [7 8]	3,318		396			2,990		367
White	2,318	(9)	302			1,975	(9)	267
Colored	1,000	(9)	94			1,015	(9)	100
Indianapolis	5,276	13.9	429	66	62	4,901	13.1	417
White	4,424	(9)	359	64	57	4,100	(9)	332
Colored	852	(9)	70	81	91	801	(9)	85
Jersey City	3,929	12.2	521	78	63	3,550	11.0	427
Kansas City, Kans	1,658	14.1	152	65	75	1,556	13.2	177
White	1,234	(9)	107	52	63	1,193	(9)	131
Colored	424	(9)	45	155	158	363	(9)	46
Kansas City, Mo	5,527	14.2	468	76	70	5,011	13.1	450
Knoxville	1,463	14.0	196	83	77	1,479	14.5	184
White	1,150	(9)	165	78	69	1,147	(9)	148
Colored	316	(9)	31	126	146	332	(9)	36

See footnotes at end of table.

Number of deaths, death rates, and infant mortality in 78 large cities, 1928, and comparison with 1927—Continued

City	Total deaths	Death rate	Deaths under 1 year	Provisional infant mortality rate, 1928	Infant mortality rate, 1927	Mortality data for calendar year, 1927		
						Total deaths	Death rate	Deaths under 1 year
Los Angeles [7]	13,642		1,099	62	66	12,927		1,215
Louisville	4,631	14.1	414	65	66	4,093	12.8	424
White	3,500	(9)	315	57	64	3,080	(9)	358
Colored	1,131	(9)	99	120	80	1,013	(9)	66
Lowell [7]	1,389		168	73	90	1,392		217
Lynn	1,179	11.2	122	64	66	1,146	10.9	126
Memphis	3,659	19.3	372	85	80	3,448	19.3	356
White	1,888	(9)	185	68	64	1,751	(9)	176
Colored	1,771	(9)	187	113	108	1,697	(9)	180
Milwaukee	6,005	11.1	826	70	68	5,753	10.7	795
Minneapolis	4,846	10.7	406	48	47	4,719	10.5	404
Nashville	2,596	18.7	314	98	71	2,396	17.4	224
White	1,569	(9)	212	89	61	1,432	(9)	141
Colored	1,027	(9)	102	124	103	964	(9)	83
New Bedford [7]	1,347		188	78	66	1,309		160
New Haven	2,175	11.6	195	58	54	2,070	11.2	193
New Orleans	8,147	19.1	781	75	88	7,942	18.7	919
White	4,848	(9)	414	56	65	4,693	(9)	455
Colored	3,299	(9)	367	119	135	3,249	(9)	464
New York	77,677	13.0	8,234	65	56	70,396	11.8	7,203
Bronx Borough	9,825	10.4	800	46	51	9,103	9.8	883
Brooklyn Borough	25,918	11.3	3,079	60	56	24,852	10.9	2,869
Manhattan Borough	31,981	18.4	3,461	82	57	26,676	14.7	2,518
Queens Borough	7,606	9.0	736	58	61	7,978	9.9	786
Richmond Borough	2,347	15.7	158	55	50	1,787	12.2	147
Newark, N. J	5,434	11.5	594	60	61	5,090	10.9	611
Oakland	3,162	11.6	215	46	53	2,951	11.0	254
Oklahoma City [7]	1,641		156	60		1,417		171
Omaha	2,844	12.8	227	51	59	2,670	12.2	262
Paterson	1,827	12.7	162	55	56	1,756	12.2	166
Philadelphia	26,499	12.9	2,556	70	64	24,765	12.2	2,461
Pittsburgh	9,833	14.7	1,146	76	72	9,092	13.7	1,124
Portland, Oreg. [7]	3,600		173	38	47	3,564		224
Providence	3,478	12.2	370	63	63	3,169	11.3	381
Richmond	2,768	14.3	309	83	80	2,714	14.2	304
White	1,573	(9)	135	55	61	1,572	(9)	152
Colored	1,195	(9)	174	138	113	1,142	(9)	152
Rochester	3,972	12.2	361	59	63	3,787	11.7	408
St. Louis	12,008	14.2	878	57	57	10,860	12.9	888
St. Paul [7]	2,892		192	38	49	2,950		266
Salt Lake City	1,750	12.8	188	56	59	1,664	12.3	190
San Antonio [8]	3,534	16.3	656			3,035	14.4	523
San Diego	2,209	18.6	118	44	60	2,090	18.1	164
San Francisco	8,197	14.1	361	44	50	7,826	13.6	414
Schenectady	1,053	11.3	118	73	68	997	10.7	114
Seattle	3,955	10.4	183	37	41	3,570	9.5	203
Somerville	1,054	10.3	134	93	51	926	9.1	95
Spokane	1,605	14.8	83	42	55	1,484	13.6	111
Springfield, Mass	1,703	11.4	173	55	58	1,684	11.4	183
Syracuse	2,694	13.6	255	59	58	2,419	12.3	247
Tacoma	1,226	11.2	71	35	39	1,301	12.1	78
Toledo	3,879	12.5	352	63	62	3,641	11.9	338
Trenton	1,960	14.2	240	84	74	1,809	13.2	226
Utica	1,591	15.4	124	61	59	1,566	15.1	130
Washington, D. C	7,193	13.1	570	64	68	6,986	12.9	611
White	4,450	(9)	275	45	49	4,306	(9)	302
Colored	2,743	(9)	295	108	109	2,680	(9)	309
Waterbury [7]	964		130	64	62	1,082		128
Wilmington, Del	1,506	11.8	137	69	71	1,462	11.6	149
Worcester	2,648	13.5	238	58	58	2,516	12.9	250
Yonkers	1,182	9.8	135	61	60	1,114	9.4	140
Youngstown	1,840	10.6	222	61	65	1,695	10.0	260

[1] For the cities for which deaths are shown by color the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31 per cent; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

[2] Based upon telegraphic reports received each week from city health officers.

[3] Allowance has been made for the two extra days, which must be added to the 52 weeks to give a period of 366 days.

[4] Infant mortality rate is based upon deaths under 1 year as returned each week and estimated births, 1928.

[5] Based upon deaths which occurred within the calendar year.

[6] Infant mortality rate for the cities in the birth registration area appearing in the summary.

[7] Mortality rates are omitted, pending the establishment of more satisfactory estimates of population.

[8] Cities with no infant mortality rate are not in the registration area for births.

[9] Not available.

DEATHS DURING WEEK ENDED JANUARY 5, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended January 5, 1929 and corresponding week of 1928. (From the Weekly Health Index, January 9, 1929 issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 5, 1929	Corresponding week, 1928
Policies in force	72, 479, 946	69, 702, 678
Number of death claims	15, 548	9, 355
Death claims per 1,000 policies in force, annual rate	11. 2	7. 0

Deaths from all causes in certain large cities of the United States during the week ended January 5, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, January 9, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 5, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Jan. 5, 1929 [2]
	Total deaths	Death rate [1]		Week ended Jan. 5, 1929	Corresponding week, 1928	
Total (65 cities)	11, 148	19. 5	13. 7	977	760	[3] 83
Akron	81			8	8	83
Albany [4]	47	20. 4	15. 2	4	2	79
Atlanta	128	26. 2	15. 8	8	11	83
White	76			4	5	
Colored	52	(5)	(5)	4	6	
Baltimore [4]	326	20. 5	15. 9	27	24	87
White	244			18	14	72
Colored	82	(5)	(5)	9	10	143
Birmingham	201	47. 5	20. 5	32	12	290
White	102			13	7	195
Colored	99	(5)	(5)	19	5	435
Boston	245	16. 0	15. 5	22	25	61
Bridgeport	36			6	3	104
Buffalo	215	20. 2	15. 8	19	17	82
Cambridge	32	13. 3	13. 7	4	6	72
Camden	65	25. 1	9. 7	10	3	173
Canton	72	32. 2	7. 2	8	0	190
Chicago [4]	1, 052	17. 4	13. 4	98	65	87
Cincinnati	267			23	6	134
Cleveland	422	21. 8	8. 0	30	17	88
Columbus	168	29. 4	15. 0	11	4	103
Dallas	106	25. 4	13. 7	16	10	
White	92			13	8	
Colored	14	(5)	(5)	3	2	
Dayton	51	14. 5	7. 7	7	5	111
Denver	115	20. 4	14. 4	10	6	97
Des Moines	37	12. 7	10. 0	2	3	36
Detroit	576	21. 8	12. 1	70	56	112
Duluth	26	11. 6	5. 8	0	1	0
El Paso	67	29. 7	15. 5	10	7	
Erie	38			4	2	82
Fall River [4]	52	20. 2	12. 1	4	2	75
Flint	49	17. 2	5. 3	13	4	158
Fort Worth	82	25. 1	13. 5	7	5	
White	75			7	3	
Colored	7	(5)	(5)	0	2	
Grand Rapids	47	15. 0	10. 8	6	4	91
Houston	138			10	5	
White	106			8	5	
Colored	32	(5)	(5)	2	0	
Indianapolis	139	19. 0	15. 1	9	8	72
White	117			6	7	56
Colored	22	(5)	(5)	3	1	179
Jersey City	96	15. 5	13. 4	13	8	160
Kansas City, Kans	44	19. 4	11. 5	2	1	44
White	33			0	0	0
Colored	11	(5)	(5)	2	1	358
Kansas City, Mo	136	18. 2	11. 6	14	7	118
Knoxville	35	17. 4	8. 4	2	1	44
White	13			1	1	24
Colored	22	(5)	(5)	1	0	211

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 5, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, January 9, 1929, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Jan. 5, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Jan. 5, 1929
	Total deaths	Death rate		Week ended Jan. 5, 1929	Corresponding week, 1928	
Los Angeles	349			21	31	62
Louisville	127	20.2	15.6	3	4	24
White	102			3	4	28
Colored	25	(5)	(5)	0	0	0
Lowell	40			2	1	45
Lynn	23	11.4	16.9	1	1	27
Memphis	147	40.4	14.8	16	9	189
White	97			10	5	189
Colored	50	(5)	(5)	6	4	188
Milwaukee	198	19.0	12.0	23	19	101
Minneapolis	172	19.7	11.4	8	8	49
Nashville	68	25.5	19.9	5	6	81
White	46			3	5	65
Colored	22	(5)	(5)	2	1	126
New Bedford	28			0	4	0
New Haven	38	10.6	12.5	4	5	61
New Orleans	329	40.1	25.1	23	21	114
White	207			12	14	85
Colored	122	(5)	(5)	11	7	185
New York	1,709	14.8	13.7	147	150	60
Bronx Borough	220	12.1	10.9	17	13	50
Brooklyn Borough	593	13.4	11.7	59	46	60
Manhattan Borough	674	20.1	19.4	60	66	73
Queens Borough	179	11.0	10.0	10	21	41
Richmond Borough	43	14.9	16.3	1	4	18
Newark, N. J	149	16.4	11.5	9	7	47
Oakland	83	15.8	13.0	3	7	33
Oklahoma City	63			3	5	60
Omaha	70	16.4	13.6	5	6	58
Paterson	44	15.9	17.0	3	5	53
Philadelphia	840	21.3	14.0	77	49	109
Pittsburgh	585	45.4	14.9	36	28	124
Portland, Oreg	113			6	4	69
Providence	94	17.2	12.4	6	3	53
R chmond	98	26.4	18.0	10	6	140
i White	45			3	4	64
Colored	53	(5)	(5)	7	2	287
Rochester	83	13.2	14.8	6	4	51
St. Louis	315	19.4	14.2	19	20	64
St. Paul	98			2	8	21
Salt Lake City [4]	32	12.1	12.9	3	2	46
San Antonio	82	19.7	21.6	11	16	
San Diego	66	28.8	21.0	8	4	153
San Francisco	190	17.0	16.3	8	13	51
Schenectady	39	21.9	6.2	5	2	159
Seattle	130	17.7	13.0	5	1	53
Somerville	24	12.2	15.3	7	4	252
Spokane	30	14.4	15.3	0	1	0
Springfield, Mass	47	16.4	9.4	3	3	50
Syracuse	89	23.3	13.6	7	4	84
Tacoma	41	19.4	12.3	2	2	51
Toledo	112	18.7	12.7	9	5	84
Trenton	56	21.1	16.6	4	7	72
Washington, D. C	191	18.1	14.0	21	5	123
White	132			12	1	102
Colored	59	(5)	(5)	9	4	170
Watebury	17			1	3	25
Wilmington, Del	50	20.3	18.3	9	5	235
Worcester	58	15.3	16.7	4	6	50
Yonkers	46	19.8	9.1	4	6	93
Youngstown	62	18.6	9.0	5	2	72

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 72 cities.
[4] Deaths for week ended Friday.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 33; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

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 WEEKLY STATE REPORTS

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

Reports for Weeks Ended January 5, 1929, and January 7, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 5, 1929, and January 7, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928
New England States:								
Maine	6	6	493	-------	615	36	0	0
New Hampshire	3	-------	17	56	55	8	0	0
Vermont	-------	2	289	-------	4	1	0	0
Massachusetts	117	105	838	20	585	1,082	1	3
Rhode Island	15	19	179	-------	48	8	1	0
Connecticut	28	44	790	7	420	71	0	0
Middle Atlantic States:								
New York	314	355	[1] 956	[1] 33	947	882	14	5
New Jersey	137	149	1,923	11	146	141	8	1
Pennsylvania	-------	272	-------	-------	-------	683	-------	6
East North Central States:								
Ohio	92	141	5,010	21	358	166	6	4
Indiana	54	56	1,129	49	117	43	0	0
Illinois	150	190	2,194	34	330	38	21	12
Michigan	105	61	8,948	4	43	265	7	2
Wisconsin	20	42	7,787	68	139	45	6	2
West North Central States:								
Minnesota	24	25	1,336	-------	56	8	2	3
Iowa	8	14	1,447	-------	-------	4	0	1
Missouri	66	44	21,978	5	74	47	21	0
North Dakota	9	6	2,528	-------	16	-------	11	1
South Dakota	4	-------	36	7	41	39	0	0
Nebraska	20	9	1,022	-------	10	22	2	2
Kansas	19	13	4,915	2	11	15	1	1
South Atlantic States:								
Delaware	1	3	233	-------	8	20	0	0
Maryland [2]	26	33	3,610	36	59	175	3	0
District of Columbia	19	27	658	2	1	3	1	0
West Virginia	31	12	8,599	34	60	57	0	0
North Carolina	49	49	-------	-------	13	1,475	0	0
South Carolina	26	45	9,428	1,314	2	731	0	0
Georgia	17	11	11,711	173	23	34	0	0
Florida	16	15	953	4	10	3	0	0

[1] New York City only.

[2] Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 5, 1929, and January 7, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928
East South Central States:								
Kentucky	9	12	9,231	19	-------	79	0	0
Tennessee	21	21	19,413	119	1	578	1	1
Alabama	36	43	18,673	183	32	97	0	2
Mississippi	16	25	18,884	-------	-------	-------	-------	-------
West South Central States:								
Arkansas	16	11	4,327	111	22	76	0	1
Louisiana	14	41	3,152	62	114	39	2	2
Oklahoma [1]	26	42	9,258	135	-------	115	5	1
Texas	79	112	6,019	142	43	67	0	0
Mountain States:								
Montana	3	1	1,012	-------	75	1	8	3
Idaho	1	-------	25	-------	-------	-------	2	1
Wyoming	1	-------	9	-------	4	2	0	10
Colorado	15	28	552	1	9	85	7	4
New Mexico	12	2	2,249	-------	2	62	0	0
Arizona	8	16	408	-------	1	8	1	2
Utah [1]	1	3	5	5	1	2	2	1
Pacific States:								
Washington	13	18	1,127	-------	28	230	7	2
Oregon	21	11	1,374	22	53	46	0	1
California	49	125	1,254	33	22	74	11	5

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928
New England States:								
Maine	0	0	41	21	1	0	3	3
New Hampshire	0	1	18	12	0	0	0	0
Vermont	0	0	9	2	5	0	0	0
Massachusetts	2	6	297	294	0	0	2	8
Rhode Island	0	0	20	42	0	0	0	0
Connecticut	0	0	46	78	0	26	0	1
Middle Atlantic States:								
New York	5	9	410	583	0	4	14	23
New Jersey	1	3	119	162	0	3	1	6
Pennsylvania	-------	0	-------	445	-------	1	-------	24
East North Central States:								
Ohio	2	1	250	397	30	19	11	25
Indiana	0	1	81	127	56	133	1	9
Illinois	0	2	342	293	57	30	10	4
Michigan	0	2	211	162	16	17	7	3
Wisconsin	1	1	143	172	9	27	5	6
West North Central States:								
Minnesota	0	0	121	153	0	2	0	5
Iowa	0	2	112	55	18	58	0	6
Missouri	0	1	75	84	35	42	3	5
North Dakota	0	0	48	48	2	1	0	0
South Dakota	0	0	45	32	33	6	3	0
Nebraska	0	1	73	63	35	12	3	1
Kansas	0	0	94	135	25	73	2	1
South Atlantic States:								
Delaware	0	0	3	1	0	0	0	1
Maryland [1]	0	1	81	49	0	0	2	5
District of Columbia	0	0	19	29	0	0	1	0
West Virginia	0	1	51	46	13	11	0	6
North Carolina	0	0	64	36	15	63	0	3
South Carolina	0	1	14	19	1	19	8	0
Georgia	0	1	29	12	0	0	1	5
Florida	0	0	14	9	0	1	2	10

[1] Week ended Friday.

[2] Figures for 1929 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 5, 1929, and January 7, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928	Week ended Jan. 5, 1929	Week ended Jan. 7, 1928
East South Central States:								
Kentucky	2	0	79	78	11	16	2	14
Tennessee	0	1	37	17	3	5	2	5
Alabama	0	0	37	10	4	1	2	5
Mississippi	0	0	12	23	0	1	1	4
West South Central States:								
Arkansas	0	0	19	5	0	7	0	2
Louisiana	0	0	20	13	4	10	3	7
Oklahoma [3]	0	0	23	48	10	108	5	23
Texas	0	3	88	119	47	29	5	6
Mountain States:								
Montana	0	1	55	27	15	36	0	1
Idaho	0	0	0	4	22	4	1	3
Wyoming	0	0	3	28	4	5	0	1
Colorado	0	4	33	106	22	31	1	5
New Mexico	0	0	9	22	4	1	4	3
Arizona	0	0	7	8	5	0	0	3
Utah [2]	0	0	9	10	6	19	2	1
Pacific States:								
Washington	0	4	18	55	67	31	2	2
Oregon	0	6	13	13	34	32	0	3
California	1	9	190	159	12	18	5	6

[2] Week ended Friday. [3] Figures for 1929 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM 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	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1928										
Arkansas	3	96	310	315	47	22	0	91	4	62
Georgia	----	135	524	697	117	31	1	180	4	38
Idaho	20	13	125	----	14	----	0	39	67	3
Illinois	34	1,037	138	6	786	1	11	1,245	110	84
Pennsylvania	16	936	----	----	2,733	1	14	1,346	0	123
South Carolina	----	651	5,467	2,155	18	322	3	87	7	88
Wisconsin	22	110	247	----	398	----	5	674	90	10

November, 1928	Cases
Anthrax:	
Georgia	1
Chicken pox:	
Arkansas	61
Georgia	29
Idaho	35
Illinois	1,541
Pennsylvania	4,190
South Carolina	86
Wisconsin	2,310
Conjunctivitis:	
Georgia	1
Idaho	1
Dengue:	
Georgia	14
South Carolina	14
Dysentery:	
Georgia	13
Illinois	11
German measles:	
Illinois	24
Pennsylvania	29
Hookworm disease:	
Arkansas	6
Georgia	4
South Carolina	91

	Cases
Lead poisoning:	
Illinois	3
Leprosy:	
Illinois	1
Lethargic encephalitis:	
Georgia	2
Illinois	7
Pennsylvania	7
Wisconsin	3
Mumps:	
Arkansas	57
Georgia	7
Illinois	263
Pennsylvania	1,576
South Carolina	9
Wisconsin	309
Ophthalmia neonatorum:	
Illinois	29
Pennsylvania	5
South Carolina	12
Paratyphoid fever:	
Arkansas	2
Georgia	1
Illinois	5
South Carolina	7
Puerperal fever:	
Illinois	11
Pennsylvania	5
Rabies in animals:	
Illinois	21
South Carolina	18

	Cases
Rabies in man:	
Illinois	1
Pennsylvania	1
Septic sore throat:	
Georgia	57
Illinois	15
Tetanus:	
Georgia	1
Illinois	2
Pennsylvania	4
Trachoma:	
Arkansas	2
Illinois	4
Pennsylvania	3
Tularaemia:	
Illinois	3
Typhus fever:	
Georgia	1
Undulant fever:	
Georgia	1
Illinois	2
Vincent's angina:	
South Carolina	1
Whooping cough:	
Arkansas	14
Georgia	29
Idaho	1
Illinois	469
Pennsylvania	2,134
South Carolina	177
Wisconsin	726

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 99 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,210,000. The estimated population of the 93 cities reporting deaths is more than 30,515,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended December 29, 1928, and December 31, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
44 States	1,908	2,426	----------
99 cities	784	1,090	1,155
Measles:			
43 States	5,428	6,567	----------
99 cities	958	1,799	----------
Poliomyelitis:			
41 States	12	54	----------
Scarlet fever:			
44 States	3,452	4,063	----------
99 cities	1,075	1,236	1,274
Smallpox:			
44 States	508	791	----------
99 cities	25	90	59
Typhoid fever:			
44 States	158	302	----------
99 cities	28	42	44
Deaths reported			
Influenza and pneumonia:			
93 cities	2,782	999	----------
Smallpox:			
93 cities	0	0	----------

City reports for week ended December 29, 1928

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1919 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	76,400	4	2	0	20	0	17	0	2
New Hampshire:									
Concord	[1] 22,546	0	0	0	----	0	0	0	3
Nashua	[1] 29,723	0	0	0	----	0	0	0	3
Vermont:									
Barre	[1] 10,008	0	0	0	----	0	0	3	0
Massachusetts:									
Boston	787,000	80	56	20	65	3	7	7	29
Fall River	131,000	7	5	1	3	0	68	0	7
Springfield	145,000	6	4	18	2	0	176	0	2
Worcester	193,000	6	6	7	4	0	4	3	2
Rhode Island:									
Pawtucket	71,000	3	2	0	3	0	2	0	3
Providence	275,000	0	11	16	----	0	12	0	8
Connecticut:									
Bridgeport	(2)	1	9	8	8	0	4	1	1
Hartford	164,000	6	8	4	42	2	2	7	8
New Haven	182,000	11	3	0	10	1	2	0	4
MIDDLE ATLANTIC									
New York:									
Buffalo	544,000	31	21	24	239	4	3	0	36
New York	5,924,000	252	208	207	441	46	68	39	223
Rochester	321,000	19	13	4	56	2	24	24	7
Syracuse	185,000	8	5	0	----	6	1	1	10
New Jersey:									
Camden	131,000	5	6	2	9	4	2	2	4
Newark	459,000	68	16	33	286	8	5	36	24
Trenton	134,000	1	5	3	57	0	0	0	8
Pennsylvania:									
Philadelphia	2,008,000	67	85	28	349	47	12	6	134
Pittsburgh	637,000	45	28	14	13	144	26	2	149
Reading	114,000	10	5	4	----	3	17	0	6
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	411,000	----	14	----	----	----	----	----	----
Cleveland	960,900	103	44	23	1,984	54	122	12	60
Columbus	285,000	14	8	0	322	22	3	0	26
Toledo	295,000	50	13	2	40	34	3	0	27
Indiana:									
Fort Wayne	99,900	1	5	3	----	2	0	0	7
Indianapolis	367,000	47	11	1	----	15	5	0	48
South Bend	81,700	1	1	0	----	0	0	0	13
Terre Haute	71,900	0	1	1	16	0	0	0	0
Illinois:									
Chicago	3,048,000	109	98	107	570	104	49	9	226
Springfield	64,700	0	2	0	21	3	0	0	3
Michigan:									
Detroit	[3] 1,242,044	75	71	50	1,511	64	7	3	112
Flint	136,000	9	9	3	454	5	1	0	12
Grand Rapids	156,000	3	4	0	----	18	0	1	8

[1] Estimated, July 1, 1925. [2] No estimate made. [3] Special census.

City reports for week ended December 29, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	52,700	7	1	0	17	1	0	1	3
Milwaukee	517,000	92	24	4	139	10	105	8	36
Racine	69,400	22	3	0	7	0	23	0	1
Superior	[1] 39,671	4	0	0	-------	0	0	0	3
WEST NORTH CENTRAL									
Minnesota:									
Duluth	113,000	6	2	0	4	2	0	12	0
Minneapolis	434,000	207	20	5	-------	24	23	2	23
St. Paul	248,000	32	14	3	-------	18	4	10	17
Iowa:									
Davepnort	[1] 52,469	3	1	0	71	-------	0	0	-------
Des Moines	146,000	0	4	1	-------	-------	0	0	-------
Sioux City	78,000	5	2	1	-------	-------	1	0	-------
Waterloo	36,900	3	0	0	-------	-------	0	35	-------
Missouri:									
Kansas City	375,000	22	12	5	6	10	52	6	12
St. Joseph	78,400	5	2	1	-------	4	0	0	8
St. Louis	830,000	46	49	38	59	5	10	1	-------
North Dakota:									
Fargo	[1] 26,403	3	0	1	-------	5	1	1	4
Grand Forks	[1] 14,811	1	0	0	9	-------	0	0	-------
South Dakota:									
Aberdeen	[1] 15,036	3	0	0	-------	-------	0	0	-------
Sioux Falls	[1] 30,127	0	1	0	-------	-------	0	0	-------
Nebraska:									
Omaha	216,000	2	5	4	-------	0	0	1	41
Kansas:									
Topeka	56,500	14	2	0	46	8	12	0	5
Wichita	92,500	2	5	3	-------	7	0	1	9
SOUTH ATLANTIC									
Delaware:									
Wilmington	124,000	2	2	2	-------	0	13	0	5
Maryland:									
Baltimore	808,000	80	40	16	651	17	9	26	51
Cumberland	[1] 33,741	1	1	0	13	3	14	0	0
Frederick	[1] 12,035	0	0	1	18	0	0	0	3
District of Columbia:									
Washington	528,000	31	19	14	293	7	1	0	19
Virginia:									
Lynchburg	[3] 38,493	2	2	2	1,601	4	0	11	1
Norfolk	174,000	-------	3	-------	-------	-------	-------	-------	-------
Richmond	189,000	2	8	7	919	7	0	1	15
Roanoke	61,900	1	2	1	-------	12	0	1	0
West Virginia:									
Charleston	50,700	4	1	2	5	11	0	0	10
Wheeling	[1] 56,208	2	2	0	22	0	1	2	10
North Carolina:									
Raleigh	[1] 30,371	2	2	4	0	0	0	0	0
Wilmington	37,700	6	0	1	7	6	0	0	1
Winston-Salem	71,800	3	1	0	-------	0	0	1	14
South Carolina:									
Charleston	74,100	1	1	0	914	16	0	0	8
Columbia	41,800	3	1	1	-------	2	0	1	9
Greenville	[1] 27,311	-------	0	-------	-------	-------	-------	-------	-------
Georgia:									
Atlanta	(2)	0	4	2	758	51	0	1	28
Brunswick	[1] 16,809	0	0	0	-------	0	0	0	0
Savannah	94,900	0	2	0	338	7	0	0	5
Florida:									
Miami	[3] 131,286	1	1	5	13	0	0	0	2
St. Petersburg	[3] 47,629	0	1	1	25	1	-------	-------	2
Tampa	102,000	3	2	2	41	4	0	0	1

[1] Estimated, July 1, 1925. [2] No estimate made. [3] Special census.

City reports for week ended December 29, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,500	1	1	3	39	2	0	0	7
Louisville	311,000	10	8	4	256	2	3	0	13
Tennessee:									
Memphis	177,000	1	7	1	3,091	11	0	0	12
Nashville	137,000	4	2	3	----	8	0	0	4
Alabama:									
Birmingham	211,000	8	4	7	773	11	0	2	7
Mobile	66,800	0	1	0	301	3	0	0	4
Montgomery	47,000	0	1	1	19	----	0	0	----
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	[1] 31,643	3	1	0	0	----	0	0	----
Little Rock	75,900	3	1	0	34	0	0	1	0
Louisiana:									
New Orleans	419,000	2	12	9	801	53	0	0	44
Shreveport	59,500	0	1	0	82	0	0	0	1
Oklahoma:									
Oklahoma City	[2]	0	5	4	387	3	0	0	6
Tulsa	133,000	9	3	5	0	----	0	1	----
Texas:									
Dallas	203,000	0	13	13	22	18	1	0	21
Fort Worth	159,000	3	5	9	259	4	1	0	11
Galveston	49,100	0	0	0	91	0	0	0	0
Houston	[1] 164,954	0	7	17	112	10	0	0	20
San Antonio	205,000	0	3	4	4	10	0	1	12
MOUNTAIN									
Montana:									
Billings	[1] 17,971	5	0	0	0	0	0	0	2
Great Falls	[1] 29,883	18	1	0	[3] 25	2	12	0	2
Helena	[1] 12,037	0	0	0	100	0	0	0	1
Missoula	[1] 12,668	0	0	0	16	0	0	0	2
Idaho:									
Boise	[1] 23,042	1	0	0	0	0	0	0	0
Colorado:									
Denver	285,000	16	11	2	76	25	0	8	22
Pueblo	43,900	0	2	0	----	0	0	0	11
New Mexico:									
Albuquerque	[1] 21,000	0	0	1	2	2	0	0	2
Utah:									
Salt Lake City	133,000	34	3	0	----	3	0	14	1
Nevada:									
Reno	[1] 12,665	0	0	0	----	0	0	0	0
PACIFIC									
Washington:									
Seattle	[2]	21	6	2	48	----	0	3	----
Spokane	109,000	17	3	2	9	----	32	0	----
Tacoma	106,000	3	3	0	5	10	0	11	2
Oregon:									
Portland	[1] 282,383	3	11	5	164	11	30	3	18
California:									
Los Angeles	[2]	25	43	11	469	32	1	4	33
Sacramento	73,400	16	2	0	22	5	0	4	5
San Francisco	567,000	5	20	2	41	7	0	2	10

[1] Estimated, July 1, 1925. [2] No estimate made. [3] Estimated.

City reports for week ended December 29, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	2	10	0	0	0	0	1	0	0	2	16
New Hampshire:											
Concord	1	0	0	0	0	0	0	0	0	0	10
Nashua	0	0	0	0	0	0	0	0	0	0	14
Vermont:											
Barre	0	1	0	0	0	2	0	0	0	0	4
Massachusetts:											
Boston	71	65	0	0	0	16	1	1	0	21	240
Fall River	3	11	0	0	0	2	0	0	0	4	30
Springfield	9	7	0	1	0	3	0	0	0	1	44
Worcester	12	12	0	0	9	3	0	0	0	3	45
Rhode Island:											
Pawtucket	2	0	0	0	0	0	0	0	0	2	14
Providence	8	17	0	0	0	6	0	0	0	2	71
Connecticut:											
Bridgeport	10	0	0	0	0	2	0	0	0	0	39
Hartford	8	6	0	0	0	3	0	0	0	0	51
New Haven	8	5	0	0	0	3	0	0	0	0	32
MIDDLE ATLANTIC											
New York:											
Buffalo	26	23	1	0	0	11	2	2	1	27	163
New York	212	155	1	0	0	87	10	3	0	47	1,574
Rochester	13	5	0	0	0	0	1	0	0	17	79
Syracuse	12	6	0	0	0	2	0	0	0	21	74
New Jersey:											
Camden	5	9	0	0	0	1	0	0	0	2	40
Newark	22	14	0	0	0	9	1	0	0	22	137
Trenton	3	3	0	0	0	3	0	[1] 1	0	0	40
Pennsylvania:											
Philadelphia	83	34	0	0	0	32	3	2	1	73	650
Pittsburgh	38	31	0	0	0	16	1	0	0	27	552
Reading	2	3	0	0	0	1	0	0	0	3	26
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	----	0	----	----	----	1	----	----	----	----
Cleveland	40	19	0	0	0	14	1	0	0	35	347
Columbus	11	1	1	1	0	7	0	0	1	1	164
Toledo	14	15	0	0	0	6	0	0	1	28	146
Indiana:											
Fort Wayne	4	3	0	0	0	0	1	0	0	0	40
Indianapolis	10	5	7	0	0	6	0	0	0	0	164
South Bend	4	3	1	0	0	1	0	0	0	----	34
Terre Haute	3	2	1	0	0	0	0	0	0	0	33
Illinois:											
Chicago	125	89	0	1	0	57	4	4	1	20	1,231
Springfield	2	17	0	0	0	0	0	0	0	0	24
Michigan:											
Detroit	93	84	2	1	0	26	2	2	0	31	529
Flint	11	11	0	1	0	0	0	0	0	5	34
Grand Rapids	12	5	0	0	0	1	0	0	0	8	60
Wisconsin:											
Kenosha	1	3	0	0	0	1	0	0	0	0	16
Milwaukee	27	41	1	0	0	7	1	0	0	37	193
Racine	6	1	0	0	0	1	0	0	0	3	8
Superior	3	2	0	0	0	0	0	0	0	0	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth	8	24	0	0	0	1	0	0	0	2	16
Minneapolis	54	23	6	0	0	5	----	0	0	0	155
St. Paul	28	7	7	0	0	7	0	1	0	6	101
Iowa:											
Davenport	3	1	1	0	----	----	0	0	----	0	----
Des Moines	7	16	1	0	----	----	0	0	----	0	49
Sioux City	3	0	0	0	----	----	0	0	----	0	----
Waterloo	3	25	0	0	----	----	0	0	----	11	----

[1] Nonresident.

City reports for week ended December 29, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—CON.											
Missouri:											
Kansas City	13	19	1	0	0	5	0	0	0	1	153
St. Joseph	2	1	1	1	0	0	0	0	0	2	38
St. Louis	40	25	1	2	0	8	2	2	3	25	315
North Dakota:											
Fargo	2	0	0	0	0	0	0	0	0	0	18
Grand Forks	1	1	0	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	0	0	0	0	----	----	0	0	----	0	----
Sioux Falls	2	4	0	0	----	----	0	0	----	0	----
Nebraska:											
Omaha	6	1	2	1	0	4	0	0	0	1	95
Kansas:											
Topeka	2	6	0	0	0	1	0	0	0	0	46
Wichita	4	3	0	1	0	2	0	0	0	0	51
SOUTH ATLANTIC											
Delaware:											
Wilmington	5	4	0	0	0	3	0	0	0	1	41
Maryland:											
Baltimore	30	24	0	0	0	12	3	1	0	44	257
Cumberland	0	0	0	0	0	0	0	0	0	0	15
Frederick	0	0	0	0	0	0	0	0	0	0	5
District of Columbia:											
Washington	23	7	0	0	0	14	1	0	0	12	169
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	0	24
Norfolk	2	----	0	----	----	----	0	----	----	----	----
Richmond	6	3	0	0	0	2	1	0	0	2	104
Roanoke	2	4	1	0	0	0	0	0	0	0	26
West Virginia:											
Charleston	2	7	0	0	0	0	0	0	0	0	36
Wheeling	2	1	0	0	0	1	0	0	0	1	35
North Carolina:											
Raleigh	1	0	0	0	0	1	0	0	1	0	20
Wilmington	1	0	0	1	0	0	0	1	0	0	22
Winston-Salem	2	1	1	0	0	1	0	0	0	0	32
South Carolina:											
Charleston	0	0	0	0	0	4	0	0	0	0	62
Columbia	0	0	0	0	0	1	0	0	0	1	23
Greenville	0	----	0	----	----	----	0	----	----	----	----
Georgia:											
Atlanta	4	11	1	0	0	6	0	0	0	0	154
Brunswick	0	0	0	0	0	1	0	0	0	0	7
Savannah	1	3	0	0	0	2	1	0	0	0	41
Florida:											
Miami	1	3	0	0	0	1	0	0	0	0	26
St. Petersburg	0	1	0	----	0	0	0	----	0	----	17
Tampa	1	4	1	0	0	1	0	1	0	0	32
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	7	0	1	0	0	0	0	0	1	27
Louisville	6	26	0	0	0	6	1	0	0	5	86
Tennessee:											
Memphis	6	5	1	0	0	12	0	0	0	1	100
Nashville	3	5	1	0	0	3	0	0	0	0	54
Alabama:											
Birmingham	4	3	2	0	0	5	0	1	0	0	75
Mobile	0	4	1	0	0	1	0	0	0	0	31
Montgomery	0	2	0	0	----	----	0	0	----	0	----

City reports for week ended December 29, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	----	----	0	0	----	0	----
Little Rock	2	3	0	0	0	1	0	0	0	0	----
Louisiana:											
New Orleans	6	9	0	0	0	11	2	0	0	1	298
Shreveport	1	7	0	0	0	2	0	0	0	0	31
Oklahoma:											
Oklahoma City	4	3	1	0	0	0	0	0	0	0	32
Tulsa	2	7	1	1	----	----	0	0	----	0	----
Texas:											
Dallas	4	7	0	2	0	3	0	0	0	1	88
Fort Worth	2	12	0	13	0	1	0	0	0	0	43
Galveston	0	3	0	0	0	0	0	0	0	0	9
Houston	2	9	1	1	0	6	0	0	0	0	97
San Antonio	1	2	0	0	0	9	0	2	0	0	93
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	1	0	0	0	1	8
Great Falls	2	0	1	0	0	0	0	0	0	7	8
Helena	0	0	0	0	0	2	0	0	0	0	9
Missoula	1	0	0	0	0	0	0	0	0	0	4
Idaho:											
Boise	2	0	0	1	0	0	0	0	0	0	5
Colorado:											
Denver	12	1	1	0	0	13	0	1	0	0	122
Pueblo	3	0	1	0	0	2	0	0	0	0	25
New Mexico:											
Albuquerque	1	0	0	0	0	6	0	0	0	3	17
Utah:											
Salt Lake City	3	1	1	3	0	0	0	0	0	0	27
Nevada:											
Reno	0	1	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	9	3	2	0	----	----	1	1	----	6	----
Spokane	6	5	4	1	----	----	0	0	----	0	----
Tacoma	3	3	3	1	0	1	0	0	0	3	54
Oregon:											
Portland	7	3	7	18	0	2	0	0	0	0	107
California:											
Los Angeles	27	18	3	0	0	27	2	2	2	16	337
Sacramento	1	10	1	2	0	2	0	0	0	3	34
San Francisco	15	20	0	2	0	18	0	0	0	16	205

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	1	0	0	0	0	0	0
Worcester	0	0	1	0	0	0	0	0	0
Rhode Island:									
Pawtucket	1	0	0	0	0	0	0	0	0
Connecticut:									
Bridgeport	1	0	1	0	0	0	0	0	0

City reports for week ended December 29, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York [1]	17	8	2	3	0	0	1	1	0
Syracuse	0	1	0	0	0	0	0	0	0
New Jersey:									
Newark	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	2	1	1	0	0	0	0	0	0
Pittsburgh	4	0	0	1	0	0	0	0	1
EAST NORTH CENTRAL									
Ohio:									
Cleveland	4	1	1	0	0	1	0	0	0
Columbus	0	0	1	1	0	0	0	0	0
Toledo	0	0	2	1	0	0	0	0	0
Indiana:									
Fort Wayne	1	1	0	0	0	0	0	0	0
Indianapolis	0	2	0	0	0	0	0	0	0
Illinois:									
Chicago	16	9	1	0	0	0	0	0	0
Michigan:									
Detroit	4	2	4	1	1	1	0	0	0
Wisconsin:									
Milwaukee	2	3	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	2	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	7	1	0	0	0	0	0	0	0
St. Louis	9	2	0	0	0	0	0	0	0
North Dakota:									
Fargo	4	1	1	1	0	0	0	0	0
Nebraska:									
Omaha	2	0	0	0	0	0	0	0	
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	2	0	0	0	0	1	
District of Columbia:									
Washington	2	2	0	0	0	0	0	0	0
North Carolina:									
Wilmington	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston	0	0	0	0	3	1	0	0	0
Columbia	0	0	0	0	0	2	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington	1	0	0	0	0	0	0	0	0
Tennessee:									
Memphis	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	1	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	1	0	0	0	0
Louisiana:									
New Orleans	0	0	1	1	1	0	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Tulsa	1	1	0	0	0	0	0	0	0
Texas:									
Dallas	0	0	0	1	0	0	0	0	0
Fort Worth	0	0	0	0	0	2	0	0	0

[1] Rabies (in man), 1 death at New York City, N. Y.

City reports for week ended December 29, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MOUNTAIN									
Montana:									
Great Falls	1	0	0	0	0	0	0	0	0
Helena	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City	2	3	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland	1	0	0	0	0	0	0	0	1
California:									
Los Angeles	3	0	0	0	0	0	0	1	0
Sacramento	0	1	0	0	0	0	0	0	0
San Francisco	0	1	0	0	0	0	0	0	0

The following table gives the rates per 100,000 population for 101 cities for the 5-week period ended December 29, 1928, compared with those for a like period ended December 31, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1928 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,657,000 in 1928 and 31,050,000 in 1927. The 95 cities reporting deaths had nearly 30,961,000 estimated population in 1928 and nearly 30,370,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, November 25 to December 29, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 1, 1928	Dec. 3, 1927	Dec. 8, 1928	Dec. 10, 1927	Dec. 15, 1928	Dec. 17, 1927	Dec. 22, 1928	Dec. 24, 1927	Dec. 29, 1928	Dec. 31, 1927
101 cities	[2] 151	232	164	204	157	204	144	201	[2] 131	185
New England	195	267	209	216	216	200	159	193	170	165
Middle Atlantic	131	251	159	228	139	225	145	232	155	220
East North Central	185	220	190	227	209	247	166	212	[4] 132	200
West North Central	164	178	148	129	148	129	138	123	119	125
South Atlantic	121	224	139	189	121	139	117	143	[5] 101	128
East South Central	140	167	125	71	85	127	105	127	95	112
West South Central	220	269	256	215	248	215	188	339	172	261
Mountain	[2] 53	143	35	143	18	161	71	117	18	63
Pacific	72	259	100	167	61	167	95	157	43	141

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1928, and 1927, respectively.
[2] Denver, Colo., not included.
[3] Cincinnati, Ohio, and Greenville, S. C., not included.
[4] Cincinnati, Ohio, not included.
[5] Greenville, S. C., not included.

Summary of weekly reports from cities, November 25 to December 29, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

MEASLES CASE RATES

	Week ended—									
	Dec. 1, 1928	Dec. 3, 1927	Dec. 8, 1928	Dec. 10, 1927	Dec. 15, 1928	Dec. 17, 1927	Dec. 22, 1928	Dec. 24, 1927	Dec. 29, 1928	Dec. 31, 1927
101 cities	[2] 115	189	146	225	181	247	176	284	[2] 160	321
New England	605	539	736	539	837	140	800	537	676	709
Middle Atlantic	46	180	46	199	91	205	68	250	77	330
East North Central	132	121	187	140	194	117	251	157	[4] 217	159
West North Central	66	24	193	49	271	46	224	38	201	46
South Atlantic	63	307	53	525	84	604	49	794	[5] 69	828
East South Central	0	20	15	365	15	527	20	710	15	396
West South Central	16	120	40	132	12	248	12	83	4	112
Mountain	[3] 441	27	186	36	257	27	203	18	106	35
Pacific	72	227	43	178	64	238	49	256	84	282

SCARLET FEVER CASE RATES

101 cities	[2] 171	184	200	184	201	211	185	186	[2] 180	209
New England	186	277	237	321	223	326	241	281	308	346
Middle Atlantic	102	155	141	156	143	198	144	173	138	200
East North Central	238	192	260	216	290	243	234	212	[4] 204	257
West North Central	220	249	263	206	251	204	240	202	261	192
South Atlantic	137	173	165	133	149	162	161	144	[5] 129	148
East South Central	145	147	259	81	209	142	200	117	259	117
West South Central	184	141	216	116	172	170	100	91	160	124
Mountain	[3] 123	359	80	305	62	242	27	170	27	233
Pacific	261	128	197	151	181	154	197	191	151	125

SMALLPOX CASE RATES

101 cities	[2] 6	17	4	13	8	19	8	16	[2] 4	15
New England	5	0	2	0	0	0	2	0	2	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	12	10	10	4	16	17	4	12	[4] 3	12
West North Central	8	115	2	75	0	115	6	77	10	79
South Atlantic	5	5	0	7	2	5	0	20	[5] 2	4
East South Central	0	10	20	5	5	5	0	20	5	10
West South Central	12	8	4	8	24	0	40	12	12	4
Mountain	[3] 71	45	0	99	44	117	44	99	35	143
Pacific	8	39	8	39	20	31	56	26	15	29

TYPHOID FEVER CASE RATES

101 cities	[2] 7	9	9	11	5	8	4	11	[2] 5	7
New England	5	7	5	12	7	0	2	9	2	14
Middle Atlantic	7	10	7	8	4	8	4	10	4	4
East North Central	5	5	7	9	1	3	1	8	[4] 4	5
West North Central	8	12	4	14	4	6	2	8	6	10
South Atlantic	9	16	7	9	5	9	7	16	[5] 5	13
East South Central	5	15	20	30	15	35	5	25	5	10
West South Central	16	21	48	21	16	17	8	17	8	21
Mountain	[3] 18	9	0	9	9	18	9	9	9	18
Pacific	3	5	5	13	8	16	10	10	8	0

[2] Denver, Colo., not included.
[3] Cincinnati, Ohio, and Greenville, S. C., not included.
[4] Cincinnati, Ohio, not included.
[5] Greenville, S. C., not included.

Summary of weekly reports from cities, November 25 to December 29, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Dec. 1, 1928	Dec. 3, 1927	Dec. 8, 1928	Dec. 10, 1927	Dec. 15, 1928	Dec. 17, 1927	Dec. 22, 1928	Dec. 24, 1927	Dec. 29, 1928	Dec. 31, 1927
95 cities	[2] 30	12	48	12	76	14	112	17	[3] 173	19
New England	9	5	9	9	9	12	14	5	14	5
Middle Atlantic	10	11	17	7	27	9	66	11	129	14
East North Central	14	9	18	9	44	11	124	13	[4] 206	10
West North Central	12	4	43	6	116	6	147	10	169	8
South Atlantic	29	13	51	16	95	14	123	20	[5] 262	22
East South Central	21	48	58	58	68	64	58	48	193	58
West South Central	53	42	53	47	94	55	209	72	373	81
Mountain	[2] 353	27	513	9	734	9	593	27	265	72
Pacific	240	14	294	3	317	17	213	24	182	31

PNEUMONIA DEATH RATES

95 cities	[2] 134	113	156	110	212	118	241	135	[3] 303	156
New England	85	100	80	51	108	102	159	121	159	146
Middle Atlantic	141	123	149	119	190	117	246	126	293	158
East North Central	120	103	135	97	171	97	255	105	[4] 385	135
West North Central	100	70	126	99	212	91	295	97	242	108
South Atlantic	140	146	165	135	237	161	226	182	[5] 333	184
East South Central	162	207	282	154	188	149	188	213	246	191
West South Central	140	106	176	102	181	191	250	229	402	306
Mountain	[2] 159	54	336	215	628	134	398	242	363	197
Pacific	240	103	294	110	223	131	169	166	169	138

[2] Denver, Colo., not included.
[3] Cincinnati, Ohio, and Greenville, S. C., not included.
[4] Cincinnati, Ohio, not included.
[5] Greenville, S. C., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities of each group, approximated as of July 1, 1928 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1928	1927	1928	1927
Total	101	95	31,657,000	31,050,300	30,960,700	30,369,500
New England	12	12	2,274,400	2,242,700	2,274,400	2,242,700
Middle Atlantic	10	10	10,732,400	10,594,700	10,732,400	10,594,700
East North Central	16	16	7,991,400	7,820,700	7,991,400	7,820,700
West North Central	12	10	2,683,500	2,634,500	2,566,400	2,518,500
South Atlantic	21	21	2,981,900	2,890,700	2,981,900	2,890,700
East South Central	7	6	1,048,300	1,028,300	1,000,100	980,700
West South Central	8	7	1,307,600	1,260,700	1,274,100	1,227,800
Mountain	9	9	591,100	581,600	591,100	581,600
Pacific	6	4	2,046,400	1,996,400	1,548,900	1,512,100

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended December 22, 1928.—The following report for the week ended December 22, 1928, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

PLAGUE

India.—Rangoon.
Madagascar.—Tamatave.

CHOLERA

India.—Calcutta, Madras.
Siam.—Bangkok.
French India.—Pondicherry.
China.—Canton.

SMALLPOX

India.—Bombay, Negapatam, Calcutta, Madras.
French India.—Pondicherry.
Indo-China.—Pnompenh.
Dutch East Indies.—Samarinda.
China.—Hong Kong, Shanghai, Canton, Macao.

CANADA

Provinces — Communicable diseases — Week ended December 22, 1928.—The Department of Pensions and National Health reports cases of certain communicable diseases from six provinces of Canada for the week ended December 22, 1928, as follows:

Disease	Nova Scotia	New Brunswick	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever			1			1	2
Influenza	109		327	19	9		464
Lethargic encephalitis		1		1			2
Poliomyelitis				1			1
Smallpox			4	16	1	1	22
Typhoid fever			4	1	1		6

Ontario Province—Communicable diseases—December, 1928—Comparative.—The following table shows the number of cases of communicable diseases reported in the Province of Ontario, Canada, during the month of December, 1928, as compared with the same month for 1927:

Disease	1928		1927	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	4	4	2	1
Chancroid	13	0	1	0
Chicken pox	1,492	1	1,306	0
Conjunctivitis	1	0	0	0
Diphtheria	409	19	449	18
Dysentery	1	0		1
Erysipelas	2	0	2	0
German measles	27	0	16	0
Goiter	0	0	3	3
Gonorrhea	257	0	193	0
Influenza	4,528	94		6
Lethargic encephalitis		2		3
Measles	2,565	4	1,223	0
Mumps	507	0	2,166	0
Paratyphoid fever	8	0	0	0
Pneumonia		257		126
Poliomyelitis	4	0	6	0
Scarlet fever	544	7	493	1
Septic sore throat	10	1	3	0
Smallpox	16	0	381	0
Syphilis	149	0	160	1
Trachoma	1	0	0	0
Tuberculosis	165	44	159	65
Typhoid fever	91	4	73	5
Whooping cough	460	0	342	0

Quebec Province—Communicable diseases—Week ended December 22, 1928.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended December 22, 1928, as follows:

Disease	Cases	Disease	Cases
Chicken pox	144	Poliomye itis	1
Diphtheria	66	Scarlet fever	84
German measles	1	Smallpox	10
Influenza	4,077	Tuberculosis	29
Measles	37	Typhoid fever	5
Mumps	14	Whooping cough	9

CUBA

Communicable diseases—December, 1928.—During the month of December, 1928, communicable diseases were reported from Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox	8		Measles	136	1
Diphtheria	17		Scarlet fever	8	
Malaria [1]	72		Typhoid fever [1]	20	2

[1] Many of these cases from the interior.

HAWAII TERRITORY

Communicable diseases—Comparative—July, 1928 and 1927.—The following table gives the cases of communicable diseases reported in the Territory of Hawaii during the month of July, 1928, as compared with those reported for the same month of 1927:

Disease	July, 1928		July, 1927	
	Cases	Deaths	Cases	Deaths
Broncho-pneumonia		27		26
Cerebrospinal meningitis	1		5	
Chicken pox	16		3	
Conjunctivitis	6		3	
Diphtheria	39	8	23	
Dysentery (amebic)	1			
Hookworm disease	5			
Impetigo contagiosa	4			
Influenza	54	7	3	
Leprosy	4	5	3	3
Measles	9		40	
Mumps	13			
Pneumonia (lobar)	90	14	14	19
Poliomyelitis	1			
Puerperal septicemia		3		1
Scarlet fever			3	
Tetanus	5	3	3	2
Trachoma	7		1	
Tuberculosis (all forms)	77	34	81	42
Typhoid fever	7	2	9	
Whooping cough	5		21	

VENEZUELA

Caracas—Poliomyelitis.—According to cabled information received January 9, 1929, 10 cases of poliomyelitis were officially reported in Caracas during the previous week. The actual number is thought to be larger. All schools have been closed and the Government has published warnings in the newspapers.

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

From medical officers of the Public Health Service, American consuls, health section of the League of Nations, and other sources. The reports contained in the following table 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:

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928				December, 1928			
										3	10	17	24	1	8	15	22
Ceylon:																	
Colombo	C				1												
	D				1												
Ingiriya Province	C											1					
	D											1					
China:																	
Canton	C		1	2	8	4	1		1			1					2
	D		1	2	8	2	1										1
Kwantung—Dairen	C						3										
	D						1										
Shanghai	C					3	2										
	D						3	3									
Swatow	C			3	7												
Dutch East Indies: Java—Batavia	C					1											
India	C	32,564	30,177	31,346	44,240	52,786	32,287	17,028	4,976	5,771	4,714						
	D	20,432	20,162	20,114	23,216	26,967	17,731	10,187	3,226	3,096	2,889						
Bassein	D	41	40	8													
Bombay	C		1		6	9	6	15		1							
	D				11	5	4	7		1			3		1		
Calcutta	C	446	552	462	206	93	68	41	50	44	62	63	87				
	D	428	410	323	133	51	40	39	25	35	42	38	53	39	36	27	
Madras	C	22	27	29	72	555	149	97	69	45	48	41	32	32	11		
	D	18	16	21	31	271	88	73	31	32	21	31	15	15	6	6	
Madras Presidency	C		1,314	878											1		
	D		675	460											1		
Moulmein	D		1												1		
Negapatam	C						1								1		
	D	2		13		3	7	1					1				
Rangoon	C	23	7	14	1	13	2	1									
	D	15	5	9	1	8	2	2					3	2			
Tuticorin	C	110				1	1	1						1	1		
	D	71									1						
Vizagapatam	D				7	31	5										

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

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928 3	10	17	24	December, 1928 1	8	15	22
India (French):																	
Chandernagor	C				2	7	3	16		12	11	20	18	4	3		
	D				1	3	2	7		12	8	14	6	3	1		
Karikal	C	1				30	41	9	4	4	4	9	6		1		
	D	1				21	26	8	3	4	3	5	3		1		
Pondicherry Province	C	8			3	114	132	31	4	1	1		13	16	8		
	D	8			3	60	72	19	4	1			9	11	7	3	
Indo-China (see also table below):																	
Pnompenh	C				5	2	3					1				1	
	D				5	2	2					1				1	
Saigon	C	116	15	6	2		2					1					
	D	76	9	1	1		1										
Tourane	C			1													
	D			1													
Japan: Osaka	C							1									
Kwangchow-Wan (see table below):																	
Philippine Islands:																	
Bulacan Province—																	
Malolos	C				1												
Paombong	C					1											
Cagayan Province	C				1												
	D					1											
Ballesteros	C				1	2											
	D				1												
Pamplona	C			1													
	D			1													
Sanchez-Mira	C			4													
	D			2													
Cebu (port)	C				1												
Ilocos Norte Province	C				1												
	D				1												
Manila	C				4	1											
Pangasinan Province—Bayambang	C				1												
	D				1												

Surigao Province—Surigao	C				1	3											
	D				1	2											
Siam	C	349	202	203	163	40	21	14	9	15	4	19					
	D	234	127	144	123	18	14	10	8	8	3	8					
Ayudhaya	C			2		29	1	7	9	5	1			2			1
	D			1		26	1	6	8	3	1			2			1
Bangkok	C	74	50	7	9	4	5	4		1	2	2	8	4	2	4	9
	D	35	26	4	3		1	1			1	2	7	1		4	3
Dhannapuri	C						3								2	4	2
	D						3								1	4	1
Nondpuri	C															1	
	D															1	
Smud Prakar	C														23	14	19
	D														15	13	4
Smud Sagara	C									9	1	17	16	12	3	3	
	D									5	1	6	6	6	1	3	
Trad	C			1													
Straits Settlements: Singapore	C	1															
	D	1															
On vessel:																	
S. S. Glenapp, at Yokohama, from Shanghai	C						P										
S. S. Kambangan at Batavia from Jedda via Sabang and Palembang	C					1											
S. S. Tairea at Penang from Madras via Negapatam	C					P											

Place		January-March, 1928	April-June, 1928	July, 1928	August, 1928	September, 1928			October, 1928			November, 1928		
						1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30
Indo-China (French) (see also table above):														
Annam	C	389	128	16	11	2	2		4	5	2			5
Cambodia	C	312	418	155	38	15		1	6	19			4	17
Cochin-China	C	1,407	1,666	153	28	15	9	4	6	26	20	27	48	81
Tonkin	C	1	43	7	2									
Kwangchow-Wan	C		16	1	1								1	

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

PLAGUE

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928 3	10	17	24	December, 1928 1	8	15	22	29	Jan. 5, 1929
Algeria (see also table below):																			
Algiers	C	1								2									
Oran	C		1	2				1											
Philippeville	C							2											
Arabia: Aden	C	224	7	1															
	D	191	9	1															
Argentina: [1]																			
Avellaneda	C		1																
	D		1																
Buenos Aires [2]	C		6	1															
	D		3	2															
Catamarca Province—Recreo	C										P				9				
Cordoba Province	C	5																	
Canada Honda	C										14								
Laborde	C																		1
Entre Rios	C			5															
Jujuy Province—																			
Perico	C																		1
Loreto	C		3																
Rosario	C		1		1													1	1
Santa Fe	C			9	1														
Santiago del Estero	C			10	1				7										
Suardi	C		2																
Tucuman Province—El Mollar	C														5				
Azores: St. Michaels Island	C	5	1	1			2	3	2	1									
	D	2	1	1					1										
Belgian Congo:																			
Djugu	C								2										
Lenza	C												1						
Bolivia: Valle Grande	C					P													
Brazil: Bahia	C	6	3																
	D	6	3																
British East Africa (see also table below):																			
Mombasa	C						1	3											
	D						1	3											
Plague-infected rats								2											

Tanganyika	C				6	1	8													
	D	10			29	1	8													
Uganda	C		84	105			102	106		40	39	35								
	D		70	85			64	86		29	39	35								
Canary Islands:																				
Arrecife	C		1																	
	D		1																	
Lanzarote Village	C		1																	
Las Palmas	C						2	2												
	D						1	1												
Palma Island	C					7														
	D					3														
Teneriffe	C						5	2									1			
	D						3													
Laguna	C							4												
Ceylon:																				
Colombo	C	1	4	2			3	2	1					1	1	2				
	D	1	2	2			3	1	1					1	1	2				
Plague-infected rats								1					3		2					
Jaffna	C							2		1										
	D							2												
China:																				
Amoy	C		5		P															
Hong Kong	C	2		1	1															
	D			1																
Mongolia—																				
Chien Chia Tien	C						P	P												
Tungliao	C						220	173	11	6	2									
Urga	C						P													
Shansi—																				
Fengchow	C							P												
Dutch East Indies:																				
Celebes—Makassar	C							1												
	D							1												
Plague-infected rats								4	2											
Java—																				
Batavia and West Java	C	47	65	61	32	46	49	29	12		5	6								
	D	47	65	61	32	46	49	29	11		5	6								
Plague-infected rats		7	9	4	2	2											1			
East Java and Madura	C	4			1	2	1	16												
	D	4			1	2	1	16												
Kedoe Residency	C	4			P															
Surabaya Residency	C	1						1												
	D	1						1												
Ecuador (see also table below):																				
Alausi	C		1																	
Egypt:																				
Alexandria	C		1		2	1	2													
	D		2				1													

[1] During the period from Nov. 10 to Dec. 11, 1928, 13 cases of plague were reported at El Mollar, Tucuman Province, Argentina. During the same period 1 case of plague was reported at Chipion and 1 at Ucacha, both in Cordoba Province, Argentina.

[2] 18 plague-infected rats were reported at Buenos Aires, Argentina, from July 1 to Dec. 31, 1928.

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

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928 3	10	17	24	December, 1928 1	8	15	22	29	Jan. 5, 1929
Egypt—Continued.																			
Amrieh District	C					26	11	1											
	D						5	1											
Assiout Province	C				2	2	1	1		1	1	1							
	D				1		1	1		1	1	1							
Beheira Province	C					2	5	1											
	D						2												
Beni-Suef	C	12	79	25	25	6	16							4					
	D	3	27	99	5	2	5							1					
Cairo	D					1													
Dierout	C									1									
	D									1									
Girga	C						5						1						
	D						4						1						
Kena Province	C												3	1					
	D												2	1					
Maghagha District	C	1																	
	D	1																	
Menoufieh Province	C		11						6	1									
	D		2																
Minieh Province	C	48	76	76	13														
	D	9	17	24	3														
Port Said	C				1	5													
	D						1												
Sidi Barani	C				12	10													
	D				8	1													
Suez	C	5	3			2													
	D	13	1																
Tanta	C		1		2	2			5										
	D		1																
Greece:																			
Athens and Piræus	C						2	5		4	1								
Corfu	C			15		1	1					1							
	D			3															
Patras	C					1	1												
	D				1														

Hawaii Territory—Hawaii:																			
Hamakua District—																			
Hamakua—Plague-infected rats			1			1													
Honokaa	D						2												
Plague-infected rats			1				4												
Kukuihaele	D					1													
Plague-infected rats					1														
Kukalau—Plague-infected rats						3													
Paauilo	D				1	1													
India	C	18,518	3,272	367	587	1,936	3,354	6,209	1,757	1,957	3,039								
	D	17,074	3,183	345	340	1,037	1,573	3,225	1,042	1,014	1,244								
Bassein	D	13	8	14	3		1					2							
Bombay	C	43	39	14	1	8	7	4	2	3									
	D	69	38	8	1	6	6	5	1	1				5		1			
Plague-infected rats						7	20	13			7		10	10	8	4			
Calcutta	D					2	1												
Madras Presidency	C	21	12	54	123	217	317	196	128	132	135	144							
	D	12	6	25	51	105	147	97	67	48	57	63							
Rangoon	C	16	14	31	43	28	17	7		2									
	D	14	15	28	39	26	15	5		3					1				
Vizagapatam	D			1															
Indo-China (see also table below):																			
Pnompenh	C				4	1	6	1				1		2	1	1			
	D				4	1	4	1				1		2	1	1			
Saigon	C			5		1					1								
	D			1		1													
Plague-infected rats				2															
Iraq:																			
Baghdad	C	11	13	9	1		4		2	1	1	5	3	2	4	1	1		
	D	6	3	4			2		1	1		3	2	1	2		1		
Plague-infected rats		4	3																
Dulaim Liwa	C	1																	
Kwangchow-Wan (see table below).																			
Madagascar (see also table below):																			
Tamatave	C		1	20	3	8	9	13	3	3	1							2	
	D			8	7		4	10		2	1								
Nigeria (see also table below):																			
Lagos	C	71	28	43	53	51	60	88	24	19	25	15	15	9	11	8			
	D	18	28	42	52	52	59	88	21	18	24	14	14	9	10	8			
Plague-infected rats		8	55	57	23		62	91	51	56		38							
Paraguay: Asuncion	C			5				3											
	D			2	2														
Peru (see table below).																			
Portugal: Lisbon	C			1															
Senegal (see also table below):																			
Thies and vicinity	C		72	52															
	D		40	40															
Siam	C	27	15	6	10							1							
	D	13	11	7	8							1							
Ayudhaya	C			2	2														
	D			1	2														
Bangkok	C	4										1							
	D	2										1							

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

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928				December, 1928					Jan. 5, 1929
										3	10	17	24	1	8	15	22	29	
Siam—Continued.																			
Nagara	C		1	2															
Panknampo	C															8			
	D															7			
Straits Settlements:																			
Ipoh	C						2												
	D						2												
Penang	C							1											
Syria (see table below).																			
Turkey:																			
Adalia	C				1			1				1							
Constantinople	C							1											
Union of South Africa:																			
Cape Province	C											2	1						
Orange Free State	C				P	P		1				P							
Union of Socialist Soviet Republics:																			
Astrakan—																			
Axary District	C			3															
	D			2															
Kirghiz District	D						54												
Krasnoiarsk District	D						1												
Chita District	C						1												
Kalmouks District	C											10							
	D											7							
Ural Government	C									7									
	D									7									
On vessel:																			
S. S. Tymeric, at Barbados, from New Orleans	C		1																
S. S. Automedon, at Penang, Straits Settlements	C							P											

Place		January–March, 1928	April–June, 1928	July, 1928	August, 1928	September, 1928	October, 1928	November, 1928
Algeria (see also table above):								
Algiers	C		1					
British East Africa (see also table above):								
Kenya	C	65	86	97	144	15	37	16
	D		5		34			2
Uganda	C			176	152	128	134	
	D			151	141	98	108	
Ecuador: Guayaquil	C	20	6			3	3	21
	D	8	2				2	8
Plague-infected rats		75	5	7		27	21	
Indo-China (see table above)	C	12	36	7	2	6	2	
Kwangchow-Wan	C	18	27					
Madagascar (see also table above)	C	940	199	45	65	59	88	
	D	864	184	33	61	51	84	
Ambositra Province	C	202	68	4	3		5	
	D	191	35	4	3		5	
Antisirabe Province	C	281	68	11		10	2	
	D	279	67	11		10	2	
Itasy Province	C	55	1			2	3	
	D	49	1			2	3	
Majunga	C				2			
	D				2			
Moramanga Province	C	56	4	2	11	20	13	
	D	55	4	2	10	18	11	
Tamatave	C		23	10	12	18	5	
	D		14	9	7	10	4	
Tananarive Province	C	348	78	24	51	75	46	
	D	292	82	23	51	62	43	

Place		January–March, 1928	April–June, 1928	July, 1928	August, 1928	September, 1928	October, 1928	November, 1928
Nigeria (see also table above)	C	41	91	53				
	D	41	89	53				
Peru	C	93	25	5				
	D	23	6	2				
Lima	C	6	4					
	D		2					
Senegal (see also table above)	C	30	448	318	43	199		
	D	17	246	164	32	127		
Baol	C		13	17	68	73	39	18
	D		7	10	38	40	14	6
Cayor	C			40	46	20	17	
	D			25	15	8	6	
Fatick	C						35	
	D						20	
Louga	C						14	2
	D						5	1
Rufisque	C		46	18	2	1	49	8
	D		31	7		1	14	4
Thies	C		345	103	151	106	51	11
	D		237	64	119	78	29	
Tivaouane	C		325	84	9			
	D		175	70				
Syria: Beirut	C		1	5			1	3

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

PLAGUE RATS ON VESSELS

Steamship *Sicily* at Liverpool from Buenos Aires and Rosario, June 8, 1928, seven plague-infected rats.

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928				December, 1928					Jan. 5, 1929
										3	10	17	24	1	8	15	22	29	
Algeria	C	12																	
Algiers	C	4	5	15	3	8	2	4			1	1		1					
Oran	C	17	5	4	8	5		21							7				
Angola (see table below).																			
Arabia: Aden	C			11		1	1					1	1						
	D					1													
Brazil (see also table below):																			
Pernambuco (Recife)	D		1																
Rio de Janeiro	C				1														
British East Africa: Kenya—Mombasa	C	1						1											
British South Africa:																			
Northern Rhodesia	C	628	195	15	48	310	382	195	57	270		15							
	D	51	17	1	5	23	22	7	5	7		2							
Southern Rhodesia	C	24	13	36	22	17	5	9	1					2					
	D	10		4	4														
Tanganyiki	C										1								
Canada:																			
Alberta	C	12	44	9	3	25	6	4	1			3	7	1	13		1		
Edmonton	C	3			4														
British Columbia—Vancouver	C	24	11	4	11		5	16		12	9	5							
Manitoba	C	7	4	10	4			1			14		16	5	1	7	16		
Winnipeg and vicinity	C												13	2	1	1		1	1
New Brunswick	C		1	7		5													
Ontario	C	50	41	33	11	5	3	15	5		4	3	4	4	2	5	4		
Kingston	C	3			2	1	1		1										
North Bay	C															1			
Ottawa	C	4	6	1		1	6	2	2	1	2	1	1			1			
Sarnia	C								1										
Toronto	C	11	12	3	1														

Quebec	C	83	78	81	62	27	28	75	20	9	40	49	25	72	20	8	10		
Montreal	C	9	3	11	5	2	12	4	7	1	2			1	1	1	2	1	
Quebec	C	23	47	52	44	12	13	12	3	1	3	5	3	1	1	1			
Sherbrooke	C			4															
Saskatchewan	C	52	28	16		6	3	1	6			4	11	12	11	18	1		
Moose Jaw	C	3	1		1		2					2	1						
Regina	C	8	1	1			1						2						
China:																			
Amoy	C	9	3				P	P			P								
Antung	C	3																	
Canton	C	2	2										1		4	9	7		
Chefoo	C		P	P	P	P	P			P		P	P						
Foochow	C	P		P	P	P	P	P	P	P	P	P	P	P					
Hong Kong	C	25	30	14	11	19	9	13	7	6	22	31	17	33	61	91	81	73	80
	D	26	23	19	5	16	7	8	6		6	9	8	25	16	29	22	38	48
Manchuria—																			
Changchun	C	4	6		1														
Fushun	C			6	1	2	1				1								
	D				1														
Harbin	C	10	27	31	11		1	1	1	2	3	1	1	2					
Kwantung—																			
Dairen	C	16	35	48	21	3	2	1	1		1			2	1				
	D			20	12	3		1											
Port Arthur	C				1	1													
	D					1													
Mukden	C	4	3	6			2	1											
	D			1															
Pensihu	C			1															
	D			1															
South Manchuria Railway Zone	C			5															
Shanghai—																			
Foreigners only	C	3	11	7	2	2	2	3	1	1	3	4	4	1					
Including natives	D	9	19	11	10	2		6	3		6	11	6	11	6	9	14		
Tientsin	C	17	9	14	1		1	4	4		2		2						
Chosen (see table below).																			
Curacao (alastrim)	C				2														
Dominican Republic: Santo Domingo	C	1																	
Dutch East Indies:																			
Balikpapan	C				7														
	D				2														
Belawan Deli	C			11	4	9	10	9	1	2	1	1	2		1	3			
	D			3	1	3	2	3	1	1			1			1			
Borneo—																			
Pontianak	C					5	4	2		1									
	D					2		1											
Samarinda	C							3		8		8	15	3	1	1	8	8	
	D									2			3	1				2	
Celebes—Makassar	C												1						
	D												1						

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

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928 3	10	17	24	December, 1928 1	8	15	22	29	Jan. 5, 1929
Dutch East Indies—Continued.																			
Java—																			
Batavia and West Java	C	1	2		2	6	1	6		1		1							
	D							2											
East Java and Madura	C	2		2	3	6	5	5		1									
	D	2			3	1	6			1									
Surabaya	C					6	4	2	1						1	1			
	D					1													
Sumatra—																			
Medan	C	2	10	4	5	9	7	14	1	2	1		2						
	D	3	5		2	3		4	1	1			1						
Palembang	C				1														
Ecuador (see table below).																			
Egypt	C	12	1																
	D	7	1																
Beheira Province	C				1														
Suez	C														1				
France (see table below).																			
Gold Coast (see table below).																			
Great Britain:																			
England and Wales	C	1,344	1,199	1,146	681	492	430	514	148	122	149	162	199	189	155	176			
Birmingham	C	1		2	1		1												
Bradford	C	14	17	10	2		1	1							1				
Bristol	C	17	10	2		2													
Cardiff	C	3	2											1					
Castleford	C	69	24	18	14	10	5	8		5	1			4	1	3			
Hull	C			1	24	15	13	7	1		1	1	1						
Leeds	C	1		8	1	1	6		1						1	1			
London	C	42	25	96	19	9	8	12	4	4	4	9	5	4	4	1			
Manchester	C	8	5	1			3	1											
Newcastle-on-Tyne	C	4	12	6	28	2		1			1		2			1			
Nottingham	C	17	20	3	6	10	15	5	1					2		1			
Plymouth	C					6	3	2			6								
Sheffield	C	14	4	2	2	1	4				8	1	2	2	1	6			
Stoke-on-Trent	C	32	24	14	5	8													
Weymouth	C				1														

Scotland—																			
Arbroath	C					4	3												
Dundee	C						1	3		1	1				1				
Greece (see table below).																			
Hedjaz	C		6	14	18	1													
	D		2	1	6	1													
India	C	30,436	21,489	13,497	9,981	6,218	4,553	2,792	617	727	824								
	D	6,672	5,046	3,700	2,758	1,733	1,116	696	157	191	214								
Bassein	C	1																	
Bombay	C	200	136	71	67	28	14	24	5	2	1	1	1	2	2	6			
	D	118	78	46	33	21	11	12	2	2		1			2	2			
Calcutta	C	171	130	61	52	22	13	7		1	1		3	2	4	4			
	D	130	101	50	35	17	17	4		1	1		2	1	2	2			
Karachi	C	2	3		3			1											
	D	1	1		2														
Madras	C	169	59	85	39	43	90	77	31	9	11	20	16	18	15				
	D	38	18	10	18	10	21	23	5	8	3	6	4	6	6				
Moulmein	C			1	9	9	4	2					2	2		1			
	D			1	6	4	1							1					
Negapatam	C	7	8	19	26	35	46	51	7	13	12	6	5	16	7	5			
	D	3	1	7	4	9	10	11	2	3	1	2		2	1	2			
Rangoon	C	167	36	30	7	2					1				1				
	D	79	13	6	4	1													
Tuticorin	C		3					3											
Vizagapatam	C	2	3	8	3	1	14	1											
	D		1	3	3	1	3												
India (French):																			
Chandernagor	C	5			1	2	9	4		3									
	D	1			1	1	2	4		3									
Pondicherry Province	C	36	32	13	12	62	92	111	34	23	12	15	18	13	17				
	D	36	23	13	12	45	87	73	27	17	11	12	16	13	17				
Indo-China (see also table below):																			
Pnompenh	C					2	19	28	12		12	6	5	8	23	8	13		
	D					2	15	10	2		1	2	4	4	9	3	8		
Saigon	C						1	3	2										
	D								2										
Iraq:																			
Baghdad	C	5	16	16	24	7	34	38	10	7	9	14	14	9	17	6	5		
	D	3	6	10	15	2	17	12	8	1	4	10	9	18	13	5	10		
Basra	C	4	3	2	6	4	1	23	3	9	9	14	13	12	5	5	3		
	D	2	3	2	2	2	1	9	4	7	8	14	11	8	4	3	2		
Kirkuk Liwa	C												76		64	33			
	D												19		12	7			
Mossoul	C										22	31	44	74	146				
	D										6	17	19	42	42				
Italy	C		1	6															
Palermo	C	110	6	40	6	6			2				1	2					
Ivory Coast (see table below).																			
Jamaica (outside Kingston) (alastrim)	C	4	2	3	1	1	3	2											
Kingston	C													1					

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

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928				December, 1928					Jan. 5, 1929
										3	10	17	24	1	8	15	22	29	
Japan:																			
Kobe	C		11																
Nagoya	C	6	2		1														
Osaka	C			4															
Tokyo City	C	8	2																
	D	1																	
Tokyo Prefecture (outside city)	C	1	1																
	D	2																	
Yokohama	C	2	3																
	D		1																
Latvia (see table below).																			
Malta: Valetta	C							1											
Mexico (see also table below):																			
Acapulco	C		2																
	D		2																
Aguascalientes	D																2		
Jalisco (State)	C	P		21	1														
Guadalajara	D	12	13	10	9	7	3	1					1		1	2		1	
Juarez	D							1									2		
Mazatlan	D		3	2		3													
Mexico City and surrounding territory	C	1	2		3	2	1	1				5							
	D			1		1	1												
Reynosa	C				1														
Saltillo	D		2	2					1										
San Luis Potosi	D						1	2		1									
Tampico	C										1								
Torreon	D							1											
Morocco (see table below).																			
Nigeria (see also table below):																			
Lagos	C			1							1								
Southern Provinces	C			51															
	D			12															
Persia (see table below).																			
Poland	C	9	1	3	2			1				1		2					
	D	1										1							

Portugal (see also table below):																			
Lisbon	C	6	7	7	8	1													
	D				1	1													
Oporto	C	1																	
Senegal (see also table below):																			
Dakar	C	16	29	8															
	D	8	7																
Siam	C	10	8	3	1	3	1	3		1									
	D	3	1	1		2													
Bangkok	C	1											1						
	D		1																
Straits Settlements: Singapore	C	3		1			1	2											
Sudan (Anglo-Egyptian)	C	160	168	206	144	252	152	89	37	14	4	24	58	14	148		192		
	D	32	20	37	35	34	34	19	5	7	1		7	13	9	13	12		
Sudan (French) (see table below).																			
Syria (see table below).																			
Taiwan: Keelung	C			1															
Tunisia: Tunis	C	6	3	2	8	5	1					1		1			13		
Union of South Africa:																			
Cape Province	C					P	P	P	P	P	P	P	P						
Natal	C			1															
Orange Free State	C		P	P	P			P				P							
Transvaal	C	P	P	P		P	P	P		P		P							
Union of Socialist Soviet Republics (see table below).	C																		
Upper Volta	C	9				50	P	10	5										
	D					8													
Venezuela: Maracaibo	D					1													
On vessel:																			
S. S. Ballarat, en route to Cape Town, South Africa	C								1										
S. S. Kashgar at Kobe, from Shanghai	C	P																	
S. S. Ronna at Penang, from Negapatam	C		P																
S. S. Theseus, from Jeddah to Penang	C				1														
S. S. Tjilleboct at Hong Kong, from Shanghai	C	P																	
S. S. Victoria at Nome, Alaska	C			8															

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

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		January–March, 1928	April–June, 1928	July, 1928	August, 1928	September, 1928			October, 1928			November, 1928			Dec. 1–10, 1928
						1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20	21–30	
Indo-China (see also table above)	C	426	197	26	71	27	29	17	38	19	43	55	57	32	23
Ivory Coast	C		7	9		2				1					
	D			2											
Senegal (see also table above)	C		110			4			2						
	D		16												
Dakar	C		43												
	D		15												
Sudan (French)	C	15	54	17	55			P	P	32					
	D		6		33					2					
Syria:															
Aleppo	C	1	3		4										
Beirut	C	75	26	5						1		1			
	D	2													
Damascus	C	14													

Place		January–March, 1928	April–June, 1928	July, 1928	August, 1928	September, 1928	October, 1928	November, 1928
Angola	C	47	8	2				
Congo	C	36						
Cuanza-Norte	C	1						
Cuanza-Sul	C	10						
Loanda	C			1				
Brazil (see also table above):								
Porto Alegre	C	1			2	1	12	
Chosen	C	48	221					
	D	16	65					
Seoul	C	1						
Ecuador: Guayaquil	C	35	61	35	38	22	6	6
	D	1				1	3	1
France	C	34	31	10	6	3	3	
Gold Coast	C	4						
Greece	C	36	54	9	3	6	6	6
	D	4	3	1			1	

Place		January–March, 1928	April–June, 1928	July, 1928	August, 1928	September, 1928	October, 1928	November, 1928
Latvia	C	1	1	1				
Mexico (see also table above)	D	1,064	958					
Morocco	C	132	54	55	1	4	5	2
Nigeria (see also table above)	C	592	739	1,059				
	D	84	156	159				
Persia	D	7						
Portugal (see also table above)	C	258	172	82		24	27	
	D	30	12	10		2	3	
Union of Socialist Soviet Republics:								
Railways, etc	C	59						
Other territories in Europe	C	1,717						
Transcaucasus, Siberia, and Central Asia	C	25						
Ukraine	C	27						

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928 3	10	17	24	December, 1928 1	8	15	22
Algeria:																	
Algiers	C	4	13	32	3	10	2	1	1	1	1	1					
	D	2		6													
Oran	C	11	4	7	16	4	2	1				2					
	D	1		1													
Bulgaria	C	26		16	P	8	6	8	1	2		1	1	4	4		
	D			2		2			1								
Sofia	C	1	20	14	1		3										
	D			6													
Chile:																	
Iquique	C				1												
	D				1												
Valparaiso	C			3	2								1				
	D			1									1				
China:																	
Manchuria—																	
Harbin	C	2	16	23										2			
Kwantung	C	17	293	539	481	60	3	2			1						
South Manchuria Railway Zone	C			10	6												
Tientsin	C		2	2		1											
Chosen (see table below).																	
Czechoslovakia (see table below).																	
Egypt	C	3	11	7													
	D	1	2	3													
Alexandria	C				1	2	2										
	D					1	1										
Assiout Province	C			2	2	2		1									
Assouan Province	C			2		1											
	D					1											
Behcira Province	C	32	43	7	2			2									
	D	7	7	2				1									
Cairo	C	4			1	1	1										
	D	4			1	1	1										
Dakalieh	C			1	1												
Gharbieh Province	C	14	5	4	1												
	D	5		3													
Keneh Province	C	38		1													
	D	7		1													
Menoufieh Province	C	28	9	5			1										
	D	3	3	2			1										
Port Said	C				2	8	1	1	1								
Suez	C		1		4	4	6	4									
	D		1														

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

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928				December, 1928			
										3	10	17	24	1	8	15	22
Great Britain: London County	C			2													
Greece: Piræus	C			1													
Hungary: Budapest	D			2	2												
Ireland:																	
Belfast	C		2	1													
	D			1													
Irish Free State	C	1	4								1						
Clare County—Scariff	C																
Cork County	C	1															
Dublin	C						5										
Galway County—Oughterard	C				10												
Kerry County—																	
Cahirciveen	C					1											
Tralee	C						1	7									
Japan (see also table below):																	
Hiogo	C			1													
Miyagi	C							2									
Yamagata	C		2	2	2												
Latvia (see table below).																	
Lithuania (see table below).																	
Mexico (see also table below):																	
Agusacalientes	D												1	1			
Durango	D				1												
Guadalajara	D		1		4												
Mexico City, including municipalities in Federal District	C	8	19	14	10	10	15	9	6	2	2	5	3	3	2		
	D	1	2		3	3	1	1	1		1				1		
San Luis Potosi	D																1
Morocco	C	591	280	214	153	44	3	1		1			4		4	8	
Palestine	C	6	4	8	9	14	10	11	2	1		3	4	4	3	1	1
Peru (see table below).																	
Poland	C	144	226	134	96	55	65	31	13	21	27	20	15	17			
	D	12	17	6	5			4	2	2	1	5	3	1			
Portugal: Oporto	C				1		1										

Rumania	C	142	99	80	33	16	12	11	6	.....	2	9	7	.....	.....	.....	.....	
	D	12	8	11	1	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Syria: Aleppo	C	.....	.....	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Tunisia	C	19	7	7	.....	1	7	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	
Menzel	C	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	
Sfax	C	.....	.....	.....	.....	.....	.....	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	.....	.....	.....	.....	.....	
East London	C	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	D	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	
Natal	C	P	3	P	P	.....	1	P	.....	.....	P	P	.....	.....	.....	.....	.....	
Orange Free State	C	P	P	P	P	.....	.....	P	P	P	P	P	.....	.....	.....	.....	.....	
Transvaal	C	.....	1	.....	P	P	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Union of Socialist Soviet Republics (see table below).																		
Yugoslavia (see table below).																		

Place		January-March, 1928	April-June, 1928	July-September, 1928	October, 1928	November, 1928	December, 1928
Chosen	C	896	633	5	.....	.....	.....
	D	88	75	2	.....	.....	.....
Chemulpo	C	2	2	.....	1	.....	.....
Gensan	C	1	.....	.....	.....	.....	.....
	D	1	.....	.....	.....	.....	.....
Seoul	C	10	46	8	3	.....	.....
	D	1	6	3	.....	.....	.....
Czechoslovakia	C	25	.....	.....	.....	.....	.....
Greece: Athens	C	4	33	6	1	4	.....
	D	.....	5	1	.....	.....	.....
Japan	C	.....	21	.....	.....	.....	.....
Latvia	C	27	7	.....	.....	.....	.....
Lithuania	C	223	162	27	.....	4	11
	D	22	7	6	.....	.....	.....

Place		January-March, 1928	April-June, 1928	July-September, 1928	October, 1928	November, 1928	December, 1928
Mexico (see also table above)	D	46	.....	.....	.....	.....	.....
Peru:							
Arequipa	D	2	1	1	.....	.....	.....
La Oroya	C	P	.....	.....	.....	.....	.....
Turkey	C	17	15	16	4	.....	2
	D	1	2	2	1	.....	.....
Union of Socialist Soviet Republics:							
Railways, etc	C	199	.....	.....	.....	.....	.....
Transcaucasus, Siberia, and Central Asia	C	17	.....	.....	.....	.....	.....
Ukraine	C	1,476	.....	.....	.....	.....	.....
Other territories in Europe	C	5,167	.....	.....	.....	.....	.....
Yugoslavia	C	34	45	18	1	17	.....
	D	3	5	3	.....	1	.....

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

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 29, 1928	November, 1928 3	10	17	24	December, 1928 1	8	15	22	29	Jan. 5, 1929
Belgian Congo: Matadi	C	2																
Brazil:																		
Aracaju	D	2																
Bahia	C		4			1		1										
	D				1	2												1
Pernambuco (Recife)	C		1															
Rio de Janeiro	C	2	48	40	14	9	6	1	1									
	D	2	22	26	4	8	4	1										
Sao Felix	C		P															
Dahomey:																		
Grand Popo	C		3															
	D		2															
Ouidah Military Camp	C										1		1					
	D										1							
Gambia: Bathurst	C								2		2	2		1				
	D									1		1		1				
Gold Coast	C	2																
Ivory Coast	C		1															
	D		1															
Abidjan	C		1															
Ferkes-Sedougou	D			1	1													
On vessel: S. S. Bernini, at Santos, Brazil	C						4											
	D						1											