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LEPROSY IN THE UNITED STATES

A Statistical Study of Seven Hundred Cases in the National Leprosarium[1]

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In 1894 the State of Louisiana established a home for lepers and maintained it until January 3, 1921, when it was purchased by the Federal Government, and its operation assumed as a national leprosarium. The records of these two institutions furnish the data from which this paper has been written.

Since December 1, 1894, 718 lepers have been admitted (Chart 1). Of these, 215 were foreign born (Table 1), representing instances in which lepers were admitted to the United States in the incubation, latent, or otherwise undiagnosable stages of leprosy.

TABLE 1.—*Nativity of foreign-born lepers*

Australia	1	Italy	18
Argentina	1	Jamaica	3
Asia Minor	1	Korea	1
British Guiana	4	Malta	1
Bohemia	1	Mexico	33
Bahama	1	Norway	3
Bermuda	2	Portugal	5
British West Indies	4	Philippine Islands	12
China	24	Palestine	3
Canada	2	Porto Rico	5
Cape Verde	3	Panama	1
Colombia	1	Prussia	1
Central America	1	Russia	5
Cuba	1	Spain	6
Denmark	1	Syria	2
Dutch Guiana	1	Sweden	1
France	6	Turkey	3
Finland	3	Tahiti	2
Germany	11	Virgin Islands	2
Greece	18	West Indies	4
Hawaii	9		
Ireland	5	Total	215
India	3		

[1] Read before the section on dermatology and syphilology at the seventy-ninth annual session of the American Medical Association, Minneapolis, June 14, 1928, and published in the Journal, Jan. 19, 1929.

Admissions of native born numbered 503, with a geographical distribution including all the States of the Union except 11. In Table 2 is given the number of cases from each State. This table can not be taken as a comparative index of the incidence of leprosy in the States because some States have, to a greater extent than others, availed themselves of the National Leprosarium for the hospitalization of their patients; furthermore, the continued admissions of patients in all stages of advancement indicate that the

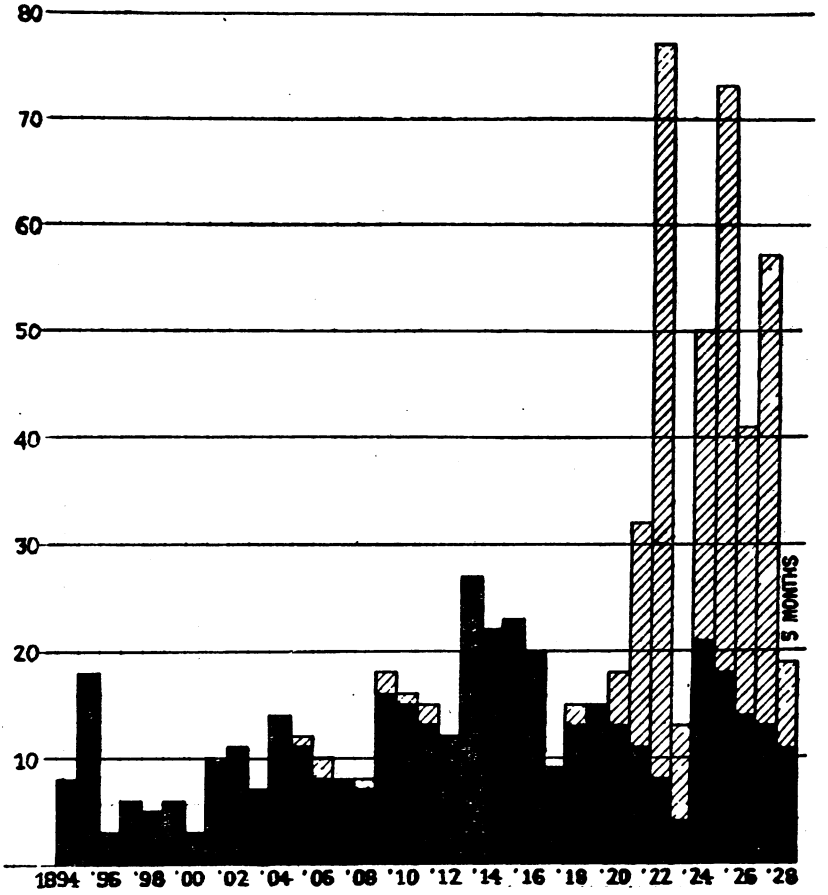

CHART 1.—Annual admissions of new patients. Hospital filled to capacity in 1922; new construction made additional beds available in 1924. Solid black indicates Louisianians; cross-hatching indicates lepers from other States

present population of the National Leprosarium, 287 lepers, does not represent a complete census of leprosy in the United States.

From certain areas there has been a large number of admissions of native born, while from other areas have come only occasional or sporadic cases.

Admissions of natives of Louisiana, Florida, Texas, and Mississippi have been in sufficient number during the last seven years to establish

the fact that in these Gulf States the disease is endemic. From Alabama, however, only two cases have been admitted.

From other States—New York, California, Missouri, New Jersey, Maryland, and Wisconsin—there has been admitted a comparatively small number of native born. From these few cases contracted while in domicile, it can not be assumed that leprosy is indigenous in those States.

TABLE 2.—*Distribution of leprosy in the United States*

State	Hyde (1) [1] 1894	Dyer (2) [1] 1904	Brinkerhoff (3) [1] 1909	Hoffman (4) [1] 1920	Hopkins-Denney 1928
Alabama					2
Arkansas	3				2
Arizona					1
California	158	33	20	39	75
Colorado				3	3
Connecticut				5	1
Delaware					
District of Columbia		1	1		
Florida	6		20		34
Georgia	1				3
Idaho	2				1
Illinois	13	6		2	11
Indiana	2				
Iowa	20				1
Kansas					1
Kentucky		1			1
Louisiana	93	54	50	87	423
Maine					
Maryland	4	3			3
Massachusetts	5	8	11	13	17
Michigan		1		1	8
Minnesota	120	11	16	10	6
Mississippi	2			1	8
Missouri	2	6	1		9
Montana				1	3
Nebraska		2			1
Nevada					
New Hampshire					
New Jersey	1		1	3	5
New Mexico				1	
New York	100		4	28	41
North Carolina					1
North Dakota	2			1	1
Ohio		5		1	2
Oklahoma					1
Oregon	3		1	1	4
Pennsylvania	6	9		6	3
Rhode Island		1			
South Carolina			3	2	2
South Dakota					1
Tennessee					1
Texas			15	33	31
Utah	3				
Vermont					
Virginia			1	1	4
Washington		1	1	1	3
West Virginia					
Wisconsin	20	3	1	2	2
Wyoming					
Total	556	145	146	242	718

[1] Figure is number of reference citation at end of article.

From Minnesota only two patients have been admitted, a number sufficiently small when compared with the 120 reported by Hyde (1) in 1894 to warrant the assumption that leprosy in this State is declining.

From the remaining States of the Union only sporadic cases, mostly among the foreign born, have been received at the National Leprosarium.

INCIDENCE AMONG NEGROES IN LOUISIANA

Of the 423 Louisiana lepers, 86 were negro and 337 were white. The negro population of Louisiana, according to a 1927 estimate, was 757,000, and the white population 1,181,000. Taking into consideration the number of whites and negroes in the State, the incidence of leprosy among the whites has been more than twice that among the negroes.

The explanation of this unequal racial distribution is not obvious. If insanitary and unhygienic surroundings were solely responsible for the spread of leprosy the proportionate distribution should be the reverse.

TYPES

Danielssen and Boeck (5) distinguished two main forms of leprosy—the nodular and the anesthetic. For convenience, they discussed also a mixed form. Hansen (6) regarded this nomenclature as not the most satisfactory, since in the nerve type the skin also may be affected; he therefore suggested the terms *lepra tuberosa* and *lepra maculo anæsthetic*.

To simplify classification, we have recorded those cases with nerve symptoms as nerve leprosy, including in this type cases presenting anesthetic macules with an annular configuration. This type of macular lesion has been found so often in the otherwise pure type of nerve leprosy, and so seldom in the pure type of skin leprosy that it seems to us to be a part of the manifestations of nerve leprosy. In the skin type we have included cases presenting nodules, tumor masses, infiltrated elevated patches, and those macules (not necessarily anesthetic) that show no central clearing in the lesion.

Of the 718 cases, 11.0 per cent have been classified as nerve types, 39.1 per cent as skin types, and 49.9 per cent as mixed types. Very few cases have been pure types of either nerve or skin leprosy, and in many cases there have been changes of type.

SEX

Of the 718 cases, 519, or 72.3 per cent, were in males, and 199, or 27.7 per cent, were in females. These percentages, though unexplained, are closely in accord with statistics throughout the world wherever leprosy has been studied. Sir Leonard Rogers (7) quotes a leper census of India, made in 1921, in which 74,293 males and 28,220 females were enumerated (approximately 74 per cent and 26 per cent, respectively). Denney (8), in the Philippine Islands, in a study of

10,000 cases, found that the percentages were 66.7 per cent in males and 33.3 per cent in females.

This disproportion can not be explained in the United States on the grounds of a larger male than female population, as the census of 1920 showed a preponderance of only 2 per cent of males over females. In those countries where a census of the population has not been taken, no serious attempt has been made to explain the incidence ratio on a basis of population.

OCCUPATION AND SOCIAL STATUS

That leprosy respects neither caste nor creed has been manifested by the diversity of occupations among the lepers admitted, as many as 115 different occupations having been represented. The social status of the patients is a cross section of the normal populace as regards education, wealth, and culture.

AGE

The average age at onset of the disease was 30.2 years. A large factor of error exists in this figure, however, since the patient's own statements must, of necessity, be accepted. The average age on admission to the hospital was 36 years.

The average age of lepers now living in the hospital is 36 years. The oldest patient was 83 years of age at the time of her admission and her leprosy was estimated to have existed less than five years prior to admission. The youngest patient was 1½ years of age at the time of his admission.

FAMILIAL LEPROSY

To determine to what extent leprosy is propagating in families in Louisiana, we selected for study the first 100 cases from whom complete family histories were obtained, and have added all subsequent information concerning the appearance of leprosy in other members of these families during the 15 years that have elapsed since the admission of the one hundredth patient.

These 100 original patients were members of 100 families consisting of 100 fathers, 100 mothers, and 474 brothers and sisters—a total of 674 persons in the immediate family, the average families consisting of 6.7 persons.

Of this group of 100 original cases, 64 represent instances of only one leper in the family with no further known propagation of the disease.

In the families of the other 36 lepers, however, there have developed 83 additional cases, and this group of 119 lepers presents the interesting evidence of familial transmission shown in Table 3.

From this table it will be seen that there were 5 instances in which the disease occurred in a father and one or more of his children; 14 instances in which the disease occurred in a mother and one or more of her children; 15 instances in which the disease was found in sons of lepers; 21 instances in which the disease was found in daughters of lepers; 38 instances in which the disease was found among brothers; and 31 instances in which the disease was found among sisters.

In addition, the following number of cases occurred in less closely related members of the family: Eight uncles, 8 aunts, 18 nephews, 9 nieces, 5 grandfathers, 3 grandmothers, 6 grandsons, and 5 granddaughters.

TABLE 3.—*Distribution of leprosy among relatives in selected family groups*

Grandfather	Grandmother	Father	Mother	Uncle	Aunt	Brother	Sister	Nephew	Niece	Husband	Wife	Sons	Daughters	Grandsons	Grand daughters	Total
						2										2
			1									1				2
			1									1				2
		1											1			2
						2										2
1			1				4			1	(1)		(5)		(4)	7
1														1		2
1		(1)	1										2(1)			4
					(2)	2	2	(2)								4
			1			1	1					(1)	(1)			3
			1				2						(2)			3
				1				1								2
			1									1				2
				1				1								2
						2										2
			1			2						(2)				3
			1		(1)				1				1			3
		1										1				2
	1		1	1	(1)	6	2	(6)	(2)			1				12
						2										2
						1	1									2
						2										2
							2									2
							2									2
			1									1				2
(1)	(1)	(1)	(1)	(2)	(4)	2	4			2	2	(2)	(4)	1		11
						1	1	1	1							4
	1		(1)	(1)				(1)	(1)			1		1	1	4
						2										2
						2										2
			1				2						(2)			3
				2		(4)	(2)	3	2							7
						(3)	(2)	3	2							5
		1				2						(2)				3
							2									2
			1				2						(2)			3
3	2	3	13	5		31	27	9	6	3	2	7	4	3	1	119
(1)	(1)	(2)	(2)	(3)	(8)	(7)	(4)	(9)	(3)		(1)	(7)	(17)		(4)	

( ) indicates that relationship has been recorded twice; for example, two uncles and two nieces was also expressed as two brothers and two sisters.

Among all the patients that were admitted to the Louisiana leper home (which, with few exceptions, received only cases from within the State) an astonishingly large percentage was found to be closely related by blood. As many as 33 per cent were parent and child, brother and sister, uncle or aunt, nephew or niece.

Charts 2, 3, 4, and 5 further confirm the view that leprosy is a family disease. These family trees clearly evidence the propagation of leprosy through succeeding generations, with the almost complete extinction of some of the affected branches.

In Chart 2 is illustrated the distribution of leprosy in four families associated by marriage or by contact. As far as the records of this hospital show, the first infected were two brothers—nephews of two leprous aunts. These two brothers were playmates of a girl who developed leprosy a few years later. Two years after the onset of the disease, the girl married and became a member of a household of five brothers and one sister. One of these brothers developed leprosy, as did his mother. Two children of another brother developed leprosy, as did also one of the girl's own nephews and one of her nieces. One of the girl's own brothers subsequently became infected

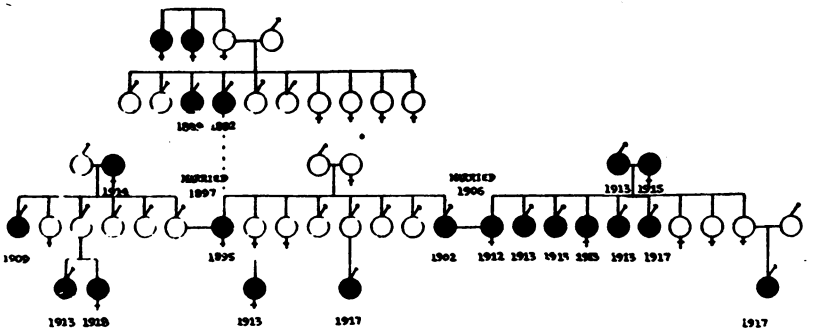

CHART 2.—Twenty-one known cases of leprosy in four families related by marriage or contact. Conjugal infection in two instances; one mother infected several years after the son. Numerals indicate year of onset and that patient was subsequently hospitalized

and married into a family consisting of four brothers, five sisters, and their two living parents. The wife, her sister, four brothers and both parents became lepers. Two of the wife's sisters who were married and did not live in the same household have not developed leprosy, although a child of one of these sisters who was closely associated with the family subsequently became a leper. The cases total 21 in four families with two instances of the rare phenomenon of conjugal infection.

In Chart 3 the disease is first shown in three leprous brothers. One brother had, by a first marriage, a leprous daughter who herself had four leprous daughters. A girl adopted by one of the granddaughters likewise developed leprosy. The original brother married a second time and the second wife became leprous.

A second of the three original brothers had a leprous grandson, while the third had a leprous daughter who in turn had two leprous daughters. The cases total 14 in this family tree of three generations, with another instance of conjugal infection.

In Chart 4 is shown a leprous grandmother who had two daughters and four sons; of these children only one son was a leper. One of the nonleprous daughters married and had four daughters and six sons. All six boys and two of the girls became lepers, as did likewise a stepbrother. A niece and her son, descendants of a nonleprous sister of

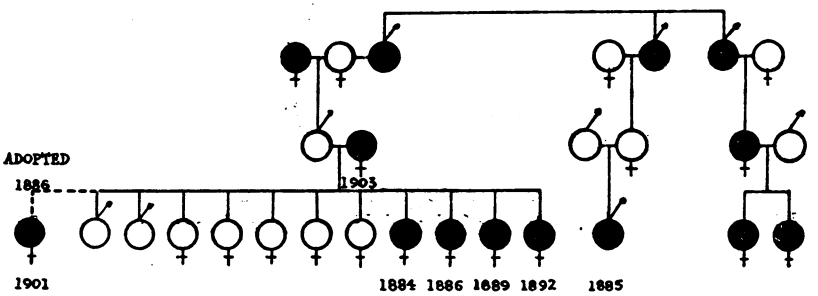

CHART 3.—Fourteen known cases of leprosy in one family in three generations. Conjugal infection in one instance; mother infected years after the children

the original grandmother, likewise became leprous. The cases total 13 in three generations.

In Chart 5 is shown the sequence of infections in two families related by marriage. The origin of infection was a leprous aunt, one of whose brothers married and had two daughters and three sons all of whom become leprous. A sister of the same aunt married into a

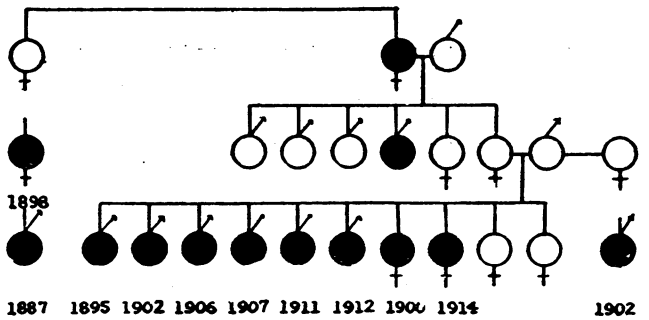

CHART 4.—Thirteen known cases of leprosy in three generations in one family; one mother infected years after her son

family in which there were five sisters and three brothers, one of the five sisters had a leprous son; and of the three brothers, two developed leprosy.

The sister of the aunt had two leprous sons; and of her five daughters, two contracted the disease.

It will be noted from the dates on the charts that not infrequently the chronological sequence is at variance with the geneological sequence.

EXPOSURE

Leprosy is considered a disease that is transmitted through prolonged and intimate contact in conjunction with other not well understood factors. In Chart 6 the records from 70 cases of leprosy have been plotted in 13 family groups. In each of the groups it may be assumed from the known close blood relationship that intimate con-

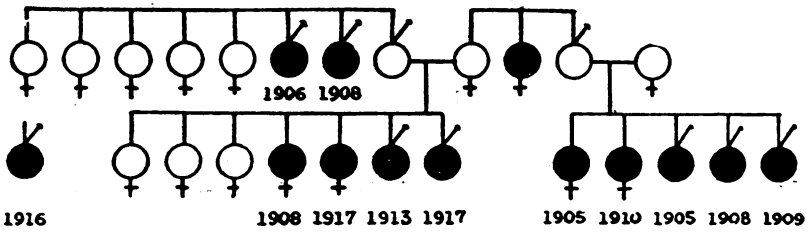

CHART 5.—Thirteen known cases of leprosy in two generations in two families related by marriage

tact existed. The chart shows the date of onset of the disease and the date of hospitalization of each leper; the time between these dates represents the period during which he might have infected other members of his family. From the chart it may be seen that, in most instances, in cases succeeding the first case in the family, a number of years had elapsed before the appearance of the second case; then

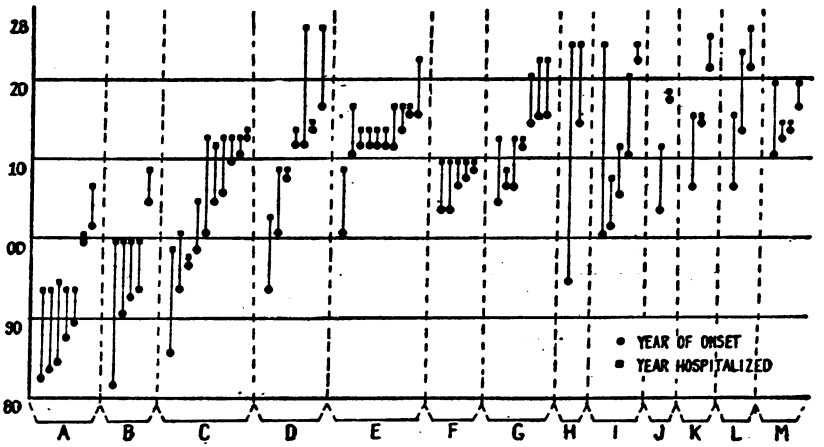

CHART 6.—Prolonged exposure and multiple contacts in cases succeeding first leper in family group

followed, in close order, additional cases. It is not possible to compute the exact period of exposure for the individual cases, because the patients following the original case may have contracted the disease, one from another or from the original patient. Prolonged exposure, that is from six to ten or more years, is shown.

INCUBATION PERIOD

The definition of the incubation period as the latent stage of an infectious disease intervening between the moment of infection and the appearance of prodromal symptoms, is difficult of application to leprosy, since the time of exposure in many patients is unknown, and in others may have extended over a period of years; furthermore, the prodromal symptoms are vague, or entirely absent, and no definite uniform initial lesion is recognizable. However, a study of the family histories in our cases has disclosed a few instances in which leprosy has developed after the presumptive infecting case had been removed for a definitely known length of time. Evidence in the five cases cited below, while not conclusive, establishes, we think, probable minimum incubation periods for these cases. Maximum possible incubation periods could not be established with any degree of probability, because possibilities for infection have often been found to have existed since the birth of the individual.

In the year 1895, five sisters were admitted to the Louisiana Lepers Home. One of these sisters had previously adopted a daughter who was not a blood relative and in whose family leprosy was not known to exist. After the removal of the sisters to the home, the adopted daughter, who at that time showed no signs of leprosy, went to live in another family not related to the five sisters and in which leprosy was not known to exist. Seven years elapsed, during which time the adopted daughter had, as far as is known, no contacts with lepers. At the end of the seven years she developed a typical macular lesion and finally died of leprosy at the home. (Probable minimum incubation period, seven years.)

In the same family referred to in the previous paragraph, six years after the five leprous sisters had been hospitalized, the mother developed symptoms of leprosy, was subsequently admitted to the home, and died of a well-marked case of leprosy. In the case of the mother, no other contacts except the five daughters were known. (Probable minimum incubation period, six years.)

In 1901, a colored woman was admitted who had had leprosy for eight years. This woman had one daughter, and the daughter developed leprosy five years after her mother's hospitalization. (Probable minimum incubation period, five years.)

In 1913, a white man was readmitted. Six years later his younger brother developed leprosy and became an inmate of the home. As far as is known, these two were the only leprous members of the family, and no other cases have developed during the nine years that have elapsed since the appearance of the second case. (Probable minimum incubation period, six years.)

In 1917, a mother and daughter were admitted. Six years later, the mother's grandson (the daughter's nephew) developed the disease and four years later was admitted to the hospital. (Probable minimum incubation period, six years.)

INITIAL MANIFESTATION

Of 486 lepers from whom reasonably reliable data were obtained, 267 (or 55 per cent) described the initial manifestation as one or more spots appearing on some part of the body surface; 84 (or 17 per cent) recalled nodules as the earliest symptom; 37 (or 8 per cent) described swelling of the extremities as the early manifestation; 34 (or 7 per cent) recalled anesthesia of the extremities; while a few others

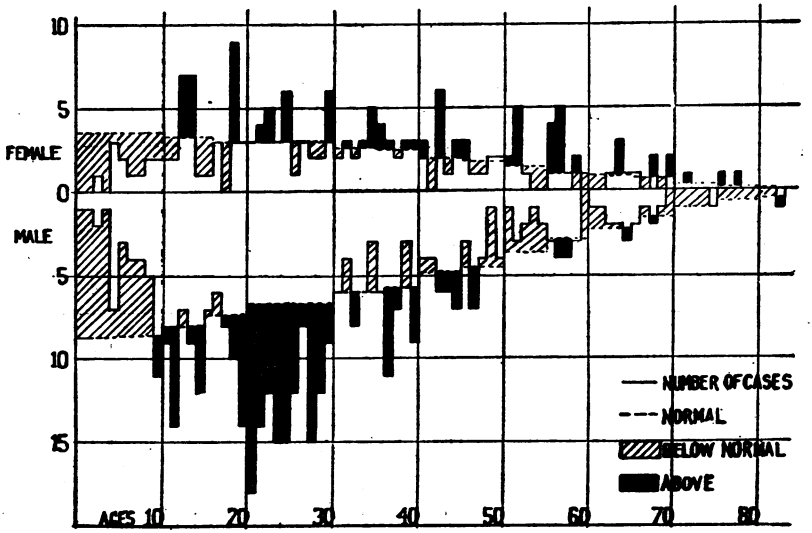

CHART 7.—Distribution of cases by ages at onset of leprosy compared with the age distribution of normal persons. Excess of lepers between the ages of 10 and 30; deficiency between the ages of 1 and 10; maximum excess in females at 19 and in males at 21

recalled contractions, neuritis, ulcerations, bullae, nasal catarrh, or fever as their earliest manifestations.

In 138 cases (28 per cent) the early lesion appeared on the face; in 101 (20 per cent) on the legs and feet. In 91 patients (18 per cent), the early lesions were on the arms or hands; in 76 (16 per cent) on the trunk, and the remainder reported the appearance of lesions on several parts of the body simultaneously.

ONSET

While it is generally thought that leprosy most frequently manifests itself in youth and early adolescence and that the extreme ages are rarely affected, we are aware of no reports taking into consideration the incidence of leprosy in relation to the distribution of the corresponding ages in a normal population. This is shown in Chart 7.

It will be noted that the maximum number of males developed leprosy at the age of 21 and the maximum number of females at 19. Remarkably few cases have developed in children under 9 in comparison with the numerical proportion of children of this age in a normal community; while between the ages of 9 and 30, the number greatly exceeds that which might be expected from the number of individuals of corresponding ages to be found in a normal community.

It is not difficult to explain the comparatively few cases occurring under 9 on the basis of the long incubation period of leprosy and a

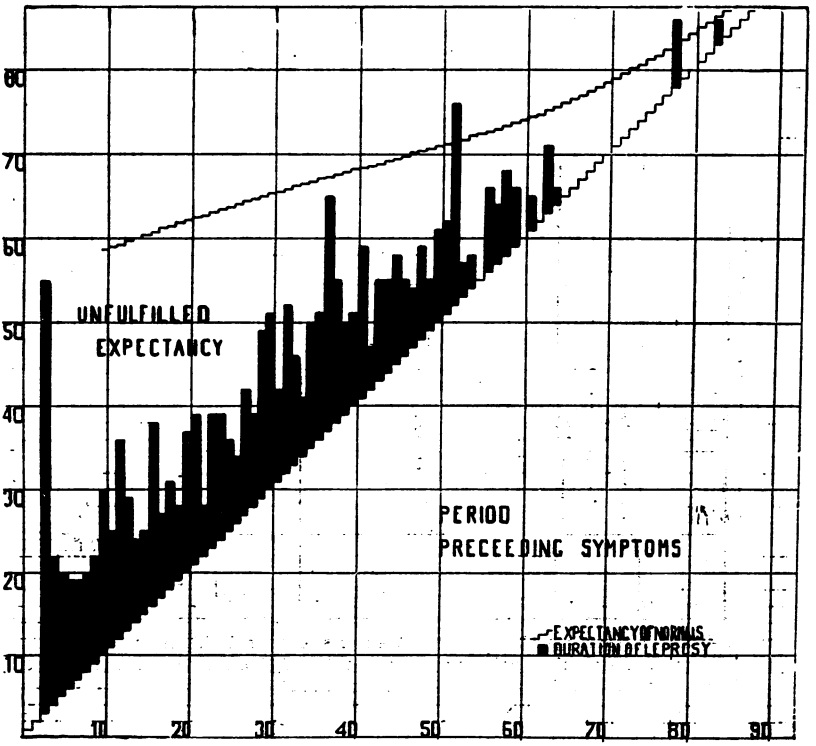

CHART 8.—Duration of leprosy approximately the same at all ages. Life markedly shortened in youth; expectancy more nearly attained beyond the age of 50

period of exposure which may have been prolonged considerably before infection took place. It is obvious that, with a possible incubation period of six or more years, not many children under 9 would show definite symptoms of the disease.

The occurrence, however, of so great a number of cases at ages between 9 and 30 can not be attributed to factors depending on the long incubation period. It is interesting and perhaps significant that the age at which susceptibility may be inferred to be at its maximum is approximately the age of puberty. Significance may attach to this if it is considered in correlation with the importance of the sex factor in etiology.

DURATION OF LEPROSY

The duration of leprosy is considered here as that period between the appearance of symptoms and death, and this average duration has been computed as 14.2 years.

In order to determine what effect leprosy exerts on life expectancy, the patients have been charted in groups according to their age at the onset of the disease by computing the average duration of leprosy for each age group. Chart 8 is a graph of these computations and shows that, aside from the extremes of life, the age at onset apparently has had but little effect on the duration of leprosy.

The life expectancy of the individual, however, has been markedly affected, children and youths having lived from one-third to one-half

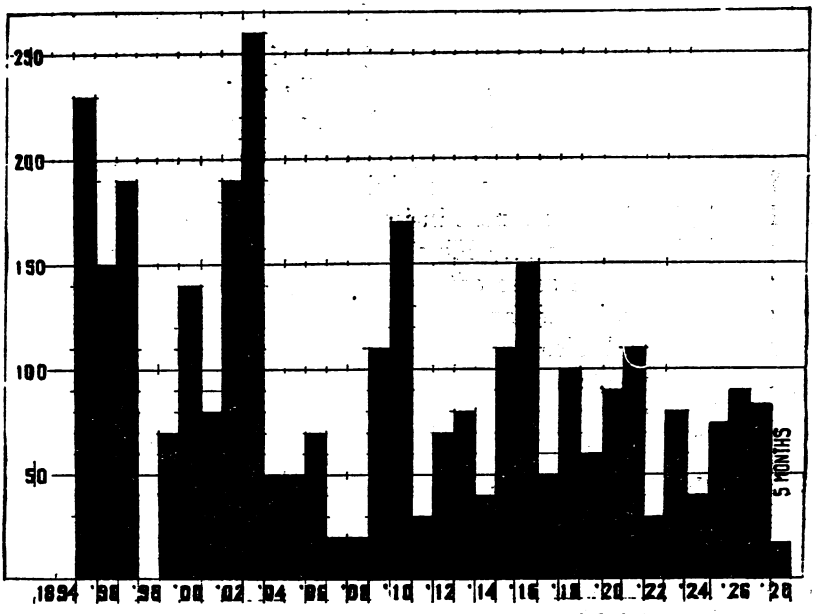

CHART 9.—Gradual reduction in mortality rate over period of 34 years

of the expectancy of normal persons of the same age. As the onset occurred later in life, normal expectancies were more nearly fulfilled; indeed, two lepers, presumably infected after the age of 75, reached or exceeded their normal expectancies.

MORTALITY

Since the establishment of the State institution in 1894, the mortality per thousand of population has shown a considerable decline (Chart 9). During the first five years, the mortality was 126 per thousand per annum, as compared with 72 per thousand per annum during the last five years. In the intervening years, the mortality irregularly declined.

The decrease in mortality, we believe, can be attributed to two factors; first, improvement in institutional facilities, and, second, to the fact that in a newly established hospital for the care of lepers there exists a large proportion of advanced and terminal cases, in many of which death takes place soon, while there are always some patients whose prognosis as to duration of life is quite good and who live out almost their natural expectancy of life. As the hospital grows older, the number of these patients with good prognoses as to duration of life increases, and they become factors in decreasing the number of deaths per thousand in the hospital population.

CAUSES OF DEATH

Since the reorganization of the hospital as a Federal institution, 107 lepers have died. Of these, 89 (or 83 per cent) were examined post mortem. Only 19 (or 18 per cent) died of leprosy; the remainder died of intercurrent diseases not necessarily dependent on leprosy, although in many cases leprosy was the important factor in lowering the individual's resistance. Thirty-four patients died of respiratory diseases—pneumonia being responsible for 20 and tuberculosis for 14. Renal disorders were next in importance, 14 having succumbed to nephritis in some form. Nine died of septicemia, the result of gangrene occurring in some extensive necrotic area. Thirteen died of cardiovascular disease, and five of malignant tumors. Four died of gastro-intestinal disorders, three of smallpox, and one each of apoplexy, asphyxia, appendicitis, shock, meningitis, and gunshot.

PAROLES

During the first 10 years of its existence, no patients were discharged from the Louisiana State Leper Institution. During the last 14 years preceding its establishment as the National Leprosarium of the Federal Government, 48 patients were discharged; of these, 10 (or 20.9 per cent) suffered a relapse and were readmitted.

The relapse of these cases made it obvious that the period of observation in the institution following apparent cure should be lengthened.

November 27, 1922, the Surgeon General of the United States Public Health Service submitted, and the Secretary of the Treasury promulgated, regulations governing the care of lepers and providing that each patient confined in the leprosarium shall be examined bacterioscopically not less than once in 12 months. Lepers not found to be bacteriologically positive at such an examination shall subsequently be examined monthly for a period of 18 months, and then subjected to a critical physical examination; and if their cases should be considered arrested, and the individual no longer a menace

to public health in the opinion of the examining officers, the patient shall be paroled to his home subject to reexamination every six months for a period of three years, at the end of which time he may be permanently discharged from the hospital. Should evidence of reactivation be discovered during parole, the patient shall be readmitted for further observation and treatment.

In the seven years since Federal acquisition, 31 patients have been discharged from the hospital—3 as not having been lepers and 28 paroled as "leprosy arrested and no longer a menace to public health." Of these 28, one (or 3.6 per cent) suffered a relapse and was readmitted; 4 have died (2 were examined at autopsy without tangible evidence of leprosy being found), and 23 are living and well and report periodically for reexamination. The average age at which parole began was 44.8 years, and the average period of hospitalization was 6.4 years.

SUMMARY

A statistical study of 718 lepers hospitalized over a period of 34 years in the Louisiana Leper Home, later the National Leprosarium, was made.

Two hundred and fifteen were foreign born, and 503 were natives of the United States. The present population of the hospital is 287.

Mexico, China, Italy, Greece, and the Philippine Islands have furnished one-half of the total foreign born.

Most of the lepers came from Louisiana, California, New York, Texas, and Florida; 418 came from Louisiana.

The incidence of leprosy among the white population of Louisiana is computed to be twice that in the negro.

Of the total cases, 11 per cent were of the nerve type, 39.1 per cent of the skin type, and 49.9 per cent of the mixed type.

Of the total cases, 72.3 per cent were in males and 27.7 per cent were in females.

The social status of the patients represents a cross section of the normal populace.

The average age at onset of the disease is computed as 30.2 years; the average age on admission to the hospital was 36 years, with an average period of 6 years prior to admission, during which time each patient may have been a menace to public health.

In a group of 100 Louisiana lepers, hospitalized more than 15 years ago, it has been disclosed from subsequent records that in 64 instances only one leper in the family developed the disease, while in the 36 other instances leprosy occurred in 83 additional relatives. In some families the disease has invaded certain branches to the point of extermination.

Instances of familial transmission have also been noted in cases from other States than Louisiana.

It has not invariably happened that the parent became infected before child; indeed, the reverse frequently occurred.

Intimate contact over a period of time extending into years has been concurrent in most instances of familial transmission; in many cases multiple contacts also existed.

In five cases the incubation period is calculated as not less than six years.

The first manifestation of leprosy was recalled by most patients as one or more spots appearing on the face; in no instance were conditions described that might be identified as prodromal symptoms or as the initial lesion of leprosy.

Aside from the increased number of cases developing in males at about 21 and in females at about 19, and the counterbalancing rarity of leprosy before the age of 9, the disease appears to manifest itself at all ages about equally.

The duration of leprosy is computed as approximately 14 years. It appears that leprosy greatly shortens the life expectancy of the young, but has less effect on the life expectancy of the aged.

The mortality rate has gradually decreased in the hospital since its organization.

Leprosy per se has been the cause of death in less than 20 per cent of the lepers; respiratory, renal, and cardiac disorders indirectly dependent on leprosy have caused more than one-half the deaths.

Before rigid rules for paroles were promulgated, relapses of discharged cases were not uncommon; but in the last seven and one-half years 28 lepers have been paroled and only 1 has relapsed and been readmitted.

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REGULAR SESSION OF THE PERMANENT COMMITTEE OF THE INTERNATIONAL OFFICE OF PUBLIC HYGIENE, OCTOBER, 1928 [1]

The permanent committee of the International Office of Public Hygiene held its regular 1928 meeting in Paris, October 15 to 24.

Those present were Messrs. Velghe (Belgium), president; Van Campenhout (Belgian Congo); Madsen (Denmark); Taliaferro Clark (United States of America); Barrère (France); L. Raynaud (Algeria); Duchêne (French West Africa); Lasnet (Indo-China); L'herminier (Madagascar); G. S. Buchanan (Great Britain); J. D. Graham (British India); C. L. Park (Australia); H. B. Jeffs (Canada); S. P. James (New Zealand); P. G. Stock (Union of South Africa); G. Matarangas (Greece); Boyd Barrett (Irish Free State); A. Lutrario (Italy); S. Kusama (Japan); Schmol (Luxembourg); Pani (Mexico); de Malleville (Monaco); H. M. Gram (Norway); N. M. Josephus Jitta (Netherlands); W. de Vogel (Netherlands Indies); Djavad Asthiany (Persia); W. Chodzko (Poland); Ricardo Jorge (Portugal); Cantacuzène (Rumania); Yoannovitch (Kingdom of Serbs, Croats, and Slovenes); C. Kling (Sweden); H. Carrière (Switzerland); L. Prochazka (Czechoslovakia); Gaussen (Tunisia); Syssine (Union of Socialist Soviet Republics); Herosa (Uruguay); and M. Abt, director of the International Office of Public Hygiene.

Doctor Rajchman, medical director of the hygiene section of the League of Nations, and Maj. C. P. Thompson, M. D., D. S. O., president of the Sanitary Maritime and Quarantine Board of Egypt, also took part in the meetings of the committee.

I

The different questions which the application of the International Sanitary Convention raises are always in the foreground of the deliberations of the committee. The Convention of Paris of June 21, 1926, is henceforth in force, more than 10 powers having ratified it. The notification and communication service organized by the International Office of Public Hygiene, according to the terms of articles 1, 2, 3, 4, and 6 (third paragraph), functions regularly; certain details have been taken up and new arrangements made, especially with a view to improving the publication of the weekly communications. However, a circular will be sent to the governments signatory to the convention to ascertain the conditions in which this service could best meet the requirements of the health administrations.

In accordance with article 151 of the convention, the committee has received from the Sanitary Maritime and Quarantine Board of Egypt a communication on the pilgrimage of Hedjaz of 1928.

[1] Translation.

Examination of the information furnished by this communication has led to the creation of a special commission, comprising the delegates in the Committee of the International Office of Public Hygiene from the countries especially interested in the sanitary control of the pilgrimage. The first results of the deliberations of this commission have been assembled in a report, submitted to the committee and approved by it in plenary session, which terminated with several recommendations in view: The conclusion of arrangements for the transportation of pilgrims in the Near East, to lessen the number of routes traveled and to facilitate sanitary control; the adoption of rules prescribing the use of mechanically propelled boats only in the transportation of pilgrims across the Red Sea, from Africa to Arabia, and vice versa; and, finally, the comparison, under the supervision of the Office, of different forms of sanitary passports for the pilgrims, with a view to ascertaining whether modification or, eventually, uniformity of these forms would be desirable. These recommendations will be followed as soon as possible.

The Commission on Pilgrimage thus formed in the Committee of the International Office of Public Hygiene will be given definite authority and will be especially concerned with the examination of reports on each year's pilgrimage, as well as studying the questions and reporting to the sanitary board on pilgrimage, which will be considered from an international point of view.

The publication at the beginning of 1929, of the first *International Sanitary Maritime Annual* has been decided on by the committee. Doubtless the information received is not yet complete. The information sent by the different countries, to which will be added those countries which have joined since the previous session—Belgium, Scotland, British India, Japan, the States of Syria, the Great Lebanon, the Alaouites, Djebel Druze, and the Union of Socialist Soviet Republics—will be grouped so as to form a practical collection of information on the sanitary organization of ports, as provided by the International Sanitary Convention.

The *Annual* will also contain the rate of sanitary tax collected in the different countries for quarantine services; the Office continues its documentation on this matter.

In reply to a request addressed to them in accordance with the resolution of May, 1928, and by virtue of article 28 of the convention, a large number of governments have informed the International Office of Public Hygiene of the ports which they officially consider as being provided with the necessary equipment and personnel to carry on the deratization of vessels, and qualified, consequently, to issue certificates of deratization (or exemption from deratization) as provided in the above-mentioned article. The Office at once brought this information to the notice of the other signatory gov-

ernments of the convention, and it will publish them in its next *Annual*. It has also thought it useful from now on to establish a collective list, in the form of a printed pamphlet, which will likewise be sent to the sanitary authorities of the different countries.

It is apparent from the above-mentioned replies that more and more governments are adopting the model certificate of deratization established by the International Office of Public Hygiene. Besides, a resolution of the International Conference on Navigation (held in London, June, 1928, and reported to the Office) insists on the advantage of mutual recognition of certificates by governments under the conditions provided by article 28.

Certain difficulties are presented in the issuance of certificates, certain countries believing it necessary that, to be valid, they should be furnished with the visa of their consul. In the opinion of the committee, which intends to submit to the different signatory governments of the convention its opinion in this regard, nothing would seem to require such a demand, from the point of view of sanitary defense.

The French Government has informed the International Office of Public Hygiene of its intention of following, very soon, the recommendations of article 49 of the convention of 1926 in so far as concerns the reduction, in a large measure of the consular rights pertaining to the visa of the bills of health. The French Government will be disposed, if others follow it in this step, to simplify the regulations for the bills.

Several countries—notably England, Belgium, France, and Holland—are also on the point of applying, or have already applied, the regulations of the new International Sanitary Convention relative to bills of health. The committee will call this to the attention of the other governments, asking them to express their opinion. It will examine, at the same time, the technical and administrative possibilities which concern the simplification and eventual transformation of the bills, in cases where the governments wish to make such an arrangement.

Following the dispatch of recommendations, fixed by the committee in May, 1928, relative to the use of wireless for sanitary maritime services, replies have been received, the import of which will be published in the *Bulletin* of the Office as well as in the *Annual*. They are favorable, for the most part, to the adoption of the form of communication proposed. However, some advocate the omission of certain information which does not seem to them to be essential.

Without further pursuing this study at the present time, the committee intends to return to it when questions relative to physicians on board ship have been better cleared up.

Among other questions pertaining to the application of the International Sanitary Convention may also be cited the conditions in which the use of artificial light (electric) can be allowed in sanitary maritime operations, and the utility of screen rat guards on the moorings of vessels. In cases where their usefulness will be recognized and will seem to justify the compulsory employment of this sort of preventive, would it be possible to render uniform the form of the regulation? Information will be collected on all these points with a view to later discussion, taking into account as much as possible the different factors in the matter.

The same will be done as concerns the measures of sanitary defense which should be taken in regard to airplanes coming from infected countries. This question, to which the continual development of international relations by the air route may give a still unsuspected importance a few years hence, is already settled in some countries on the basis of the regulations of the Convention of 1926; but the essential character of air transportation, its rapidity, makes the application of restrictions in regard to it particularly delicate.

II

The committee has received considerable information relative to the application of the international agreement of Brussels, December 1, 1924, concerning facilities for treating commercial seamen for the venereal diseases—ratification by Denmark and Italy; adhesion by Australia. Other information concerns the following of a suggestion, presented to the Belgian Government by one of the signatory governments, touching on the importance which is attached to the individual record cards, provided in article 3 and intended to permit continuance of reasonable care, which should always be regularly returned to seamen before their departure.

Although British India has not yet adhered to the agreement of Brussels, facilities have been provided for the treatment of venereal diseases in the ports.

The committee has been concerned, as well, in the progress made toward placing in effect the international agreement, of which it also, some time ago, prepared the text, regarding the antidiphtheretic serum. This agreement was signed in Paris, July, 1927. Upon the intervention of one of the signatory powers, which wished to see certain modifications made as concern its form and designation from a diplomatic point of view, new provisions have been made in order to hasten the final conclusion.

Some new questions have been submitted to the committee, for opinion and report, by the Health Committee of the League of Nations, in accordance with articles 8 and 10 of the opium convention of Geneva of 1925; it is a matter of whether certain preparations

should fall under the application of the convention, or, on the comtrary, be exempted. The Office, through its opium committee, will study this matter, and the question of exemption will then be debated by the committee in plenary session.

III

The delegate from Italy, representing, in conformance with the decision of the committee, May, 1928, the International Office of Public Hygiene in the International Commission for Coordination in Agriculture, established near the International Institute of Agriculture of Rome, has reported the results of the first meetings of this commission, aiming first at the elaboration of a plan of work in which the intervention of organizations occupied with public hygiene is suggested in all questions concerned with rural hygiene, the improvement of housing, the sanitation of the rural districts, the control of milk, etc.

IV

The small yellow-fever epidemic which appeared in Rio de Janeiro toward the end of May, following the scattered outbreaks which appeared in Africa, from 1926 to 1928, in Senegal, the Gold Coast, Nigeria, and the Belgian Congo, has confirmed the law that an epidemic revival of a disease in one region is followed by outbreaks of the disease in other parts of the world. Reports sent to the Office show that the focus of Rio de Janeiro has no relation to the foci in Africa, but is rather connected with an endemic center of yellow fever, in the form of abortive cases, in the northern part of Brazil. The epidemic rapidly attained its maximum intensity in June; it declined regularly until the middle of August; a few isolated cases occurred later, bringing the total to 116 by the middle of October. The destruction of mosquito carriers and mosquito breeding places has been strenuously carried on; the percentage of houses having breeding places has been lowered in 11 weeks from 14 to 2.25 per 100. The disease attacked especially recent arrivals (Portuguese), although the population of Rio could not have benefited by any acquired immunity, as the disease had not appeared in the city for 23 years. Studies immediately undertaken at Rio proved that yellow fever can easily be inoculated in monkeys other than the *Macacus rhesus*, notably the *M. cynamolgus* and *M. speciosus;* that the blood of patients is virulent up to about the seventy-second hour, and perhaps longer in the light forms than in the severe forms; that the American virus is identical with the African; that mosquitoes infected by biting and inoculated subcutaneously in the monkey give it the disease from the first days after their infection, while the *bite* of the mosquito is not infective until nine days at least. Vaccines have been prepared by different

methods, among which is that of Hindle, with an emulsion of the liver of infected monkeys, and already used in several instances.

In Mexico, yellow fever has not prevailed since 1922. An important antilarval service is in operation, with the aid both of Federal agents and large petroleum and sugar companies.

In so far as concerns the African foci, no case has been reported in Nigeria since October, 1927; in the Gold Coast, only 2 cases, unfortunately fatal, laboratory infections; 3 cases in Dahomey in June; 3 cases in the Ivory Coast in June and August; in the Belgian Congo, since the slight epidemic which ended in February, only 1 case, in June. A very complete study of yellow fever in Senegal in 1927 has been presented to the committee; it treats in detail of the clinical aspects, epidemiology, and prophylaxis. In regard to the last, it is very important to trace the abortive cases, which requires compulsory reporting of feverish suspects, their isolation in a screened room under observation for six days, and, if possible, the inoculation of their blood in the *Macacus rhesus*.

Cooperation between neighboring countries to defend Africa against yellow fever, which has already been shown by the Franco-British conference of Dakar in April, 1928, and by the agreement between the Belgian Congo and Portugal, acting for Angola, has appeared not only to be maintained, but possibly extended among interested colonies, with a view to reducing to a minimum the paralysis of international traffic by eliminating the possibilities of the spread of yellow fever infection. The International Office of Public Hygiene has, consequently, formed a yellow fever commission, which has for its first mission the study and reconciling of the points of view of different countries. Besides, the sanitary authorities of east Africa, British India, and the countries of the Far East should employ the greatest vigilance to prevent the future spread of yellow fever into Asia, where it seems that a part at least of the conditions necessary to its implantation are not lacking.

Cholera, which had almost disappeared from Indo-China in 1923 and 1924, made an offensive return to this country in 1925 and 1926, and more than 32,000 cases were reported in 1927; Cochin China has been much less affected than in 1926, perhaps as the result of the great vaccination campaign of 1926. Since the beginning of 1928 there has been seen a gradual extinction of the disease. The number of vaccinations anticipated for 1928 was about 5,000,000.

In the United Provinces (British India) cholera attacks on an average 62,000 victims per year, in a population of about 45,000,000. It disappears entirely during the months of December and January, and during a longer period if one considers each focus separately. It is impossible in these intervals to discover either carriers of cholera vibrios, or cholera vibrios in the water. Nonag-

glutinable vibrios are found all year, either in individuals (5 per 100 in the United Provinces, to 30 per 100 in certain districts of Bengal) or in the water. But a very careful study, made both at the outbreak of cholera in certain districts and at Hardwar, on the Ganges, where there are huge pilgrimages which are the origin of the greater part of the contaminations, has shown that in all cases the disease follows an importation, from the exterior, of true cholera vibrios. The facts collected have never justified the hypothesis of a transformation of a nonagglutinable vibrio to a true vibrio. It is to be noted that, in Rumania in 1916, agglutinable vibrios were found in healthy carriers before the appearance of the first cases of cholera.

Two local epidemics of pulmonary plague appeared during the course of the summer of 1928, one in the steppes of Kirghiz, the other in Mongolia. New experiments carried on in British India have shown that plague can be transmitted from rat to rat by the flea *Xenopsylla astia*, but with less frequency than by *X. cheopis* (out of 52 trials with each species, *X. cheopis* was successful twenty-five times and *X. astia* nine times). On the other hand, the transmission of plague ceases at a much higher relative humidity in the case of *X. astia* than in the case of *X. cheopis*. Plague has been very largely decreased in Rangoon, in proportion to the larger numbers of rats destroyed (about 865,000 in 1927); the rats have flea parasites in the average proportion of 5.8 *X. astia* and 0.2 *X. cheopis* per rat. In Indo-China, the decrease in the frequency of plague is equally great; it had already completely disappeared in Annam in 1927. In French West Africa, although not equalling the high figures for 1920 (14,500 cases), 2,748 cases of plague were still reported in 1927, and 1,280 in the first seven months of 1928. At Dakar, however, the energetic campaign of deratization and vaccination against plague seems to have borne fruit; there was reported in Dakar in 1928 only one imported case. The vaccine best accepted by the native population is the lipovaccine, because of the single injection; when cases of plague appear, many blacks come asking to be vaccinated. In Madagascar, plague is endemic in the plateau regions; at the time of the inundation of rice plantations hordes of rats invade the houses, constructed of crude bricks; a new outbreak of plague follows (July–August). There are, besides, small family epidemics of pulmonary plague. The frequency of plague has followed an ascending curve since 1923–24. The year 1927–28 is the first summer marked by a decrease, which seems in accordance with the intensive vaccination; 277,000 persons were vaccinated in a population of 900,000 inhabiting the infected zone. At Tananarive, in particular, even if it is true that 20 cases of plague appeared among the vaccinated, the frequency of plague has been five times greater among those not vaccinated. In the Dutch East Indies, on the contrary, antiplague

vaccinations (vaccine of Kolle, and of Haffkine) have not given encouraging results or have not been in favor among the population.

Post-vaccinal encephalitis continues to exist in the Netherlands; during the first six months of 1928 the proportion of 1 case per 2,800 vaccinations remained the same as that for 1927. For five weeks there has been used a vaccinal lymph coming from a country where no case of post-vaccinal encephalitis has been reported; it has nevertheless produced a case in Holland, in spite of the small number of vaccinations. The condition is definitely considered as connected with lethargic encephalitis; the histologic lesions are typical, and are identical with those of encephalitis following smallpox, chicken pox, and measles. The opinion is advanced that the post-vaccinal accidents occur only in countries where vaccination at school age is the first that children undergo. Careful research should be carried on to learn whether cases have occurred in countries other than England and the Netherlands, where vaccination in the first year is not required (Belgium, Scandinavian countries). Are there not among those vaccinated during the first year, cases which have passed unnoticed? Have the vaccination of parents and the resulting immunity of children, perhaps, an influence? It is to be noted that the local vaccinal reaction presents no exceptional characteristic in the children who, a few days later, have encephalitis.

Information on the subject of vaccination against tuberculosis by the BCG (Bacillus Calmette-Guérin) have been collected in Rumania, in the French colonies where the total number of vaccinations is more than 35,000, in Norway, where experiments with adult vaccination are being carried on, and in the United States, where the results of preliminary laboratory experiments are being studied. To the inquiry made by the Office regarding the mortality from tuberculosis in children raised in tuberculous environment, several countries have made provisional replies, indicating that, in general, research is being undertaken. Definite figures have been furnished by Norway for the city of Oslo, where the average mortality, for 15 years, of infants under 1 year of age, born of tuberculous mothers, is 7.74 per 100; prophylactic measures introduced into the tuberculous environment have resulted in the remarkable decrease of this tuberculous mortality from 12.8 per 100, for the period 1911–1915, to 3.2 per 100 for the period 1921–1925.

Attention in different countries continues to be focused on undulant fever, caused by the bacillus of contagious abortion in cattle. In Sweden 73 cases occurred during the first 7 months of 1928; the affection is more frequent than paratyphoid B and almost as frequent as typhoid fever. It is in a direct relation to the existence of contagious abortion in animals, although the hypothesis of contamination from one person to another in the urine and stools can not be entirely

excluded. Specific agglutination reactions show that a number of persons must have passed through unperceived forms of infection. In Denmark there were found in 6 months (April–September) 211 cases, that is to say, more than one per day. In the Netherlands the examination of serums in the laboratory has led to the identification of 14 cases. In Switzerland 2 were discovered at Geneva, and 3 at Lausanne; the disease is more frequent than one might think. A case of laboratory infection by the Bang bacillus was reported in Switzerland, and another in the United States. On the other hand, it is known that in north Africa the Bang bacillus is not pathogenic for man; besides, contagious abortion does not exist among cows, and the undulant fever comes only from goats. In Great Britain contagious abortion is extremely prevalent in certain regions, but undulant fever in man is rare. These facts show that the virulence of the Bang bacillus seems to differ in different countries, an hypothesis which calls for methodical research. From the point of view of prophylaxis, in Denmark the consumption of milk from cows for three months after abortion is prohibited; compulsory pasteurization of milk has not been considered up to the present time.

The etiology of poliomyelitis has given rise to a very interesting discussion. While the Rumanian physicians who studied the 1927 epidemic in Rumania believed that they had found proof of infection by direct contact, the studies of the Swedish epidemics of 1905 to 1913 give a very strong probability to the hypothesis that poliomyelitis, an infection most often contracted through the intestinal tract, is of water origin. The contamination of water sources would lead, sometimes after a considerable passage of time, to the appearance of foci along the lower courses of streams; on the contrary the means of land communication did not play any obvious part in the spread of the disease. This theory is applicable, in a measure, to the epidemic of Saxony in 1927, and that in Rumania in the same year. Always, in Great Britain, epidemics have taken place in regions devoid of water courses. In the United States, milk was the source of infection in four series of cases; the infection seemed to have spread more often from person to person.

Dengue has prevailed in Greece with a much greater intensity in 1928 than in 1927; the number of cases reported was about 800,000. The clinical picture was the same as that of the preceding year, having often an intense exanthema, gastrointestinal disorders, a frequent fall of temperature after the appearance of the exanthema, followed by a new rise about the sixth day of illness. The temperature was about at its height on the eighth day. Rather serious forms, with tendencies to hemorrhages (gastric, intestinal, and renal) were observed. The epidemic was in proportion to the unusual

number of *Stegomyia*, the only mosquito whose rôle as carrier has been experimentally proved at Athens. A large proportion of these mosquitoes were infected. The presence of the dengue virus was found in the blood of a subject inoculated with virulent blood, but presenting no symptoms of the disease. As certain sections of Greece were, relatively, spared, the possibility of a revival of the epidemic next summer must be considered. The cases were rather numerous on the east basin of the Mediterranean, in Egypt; several were reported in Tunisia, at Alger, in 1927; and in 1928 in Algeria (Oran), in Morocco (Casablanca), in Spain (Andalusia); in Italy, there were only a few cases in boats touching the ports. At Lisbon, a Danish vessel coming from Dakar had 12 men attacked out of the 15 which it carried. All these facts should arouse the vigilance of the sanitary authorities.

The question of the contagion of leprosy may one day be cleared up by the experiments made with the *lepromine* of Bargehr. This preparation, obtained from the leprous lesions, causes, on the scarified skin of certain subjects, a reaction analogous to the skin reaction of tuberculin. It is negative in lepers with active lesions or subjects who have had no contact with lepers; it is positive in lepers whose affection is arrested, or in subjects who have had contact with lepers without themselves contracting the disease. The positive reaction indicates, then, a certain immunity. In a subject with a negative reaction, a positive reaction can be obtained after a certain number of vaccinations with *lepromine*. Those who do not acquire the positive reaction will not be immunizable, and will be susceptible to the disease only on contact with lepers.

Following a previous proposal, the International Office of Public Hygiene is going to undertake, through the intermediary action of the delegates from the different countries, a compilation on the number of hospital beds for acute illnesses which are considered necessary, according to the special conditions of each country, for a population urban or rural, industrial or mining, as well as the radius which a a rural hospital can serve, according to the geographic nature of the region. It will continue, besides, the studies begun on the use of antiseptics and coloring matter in food, with a view to setting forth the differences between the laws of different countries.

The protection of maternity and infancy has been an object of considerable attention in Mexico, a country where the mortality of infants under one year reaches the rate of 30 per 100; a decree of the President of the Republic has established a corps of nurses who are to visit homes where there are infants; the health service has organized a child health center, with prenatal and postnatal consultation, examination for syphilis, etc. In Madagascar, also, the infant mortality is very high in certain villages or regions. A child protec-

tion service, organized at Tananarive, has met with great success among the native population; it provides for medical consultations, which will be extended to include a service for the isolation of children ill with contagious diseases, the distribution of milk for babies, etc. The mortality of children up to 15 years has already decreased in Tananarive, from 1926 to 1927, in the proportion of 16.5 per 100. Similar centers are in the process of construction in other villages.

The distribution of milk for babies, at a moderate price, is being extensively practiced by the British Government; the present credit is already 300,000 pounds sterling per year, but the grant of more extensive aid to the local authorities is under consideration. Generally, the dried milk distributed is prepared in England or New Zealand. In the United States, centers of demonstration for nursing mothers have been established, which find more favor with the practicing physicians than with the pediatrists. In Serbia the infant mortality is low, doubtless due to the custom of breast feeding; it still strikes children separated from their mothers for various reasons, and therefore interests the sanitary authorities.

A program of studies on the uniformity of administrative measures concerned with the fight against tuberculosis and the venereal diseases has been submitted to the Permanent Committee of the Office; certain questions raised will be held for a more extensive study. Another problem of social hygiene was brought up, namely, medical assistance to the native population of Africa and other colonized regions. The mortality, especially in western and equatorial Africa is very high, to the extent of compensating for a rather high birth rate; infant mortality is due to the total absence of clothing, to the custom of giving solid food from birth, and to malaria, the ravages caused by sleeping sickness, recurrent fever, and the contagious diseases largely spread by the native passion for moving. The system of home medical assistance, with the aid of a native personnel, seems to bring about more tangible results than the creation of hospital centers (French colonies in Africa, Belgian Congo). In the Dutch East Indies the same system has been applied, special attention being given to the creation of maternity hospitals with a native personnel.

A process which permits of the deodorization and purification of methyl alcohol has rendered its consumption rather frequent in the United States, where it has caused numerous accidents. The use of methyl alcohol in certain industries may also produce blindness among workmen exposed for long intervals to the vapors which fill the air. Protective measures are in use, of which the principal are the prohibition of the sale of deodorized methyl alcohol, and the compulsory thorough ventilation of factories where the fumes are evolved.

The following reports and studies have been transmitted to the committee of the Office: On the smallpox epidemics in Bengal, which

appear with periodic regularity about every five years and two years ago gave rise to an energetic campaign of vaccination which is expected to prevent the usual cycle; on smallpox in French West Africa, the difficulties in the use of a fresh vaccine, the experiments made with dry vaccines and the short duration of immunity among the blacks; on the prevalence of tuberculosis in the same region, and its rarity in the Sudan, Nigeria, Dahomey, and the Ivory Coast, contrasted with a relative frequence on the coast of Guinea and notable in central and south Senegal; on the history of lethargic encephalitis in Great Britain from 1919 to 1926; on the use of infected *Anopheles* for inoculating general paralytics with malaria in Great Britain; on the frequency of florid forms of syphilis in Bosnia, in relation to the relatively recent introduction of the disease in the second half of the eighteenth century following the Turkish armies; on the existence of atypical forms of gonococci, either in the cultures, where they disappear after a certain number of transplantings, or in certain cases of urethritis; on the attempts, in British India, to transmit kala-azar to man by infected *Phlebotomus argentipes;* on the influence of a high birth rate on the low mortality rate in the rural districts.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death, January, 1929

The accompanying table, taken from the Statistical Bulletin for February, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for January, 1929, by principal causes of death. The rates are based on a strength of approximately 18,500,000 insured persons in the United States and Canada.

The death rate for this group of insured persons for January, 13.4 per 1,000, is the highest recorded for this month during the past 10 years, the nearest approach being 10.6, for January, 1923. The death rate for January of last year was 9.4 per 1,000, the increase this year being over 42.6 per cent. The recent influenza epidemic is considered to be almost entirely responsible for this rise in mortality and is held accountable either directly or indirectly for the excess of 6,800 deaths in January, 1929, as compared with the corresponding month last year.

The Bulletin states:

An influenza outbreak, such as we have just experienced, is reflected not only in very high death rates for influenza and pneumonia, but in much increased mortality from other diseases as well, more particularly heart disease and Bright's disease. The death rate for heart disease among the policyholders in January of this year was nearly 35 per cent in excess of the figure for January, 1928. This January, 3,210 deaths were recorded from this cause, over 800 more than if

the rate of last year had prevailed. Tuberculosis, cancer, diabetes, and cerebral hemorrhage also showed large increases, which are explained, in part at least, by the fact that large numbers of persons afflicted with these diseases also became victims of influenza and were without sufficient strength to resist both; hence their deaths were hastened, and occurred during the influenza outbreak instead of later.

The higher January death rate, as compared with last year, prevailed all over the United States, and in Canada. West of the Rockies the January figure was 8.1 per 1,000 against 7.5 in 1928; in the rest of the United States the corresponding figures were 13.8 and 9.6; whereas in Canada they were 14.2 and 8.8. Canada was particularly hard hit by influenza, pneumonia, and other respiratory conditions, which caused, jointly, 43 per cent of the total deaths among these policyholders in the Dominion during January.

Increased death rates, as compared with January of last year, are also shown for scarlet fever, whooping cough, respiratory conditions other than pneumonia, diarrheal complaints, puerperal diseases, suicides, homicides, and automobile accidents. The only causes to register declines were measles, diphtheria, and all accidents combined.

Death rates (annual basis) per 100,000 for principal causes of death

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rate per 100,000 lives exposed [1]			
	Jan. 1929	Dec. 1928	Jan. 1928	Year 1928 [2]
Total, all causes	1,344.9	917.2	944.9	909.4
Typhoid fever	1.8	1.6	1.8	2.7
Measles	3.2	1.4	3.8	5.2
Scarlet fever	4.2	2.4	3.6	2.7
Whooping cough	9.3	4.8	4.3	5.6
Diphtheria	13.4	11.2	14.8	9.7
Influenza	197.7	48.3	25.4	24.6
Tuberculosis (all forms)	94.0	75.1	84.8	89.5
Tuberculosis of respiratory system	84.6	67.6	74.2	78.3
Cancer	80.9	73.3	74.3	75.1
Diabetes mellitus	28.2	17.8	19.0	17.5
Cerebral hemorrhage	68.3	56.8	59.4	56.3
Organic diseases of heart	202.3	143.0	150.7	141.2
Pneumonia (all forms)	212.8	102.9	111.2	88.7
Other respiratory diseases	26.2	19.3	18.9	12.3
Diarrhea and enteritis	14.2	13.9	13.0	23.9
Bright's disease (chronic nephritis)	85.7	67.9	79.4	70.0
Puerperal state	14.9	9.8	13.7	13.8
Suicides	8.7	7.1	7.4	8.2
Homicides	6.7	6.9	6.2	6.6
Other external causes (excluding suicides and homicides)	62.1	58.9	62.4	61.4
Traumatism by automobiles	17.8	20.3	16.1	18.3
All other causes	210.4	194.9	190.9	194.3

[1] All figures include infants insured under 1 year of age.
[2] Based on provisional estimate of lives exposed to risk in 1928.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Issuance of permit to remove and transport garbage not compelled.—(Ohio Court of Appeals; City of Cincinnati et al. *v.* State ex rel. Moock, 164 N. E. 771; decided August 3, 1928.) A section of the municipal ordinances of the city of Cincinnati provided as follows:

That no person shall remove or carry in or through any of the streets * * * of the city * * * any house dirt or house offal, animal or vegetable, or any

refuse substance, from any of the dwelling houses or other places of the city, or carcass of any dead animal, unless the owner of the same shall have procured a permit so to do from the director of public service * * *. *Provided, however*, the provisions hereof shall not apply to any contractor with the city in relation to garbage * * *.

It is hereby made the duty of the contractor with the city * * * to collect and remove * * * all garbage and refuse, animal, fish, or vegetable matter found within the city limits; and also all dead animals which are not removed or disposed of by the owner * * *. Except as herein provided as to dead animals, no other person or party than the city contractor or its agents shall carry, convey, or transport through the streets * * * such materials; and it shall be unlawful for any person to interfere in any manner with the collection and disposal of such materials by the city contractor.

The appellee brought a mandamus action to compel the city manager of Cincinnati to issue to him a permit to remove and transport through the city garbage and refuse. It appeared that the appellee had entered into an arrangement with certain hotels in the city to remove their garbage, for which he paid a small sum, and that he desired to convey the same through the city for feeding to his swine outside of the city. The city had an exclusive contract with a company for the disposal of all the garbage of the city.

The decision of the court of appeals sustained the refusal of the permit, such decision being summed up in the concluding paragraph of the opinion as follows:

Our conclusion is that it is within the police power of the city to control the disposal of the garbage of the city in the way that it does; that the city manager did not abuse his discretion in refusing the permit and granting the exclusive collection to an individual corporation, and that there is no violation of any constitutional rights of the relator.

Validity and construction of certain statutes concerning county tuberculosis hospitals.—(Kentucky Court of Appeals; District Board of Tuberculosis Sanatorium Trustees for Fayette County *v.* City of Lexington et al., 12 S. W. (2d) 348; decided November 20, 1928.) By chapter 111, Laws 1912, the legislature provided in detail for the establishment and maintenance of tuberculosis hospitals in districts consisting either of one county or of two or more contiguous counties. The county fiscal court was required to make an annual levy sufficient to maintain the hospital. The government of the hospital was vested in a district board of trustees appointed by the county judge.

Chapter 159, Laws 1926, provided in substance that anyone who donated $100,000 or more to a sanatorium district should have the right to nominate two additional members of the board of trustees, and authorized the board to accept gifts on the conditions specified therein.

Another 1926 act (ch. 155) contained the provisions that, when a sanatorium was established in a county containing a city or cities of the second class, the county fiscal court was authorized and directed to levy a tax of not to exceed 6 cents and not less than 3 cents on each $100 of taxables in the county, and the city council or board of commissioners was authorized and directed to levy a tax of not to exceed 8 cents and not less than 6 cents on each $100 of taxables in the city. The sums derived from the levies were to be paid over to the trustees for the operation and maintenance of the hospital.

Questions regarding the validity and construction of these several acts were presented to and considered by the court of appeals. The holdings of such court may be briefly summarized as follows:

(1) Chapter 159 of the Laws of 1926 was valid.

(2) Chapter 155 of the Laws of 1926 was invalid because in conflict with the provisions of the State constitution which forbade the legislature to impose taxes for the purposes of any county, city, town, or other municipal corporation, but which authorized the legislature by general laws to confer on local authorities the power to assess and collect taxes for such purposes. Chapter 155 was also in conflict with the uniformity provisions of section 171 of the State constitution in that the act imposed double taxation upon citizens of the city.

(3) The county had the duty to make necessary levies properly to maintain the sanatorium, including not only the maintenance of buildings constructed by the county and the care of patients treated therein but also of buildings erected by donations and the care of patients treated therein.

(4) The amount of the levies for the maintenance of the sanatorium was left to the discretion of the county fiscal court.

DEATHS DURING WEEK ENDED MARCH 16, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended March 16, 1929, and corresponding week of 1928. (From the Weekly Health Index March 20, 1929, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 16, 1929	Corresponding week, 1928
Policies in force	73, 544, 830	70, 602, 861
Number of death claims	16, 748	14, 679
Death claims per 1,000 policies in force, annual rate	11. 9	10. 9

Deaths from all causes in certain large cities of the United States during the week ended March 16, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, March 20, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 16, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Mar. 16, 1929 [2]
	Total deaths	Death rate [1]		Week ended Mar. 16, 1929	Corresponding week, 1928	
Total (65 cities)	8,380	14.7	14.8	890	883	[3] 77
Akron	63			11	13	113
Albany [4]	37	16.1	18.2	2	6	40
Atlanta	79	16.2	17.0	11	7	114
White	30			5	2	
Colored	49	(5)	(5)	6	5	
Baltimore [4]	256	16.1	17.4	30	37	96
White	194			18	26	72
Colored	62	(5)	(5)	12	11	190
Birmingham	78	18.3	14.6	15	8	136
White	41			7	5	105
Colored	37	(5)	(5)	8	3	183
Boston	272	17.8	17.7	26	29	72
Bridgeport	45			3	5	52
Buffalo	172	16.2	15.0	22	24	95
Cambridge	31	12.9	14.5	2	2	36
Camden	42	16.2	16.2	5	8	86
Canton	32	14.3	7.6	1	2	24
Chicago [4]	765	12.7	14.6	62	56	55
Cincinnati	139			13	13	76
Cleveland	255	13.2	10.9	28	23	82
Columbus	88	15.4	11.9	10	3	94
Dallas	62	14.9	13.4	16	5	
White	51			13	3	
Colored	11	(5)	(5)	3	2	
Dayton	37	10.5	9.6	4	3	63
Denver	88	15.6	14.8	10	6	97
Des Moines	31	10.7	11.4	6	0	108
Detroit	366	13.9	13.5	53	62	85
Duluth	27	12.1	11.2	0	1	0
El Paso	50	22.2	24.0	9	11	
Erie	41			1	4	20
Fall River [4]	34	13.2	7.8	1	3	19
Flint	34	11.9	9.8	7	8	85
Fort Worth	39	12.0	12.3	5	2	
White	32			5	1	
Colored	7	(5)	(5)	0	1	
Grand Rapids	38	12.1	10.5	2	0	30
Houston	83			10	3	
White	57			6	2	
Colored	26	(5)	(5)	4	1	
Indianapolis	112	15.3	15.3	3	8	24
White	98			3	8	28
Colored	14	(5)	(5)	0	0	0
Jersey City	101	16.3	14.7	12	12	93
Kansas City, Kans	41	18.1	13.7	5	5	111
White	32			3	4	76
Colored	9	(5)	(5)	2	1	358
Kansas City, Mo	156	20.9	15.5	28	9	236
Knoxville	26	12.9	15.9	5	3	109
White	25			5	2	122
Colored	1	(5)	(5)	0	1	0
Los Angeles	287			29	21	85
Louisville	94	14.9	16.5	6	10	49
White	69			5	3	47
Colored	25	(5)	(5)	1	7	63
Lowell	33			2	3	45
Lynn	23	11.4	9.9	2	5	55
Memphis	69	19.0	17.0	8	6	94
White	35			3	2	57
Colored	34	(5)	(5)	5	4	156
Milwaukee	137	13.2	11.6	23	11	101
Minneapolis	95	10.9	11.6	11	5	68
Nashville	62	23.2	19.9	5	9	81
White	37			2	6	43
Colored	25	(5)	(5)	3	3	189
New Bedford	35			4	2	86
New Haven	42	11.7	17.0	5	3	77

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 16, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928—Continued

City	Week ended Mar. 16, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Mar. 16, 1929 [2]
	Total deaths	Death rate [1]		Week ended Mar. 16, 1929	Corresponding week, 1928	
New Orleans	154	18.8	20.5	15	11	74
White	81			6	7	42
Colored	73	([3])	([3])	9	4	151
New York	1,720	14.9	15.0	186	206	76
Bronx Borough	240	13.2	10.4	21	18	62
Brooklyn Borough	538	12.2	13.5	61	78	62
Manhattan Borough	717	21.4	21.8	91	92	111
Queens Borough	166	10.2	9.2	10	15	41
Richmond Borough	59	20.5	20.5	3	3	54
Newark, N. J	120	13.2	16.1	17	17	90
Oakland	66	12.6	11.4	3	6	33
Oklahoma City	49			4	3	80
Omaha	80	18.8	14.3	8	1	94
Paterson	34	12.3	16.2	2	4	35
Philadelphia	545	13.8	15.9	55	73	78
Pittsburgh	219	17.0	14.6	26	21	89
Portland, Oreg	96			5	3	57
Providence	94	17.2	15.0	15	6	132
Richmond	71	19.1	16.7	6	7	84
White	42			4	4	85
Colored	29	([3])	([3])	2	3	82
Rochester	80	12.7	15.0	7	5	59
St. Louis	290	17.9	19.0	26	20	88
St. Paul	51			3	2	31
Salt Lake City [4]	40	15.2	12.1	4	3	62
San Antonio	67	16.1	25.7	7	20	
San Diego	38	16.6	20.1	3	3	57
San Francisco	157	14.0	12.2	8	10	51
Schenectady	20	11.2	10.1	1	2	32
Seattle	67	9.1	13.1	3	6	32
Somerville	22	11.2	16.8	1	5	36
Spokane	33	15.8	21.1	6	4	156
Springfield, Mass	38	13.3	12.2	2	4	33
Syracuse	68	17.8	13.1	6	6	72
Tacoma	23	10.9	11.4	0	6	0
Toledo	82	13.7	14.5	4	9	37
Trenton	35	13.2	14.3	3	3	54
Washington, D. C	181	17.1	16.5	14	13	82
White	113			2	4	17
Colored	68	([5])	([5])	12	9	227
Waterbury	20			6	1	152
Wilmington, Del	26	10.6	14.2	3	2	78
Worcester	61	16.1	15.1	7	0	88
Yonkers	27	11.6	11.6	7	3	163
Youngstown	51	15.3	9.3	5	6	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, 38; 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 March 16, 1929, and March 17, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 16, 1929, and March 17, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928
New England States:								
Maine	4	7	25	3	237	66	2	1
New Hampshire	2		20		3	16	0	0
Vermont			8		19	31	0	0
Massachusetts	91	102	60	14	360	1,860	2	5
Rhode Island	10	10	6		53	80	0	0
Connecticut	17	19	51	5	553	398	2	2
Middle Atlantic States:								
New York	270	345	[1] 78	[1] 60	1,162	2,373	41	26
New Jersey	105	124	64	28	279	1,131	6	1
Pennsylvania	143	242			1,963	1,415	21	12
East North Central States:								
Ohio	99	241	114	102	2,009	865	10	7
Indiana	30	29	42	36	439	199	0	0
Illinois	139	134	64	158	1,312	260	11	13
Michigan	84	72	20	10	626	1,619	47	2
Wisconsin	20	19	122	63	563	134	21	8
West North Central States:								
Minnesota	27	20	1	3	592	100	1	2
Iowa	11	12			16	29	2	1
Missouri	66	44	41	71	516	235	26	10
North Dakota	11	4			84		3	2
South Dakota	11	3			46	[2] 14	1	0
Nebraska	14	9	9	52	43	15	2	2
Kansas	11	18	38	16	345	72	7	1
South Atlantic States:								
Delaware					62	15	0	0
Maryland [2]	14	36	134	48	140	1,189	1	1
District of Columbia	16	25	5		19	198	0	0
West Virginia	10	15	27	45		112	1	2
North Carolina	23	35			86	3,246	3	0
South Carolina	14	20	811	944	10	1,020	0	0
Georgia	5	14	96	175	25	187	9	3
Florida	8	7	16	6	53	48	1	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 March 16, 1929, and March 17, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928
East South Central States:								
Kentucky		11		21	37	279	1	0
Tennessee	14	20	395	115	9	298	0	0
Alabama	8	15	146		48	496	3	2
Mississippi	6	22					4	
West South Central States:								
Arkansas	5	5	202	628	199	385	3	7
Louisiana	17	30	27	114	157	267	5	1
Oklahoma [3]	20	18	236	451	81	327	8	6
Texas	42	24	196	306	43	125	2	1
Mountain States:								
Montana	4	11			95	1	3	5
Idaho		1	10		1		13	2
Wyoming	3	1			61	56	0	0
Colorado	5	5	4	1	10	34	12	6
New Mexico	5	1	1	7	6	165	4	0
Arizona	5	7	7		57	31	15	8
Utah [2]		2	7	5	2	2	9	3
Pacific States:								
Washington	4	5	1		100	273	7	9
Oregon	9	7	99	50	159	115	0	1
California	58	103	111	42	59	187	20	6

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928
New England States:								
Maine	0	0	47	26	4	0	1	3
New Hampshire	0	0	19	20	1	0	0	0
Vermont	0	0	12	3	4	0	0	0
Massachusetts	1	2	381	316	0	0	5	2
Rhode Island	0	0	23	46	0	0	0	0
Connecticut	0	0	68	80	9	0	0	0
Middle Atlantic States:								
New York	1	0	618	822	1	13	8	11
New Jersey	0	1	205	285	0	0	1	1
Pennsylvania	0	1	475	559	0	0	10	11
East North Central States:								
Ohio	0	2	372	351	81	48	5	12
Indiana	0	0	355	131	83	144	3	2
Illinois	0	1	482	389	107	54	10	16
Michigan	1	1	530	213	47	39	4	3
Wisconsin	0	0	203	235	4	21	1	2
West North Central States:								
Minnesota	0	0	164	152	1	1	1	3
Iowa	0	0	235	71	43	66	2	0
Missouri	1	0	100	116	40	77	0	2
North Dakota	2	1	54	39	0	2	2	0
South Dakota	0	3	31	57	13	11	0	2
Nebraska	0	1	150	116	57	40	0	0
Kansas	0	1	166	168	50	96	1	3
South Atlantic States:								
Delaware	0	0	6	6	0	0	0	0
Maryland [2]	0	0	66	70	0	2	5	3
District of Columbia	0	0	19	45	0	9	0	0
West Virginia	2	1	19	44	15	106	12	7
North Carolina	0	0	42	21	55	90	7	2
South Carolina	1	1	17	12	3	14	7	6
Georgia	0	0	12	6	4	0	0	3
Florida	1	0	12	4	0	6	6	1
East South Central States:								
Kentucky	0	0	91	48	39	36	1	1
Tennessee	0	0	69	24	5	36	2	3
Alabama	0	1	16	15	2	9	4	7
Mississippi	0	0	15	9	2	4	4	2

[2] Week ended Friday. [3] 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 March 16, 1929, and March 17, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928	Week ended Mar. 16, 1929	Week ended Mar. 17, 1928
West South Central States:								
Arkansas	0	1	30	16	0	2	5	3
Louisiana	0	0	69	14	10	32	7	17
Oklahoma [3]	0	0	44	61	103	177	6	13
Texas	1	0	45	28	67	121	1	3
Mountain States:								
Montana	0	0	29	18	2	15	4	1
Idaho	0	0	4	7	15	0	1	0
Wyoming	0	0	6	17	3	11	0	0
Colorado	0	0	27	67	19	4	0	2
New Mexico	0	1	20	35	2	5	3	0
Arizona	0	0	----	5	19	19	3	4
Utah [2]	0	0	12	9	5	13	2	0
Pacific States:								
Washington	0	3	29	42	37	32	1	3
Oregon	0	2	48	27	43	46	1	2
California	3	3	507	189	60	26	6	5

[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
January, 1929										
District of Columbia	0	52	1,743	----	9	----	0	79	0	2
February, 1929										
Alabama	18	119	4,851	62	490	13	4	107	21	16
Arizona	57	19	27	----	35	----	2	31	31	11
District of Columbia	1	45	114	----	19	----	0	96	0	1
Iowa	12	42	111	----	30	----	2	676	176	7
Maine	1	5	1,219	----	1,229	----	0	108	21	2
New Jersey	31	449	331	----	976	----	2	610	0	6
North Dakota	23	28	197	----	127	----	0	165	4	0
Tennessee	9	52	6,150	14	14	16	0	256	10	19
Wyoming	1	6	35	----	48	----	0	58	8	0

January, 1929

District of Columbia:

	Cases
Chicken pox	164
Whooping cough	100

February, 1929

	Cases
Anthrax:	
New Jersey	5
Chicken pox:	
Alabama	136
Arizona	32
District of Columbia	139
Iowa	142
Maine	93
New Jersey	993
North Dakota	29
Tennessee	170
Wyoming	49
Dengue:	
Alabama	1
Dysentery:	
Tennessee	4
German measles:	
Iowa	1
Maine	96
New Jersey	63
Wyoming	1

	Cases
Lead poisoning:	
New Jersey	8
Lethargic encephalitis:	
Alabama	6
Arizona	1
Iowa	1
Maine	3
North Dakota	3
Tennessee	3
Mumps:	
Alabama	25
Arizona	7
Iowa	343
Maine	101
North Dakota	9
Tennessee	66
Wyoming	25
Ophthalmia neonatorum:	
New Jersey	1
Paratyphoid fever:	
Maine	1
Rabies in animals:	
Iowa	6
Rabies in man:	
Arizona	1
Tennessee	3
Scabies:	
North Dakota	8
Septic sore throat:	
Maine	1
North Dakota	8
Tetanus:	
Maine	1
Tennessee	1
Trachoma:	
Arizona	7
New Jersey	4
Tennessee	5
Tularaemia:	
Tennessee	3
Typhus fever:	
Alabama	3
Undulant fever:	
Iowa	6
Maine	1
Vincent's angina:	
Maine	9
North Dakota	8
Whooping cough:	
Alabama	111
Arizona	17
District of Columbia	102
Iowa	127
Maine	64
New Jersey	585
North Dakota	53
Tennessee	102
Wyoming	1

Number of Cases of Certain Communicable Diseases Reported for the Month of December, 1928, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Maine	313	36	1,613	215	151	33	25	4	131
New Hampshire		11			110	0		4	
Vermont	132	18	93	342	90	5	17	0	244
Massachusetts	1,567	483	2,754	308	1,037	6	456	12	588
Rhode Island	77	78	235	36	54	0	35	5	42
Connecticut	535	138	784	235	208	2	113	10	132
New York	3,310	1,095	3,205	1,145	1,691	3	1,630	61	1,525
New Jersey	1,471	601	420		501	0	[1] 289	16	569
Pennsylvania	4,474	1,045	4,795	1,835	1,908	0	490	73	2,141
Ohio	2,672	458	1,469	212	1,021	188	670	42	1,083
Indiana [2]									
Illinois	2,107	870	1,275	386	1,417	272	634	55	493
Michigan	1,612	421	312	430	1,195	107	414	18	914
Wisconsin	1,804	103	642	265	648	72	123	6	479
Minnesota	1,829	103	288		564	31	227	10	174
Iowa	341	65	10	350	377	171	40	5	96
Missouri	683	340	408	67	408	137	194	31	261
North Dakota	150	47	36	5	121	16	22	12	61
South Dakota	62	7	131	9	96	58	6	7	14
Nebraska	175	61	54	9	192	142	[1] 11	9	38
Kansas	560	98	86	189	460	73	209	5	129
Delaware	9	3	46	2	21	0	[1] 1	0	25
Maryland	698	147	152	285	300	1	220	16	392
District of Columbia	117	76	3		57	0	91	3	55
Virginia	605	209	323		368	4	[1] 105	23	552
West Virginia	453	141	321		244	120	40	31	95
North Carolina	611	430	91		338	11		9	231
South Carolina	226	336	37	21	101	14	158	186	142
Georgia [2]									
Florida	26	57	16	10	59	3	30	9	26

[1] Pulmonary.

[2] Report not received at time of going to press.

Number of Cases of Certain Communicable Diseases Reported for the Month of December, 1928, by State Health Officers—Continued

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Kentucky [3]									
Tennessee	183	155	14	19	196	26	102	48	65
Alabama	204	317	357	31	232	19	262	46	
Mississippi	785	121	690	256	76	2	212	42	726
Arkansas	178	106	135	51	134	9	[1] 18	31	104
Louisiana	32	132	415	1	100	43	[1] 103	34	19
Oklahoma [4]	136	256	23	36	199	154	44	89	55
Texas [3]									
Montana	196	20	276	26	140	56	12	4	67
Idaho	16	7	7	1	28	136	[1] 3	4	2
Wyoming	104	11	5	34	60	26	1	1	15
Colorado	298	35	28	103	91	42	133	4	16
New Mexico [3]									
Arizona	32	20	33	8	15	15	83	5	10
Utah [3]									
Nevada [3]									
Washington	603	73	166	160	172	186	183	4	75
Oregon	172	49	228	85	149	147	57	12	9
California	728	328	75	653	751	87	751	23	445

Case Rates per 1,000 Population (Annual Basis) for the Month of December, 1928

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Maine	4.65	0.53	23.95	3.19	2.24	0.49	0.37	0.06	1.95
New Hampshire		.28			2.85	.00		.10	
Vermont	4.42	.60	3.12	11.46	3.02	.17	.57	.00	8.17
Massachusetts	4.31	1.33	7.58	.85	2.85	.02	1.25	.03	1.62
Rhode Island	1.27	1.29	3.87	.59	.89	.00	.58	.08	.69
Connecticut	3.79	.98	5.55	1.66	1.47	.01	.80	.07	.93
New York	3.38	1.12	3.28	1.17	1.73	.00	1.67	.06	1.56
New Jersey	4.55	1.86	1.30		1.55	.00	[1] .89	.05	1.76
Pennsylvania	5.36	1.25	5.74	2.20	2.29	.00	.59	.09	2.56
Ohio	4.62	.79	2.54	.37	1.77	.33	1.16	.07	1.87
Indiana [2]									
Illinois	3.36	1.39	2.03	.62	2.26	.43	1.01	.09	.79
Michigan	4.15	1.08	.80	1.11	3.07	.28	1.06	.05	2.35
Wisconsin	7.21	.41	2.57	1.06	2.59	.29	.49	.02	1.92
Minnesota	7.93	.45	1.25		2.45	.13	.98	.04	.75
Iowa	1.66	.32	.05	1.70	1.83	.83	.19	.02	.47
Missouri	2.29	1.14	1.37	.22	1.37	.46	.65	.10	.87
North Dakota	2.76	.87	.66	.09	2.23	.29	.41	.22	1.12
South Dakota	1.04	.12	2.20	.15	1.61	.97	.10	.12	.23
Nebraska	1.47	.51	.45	.08	1.61	1.19	[1] .09	.08	.32
Kansas	3.60	.63	.55	1.22	2.96	.47	1.34	.03	.83
Delaware	.44	.15	2.23	.10	1.02	.00	[1] .05	.00	1.21
Maryland	5.10	1.07	1.11	2.08	2.19	.01	1.61	.12	2.86
District of Columbia	2.50	1.63	.06		1.22	.00	1.95	.06	1.18
Virginia	2.77	.96	1.48		1.69	.02	[1] .48	.11	2.53
West Virginia	3.10	.97	2.20		1.67	.82	.27	.21	.65
North Carolina	2.46	1.73	.37		1.36	.04		.04	.93
South Carolina	1.43	2.13	.23	.13	.64	.09	1.00	1.18	.90
Georgia [2]									
Florida	.22	.48	.18	.08	.49	.03	.25	.08	.22
Kentucky [3]									
Tennessee	.86	.73	.07	.09	.92	.12	.48	.23	.31
Alabama	.94	1.45	1.64	.14	1.06	.09	1.20	.21	
Mississippi	5.18	.80	4.55	1.69	.50	.01	1.40	.28	4.79
Arkansas	1.08	.64	.82	.31	.81	.05	[1] .11	.19	.63
Louisiana	.19	.80	2.51	.01	.61	.26	[1] .62	.21	.12
Oklahoma [4]	.75	1.41	.13	.19	1.09	.85	.24	.49	.30
Texas [3]									

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Exclusive of Oklahoma City and Tulsa.
[5] Reports received annually.

Case Rates per 1,000 Population (Annual Basis) for the Month of December, 1928—Continued

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Montana	4.22	.43	5.94	.56	3.01	1.20	.26	.09	1.44
Idaho	.35	.15	.15	.02	.61	2.94	[1].09	.09	.04
Wyoming	4.97	.53	.24	1.63	2.87	1.24	.05	.05	.72
Colorado	3.23	.38	.30	1.12	.99	.45	1.44	.04	.17
New Mexico [3]									
Arizona	.80	.50	.82	.20	.37	.37	2.07.	.12	.25
Utah [3]									
Nevada [3]									
Washington	4.49	.54	1.23	1.19	1.28	1.38	1.36	.03	.56
Oregon	2.25	.64	2.98	1.11	1.95	1.92	.75	.16	.12
California	1.89	.85	.19	1.69	1.95	.23	1.95	.06	1.15

[1] Pulmonary. [3] Reports received weekly. [4] Reports received annually.

PLAGUE-INFECTED GROUND SQUIRRELS IN CALIFORNIA

The director of public health of the State of California reports that plague has been proved in three ground squirrels from a ranch one-half mile north of San Luis Hot Springs and 2 miles northeast of Port San Luis, San Luis Obispo County, Calif. The diagnosis of plague was confirmed by guinea pig inoculation at the State bacteriological laboratory. The squirrels were received at the laboratory on March 8, 1929, and the positive findings were reported on March 12.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 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 31,005,000. The estimated population of the 90 cities reporting deaths is more than 29,430,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 9, 1929, and March 10, 1928

	1929	1928	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	1,736	1,809	----
97 cities	792	1,016	919
Measles:			
45 States	11,675	18,484	----
97 cities	3,253	6,261	----
Meningococcus meningitis:			
45 States	298	109	----
97 cities	164	38	----
Poliomyelitis:			
46 States	20	31	----
Scarlet fever:			
46 States	5,567	5,497	----
97 cities	1,769	1,741	1,518
Smallpox:			
46 States	1,275	1,328	----
97 cities	72	134	111
Typhoid fever:			
46 States	159	128	----
97 cities	32	22	28
Deaths reported			
Influenza and pneumonia:			
90 cities	1,341	1,218	----
Smallpox:			
90 cities	0	0	----

City reports for week ended March 9, 1929

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 non-epidemic 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 1920 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, 1928, 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	78,600	0	1	0	-------	0	42	0	2
New Hampshire:									
Concord	(1)	0	0	0	-------	0	0	0	0
Manchester	85,700	0	1	0	-------	2	0	0	4
Nashua	(1)	0	0	0	-------	0	0	0	2
Vermont:									
Barre	(1)	0	0	0	-------	0	0	3	0
Massachusetts:									
Boston	799,200	66	42	27	27	1	19	37	45
Fall River	134,300	3	4	4	1	0	11	0	4
Springfield	149,800	8	4	2	2	2	32	1	3
Worcester	197,600	11	4	2	-------	1	3	3	6
Rhode Island:									
Pawtucket	73,100	2	1	2	-------	0	16	0	4
Providence	286,300	0	9	6	1	3	51	0	13
Connecticut:									
Bridgeport	(1)	1	7	1	8	0	7	1	5
Hartford	172,300	5	7	1	1	0	8	4	5
New Haven	187,900	6	1	3	1	0	0	1	10
MIDDLE ATLANTIC									
New York:									
Buffalo	555,800	-------	14	-------	-------	-------	-------	-------	-------
New York	6,017,500	314	227	246	80	24	66	0	282
Rochester	328,200	16	10	5	1	0	31	25	9
Syracuse	199,300	13	5	0	-------	0	5	6	10
New Jersey:									
Camden	135,400	7	6	5	1	1	4	1	7
Newark	473,600	54	15	59	10	0	13	83	18
Trenton	139,000	6	3	1	1	1	3	0	9
Pennsylvania:									
Philadelphia	2,064,200	126	71	42	28	13	48	14	74
Pittsburgh	673,800	31	21	7	8	8	14	12	46
Reading	115,400	4	3	2	-------	1	142	2	4
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	413,700	14	10	5	-------	4	2	2	25
Cleveland	1,010,300	105	29	21	29	5	466	17	27
Columbus	299,000	3	4	0	5	6	22	1	3
Toledo	313,200	16	6	3	7	7	5	12	9
Indiana:									
Fort Wayne	105,300	7	3	4	-------	1	18	0	3
Indianapolis	382,100	39	6	4	-------	1	50	7	21
South Bend	86,100	6	1	0	-------	0	57	0	1
Terre Haute	73,500	1	0	1	-------	0	4	0	3
Illinois:									
Chicago	3,157,400	120	77	110	17	12	323	11	87
Springfield	67,200	5	0	0	4	2	0	3	1

[1] No estimate of population made.

City reports for week ended March 9, 1929—Continued

Division, State, and city	Population July 1, 1928, 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									
Michigan:									
Detroit	1,378,900	92	56	46	18	15	32	31	53
Flint	148,800	19	4	1		1	8	0	5
Grand Rapids	164,200	3	2	1		0	165	0	1
Wisconsin:									
Kenosha	56,500	10	1	0		0	18	0	0
Milwaukee	544,200	107	18	10	2	2	357	13	13
Racine	74,400	2	2	0		0	19	0	2
Superior	(1)	3	0	1		0	0	2	5
WEST NORTH CENTRAL									
Minnesota:									
Duluth	116,800	7	0	0		1	0	44	2
Minneapolis	455,900	103	15	10		2	314	72	8
St. Paul	(1)	28	11	1		0	220	25	11
Iowa:									
Davenport	(1)	1	1	0			0	0	
Des Moines	151,900	1	2	0			8	0	
Sioux City	80,000	2	1	0			1	1	
Waterloo	37,100	0	0	1			7	46	
Missouri:									
Kansas City	391,000	44	6	2		1	283	8	13
St. Joseph	78,500	3	1	0		0	19	0	14
St. Louis	848,100	29	45	52	8	1	13	4	
North Dakota:									
Fargo	(1)	2	1	0		0	22	0	0
South Dakota:									
Aberdeen	(1)	1	0	0			20	0	
Sioux Falls	(1)	0	1	0			23	0	
Nebraska:									
Omaha	222,800	4	3	9		0	4	1	10
Kansas:									
Topeka	62,800	15	1	0		2		2	1
Wichita	99,300	29	2	0		0	0	23	6
SOUTH ATLANTIC									
Delaware:									
Wilmington	128,500	2	3	4		0	24	0	5
Maryland:									
Baltimore	830,400	61	28	9	68	5	4	121	48
Cumberland	(1)	1	1	0	1	1	1	3	2
Frederick	(1)	0	0	0		0	0	0	0
District of Columbia:									
Washington	552,000	51	13	9	7	4	14	0	25
Virginia:									
Lynchburg	38,600	12	1	4		1	5	89	3
Norfolk	184,200	21	1	1		0	6	105	11
Richmond	194,400	3	3	3		6	1	4	6
Roanoke	64,600	4	1	1		1	1	2	2
West Virginia:									
Charleston	55,200	9	0	1	1	0	45	0	2
Wheeling	(1)	1	1	1		0	29	4	4
North Carolina:									
Raleigh	(1)	4	0	0		0	0	0	3
Wilmington	39,100	15	0	0		0	0	0	1
Winston-Salem	80,000	5	1	1		0	0	0	2
South Carolina:									
Charleston	75,900	0	0	0	22	1	0	0	3
Columbia	50,600	5	0	0		0	0	4	2
Georgia:									
Atlanta	255,100	2	3	2	19	6	0	0	13
Brunswick	(1)	0	0	0		0	0	0	1
Savannah	99,900	0	0	1		0	1	0	3
Florida:									
Miami	156,700	3	4	2	1	0	14	0	1
Tampa	113,400	6	1	0		0	0	0	0

[1] No estimate of population made.

City reports for week ended March 9, 1929—Continued

Division, State, and city	Population July 1, 1928, 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	59,000	1	1	1	-------	0	0	0	5
Tennessee:									
Memphis	190,200	11	4	1	-------	2	1	3	7
Nashville	139,600	0	1	1	-------	2	0	0	6
Alabama:									
Birmingham	222,400	8	2	4	14	3	1	1	10
Mobile	69,600	0	0	2	-------	3	7	1	4
Montgomery	63,100	6	1	1	1	-------	0	0	-------
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	(1)	1	1	0	-------	-------	0	2	-------
Little Rock	79,200	1	0	0	1	1	6	1	2
Louisiana:									
New Orleans	429,400	3	11	16	9	13	8	0	16
Shreveport	81,300	5	0	0	-------	2	0	0	1
Oklahoma:									
Oklahoma City	(1)	0	1	5	-------	6	1	0	10
Tulsa	170,500	30	1	1	-------	-------	7	1	-------
Texas:									
Dallas	217,800	7	5	4	5	5	10	0	9
Fort Worth	170,600	8	3	5	-------	4	11	2	13
Galveston	50,600	0	1	1	-------	0	1	0	4
Houston	(1)	0	3	7	-------	0	1	0	16
San Antonio	218,100	2	2	2	2	9	1	0	10
MOUNTAIN									
Montana:									
Billings	(1)	1	1	0	-------	1	0	1	0
Great Falls	(1)	2	0	0	-------	0	61	1	0
Helena	(1)	0	0	0	-------	0	19	0	0
Missoula	(1)	0	0	0	-------	0	8	0	2
Idaho:									
Boise	(1)	1	0	0	-------	0	1	0	0
Colorado:									
Denver	294,200	25	10	5	1	5	3	26	14
Pueblo	44,200	19	1	0	-------	0	2	0	1
New Mexico:									
Albuquerque	(1)	9	1	0	-------	0	0	1	2
Utah:									
Salt Lake City	138,000	19	2	2	-------	1	0	225	3
Nevada:									
Reno	(1)	0	1	0	-------	0	0	0	1
PACIFIC									
Washington:									
Seattle	383,200	23	5	2	-------	-------	5	7	-------
Spokane	109,100	13	2	0	5	-------	33	0	-------
Tacoma	110,500	22	1	0	-------	0	1	27	2
Oregon:									
Portland	(1)	18	7	12	13	3	89	17	7
Salem	(1)	5	0	0	3	0	2	4	0
California:									
Los Angeles	(1)	147	42	7	71	1	18	61	25
Sacramento	75,700	14	2	0	1	2	1	18	9
San Francisco	585,300	33	21	6	9	4	1	12	8

[1] No estimate of population made.

City reports for week ended March 9, 1929—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	4	2	0	0	0	0	0	0	0	0	14
New Hampshire:											
Concord	0	1	0	0	0	1	0	0	0	0	7
Manchester	2	2	0	0	0	3	0	0	0	0	
Nashua	1	0	0	0	0	0	0	0	0	0	14
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	2	5
Massachusetts:											
Boston	83	82	0	0	0	13	2	0	0	28	248
Fall River	5	4	0	0	0	4	0	0	0	4	32
Springfield	9	5	0	0	0	2	0	0	0	0	43
Worcester	10	7	0	0	0	2	0	0	0	16	60
Rhode Island:											
Pawtucket	1	5	0	0	0	0	0	0	0	5	15
Providence	10	15	0	0	0	1	0	1	2	4	77
Connecticut:											
Bridgeport	12	6	0	0	0	1	0	0	0	0	44
Hartford	6	8	0	0	0	4	0	1	0	3	34
New Haven	12	2	0	0	0	0	0	0	0	0	54
MIDDLE ATLANTIC											
New York:											
Buffalo	25		0				1				
New York	343	292	0	0	0	95	7	7	0	76	1,737
Rochester	13	6	0	0	0	3	0	0	0	20	77
Syracuse	14	2	0	0	0	5	0	0	0	21	56
New Jersey:											
Camden	6	5	0	0	0	2	0	0	0	7	41
Newark	43	17	0	0	0	7	0	0	0	28	124
Trenton	5	1	0	0	0	1	1	0	0	3	51
Pennsylvania:											
Philadelphia	97	80	0	0	0	33	2	0	0	57	571
Pittsburgh	31	22	0	0	0	15	1	1	0	19	223
Reading	4	7	0	0	0	0	0	0	0	3	32
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	22	42	1	2	0	7	0	0	0	16	173
Cleveland	53	17	0	0	0	18	1	0	0	61	231
Columbus	13	2	2	0	0	7	0	0	0	16	69
Toledo	14	11	0	0	0	7	1	1	0	95	86
Indiana:											
Fort Wayne	6	0	1	0	0	1	0	0	0	0	25
Indianapolis	13	83	12	1	0	6	0	0	0	37	115
South Bend	4	2	0	0	0	0	0	0	0	0	18
Terre Haute	3	3	0	1	0	2	0	0	0	0	20
Illinois:											
Chicago	135	175	3	1	0	52	2	3	0	57	808
Springfield	2	18	0	0	0	0	0	0	0	3	21
Michigan:											
Detroit	111	216	3	1	0	26	1	1	0	99	369
Flint	11	28	1	17	0	1	0	0	0	9	32
Grand Rapids	11	7	0	5	0	2	0	0	0	25	22
Wisconsin:											
Kenosha	3	5	0	0	0	0	0	0	0	7	4
Milwaukee	30	46	0	0	0	10	0	0	0	92	143
Racine	7	0	0	0	0	1	0	0	0	2	13
Superior	3	0	2	0	0	1	1	0	0	1	19
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	10	1	0	0	2	0	0	0	2	21
Minneapolis	60	27	2	0	0	4	0	0	0	76	117
St. Paul	34	14	1	0	0	3	0	0	0	25	78

City reports for week ended March 9, 1929—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—continued											
Iowa:											
Davenport	2	3	1	1			0	0		0	
Des Moines	7	39	2	0			0	0		1	20
Sioux City	2	1	1	0			0	0		1	
Waterloo	2	42	1	0			0	0		16	
Missouri:											
Kansas City	16	35	5	0	0	8	0	0	0	4	120
St. Joseph	2	0	0	1	0	2	0	0	0	0	48
St. Louis	37	14	3	1	0	16	1	2	0	42	231
North Dakota:											
Fargo	2	6	0	0	0	0	0	0	0	5	10
South Dakota:											
Aberdeen	4	0	0	3			0	0		0	
Sioux Falls	2	0	0	0			0	0		0	8
Nebraska:											
Omaha	4	5	4	1	0	3	0	0	0	4	75
Kansas:											
Topeka	2	3	1	0	0	0	0	0	0	5	12
Wichita	3	28	1	0	0	0	0	0	0	6	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	4	3	0	0	0	0	0	0	0	0	23
Maryland:											
Baltimore	38	28	0	0	0	18	1	3	2	92	276
Cumberland	0	0	0	0	0	0	0	0	0	0	12
Frederick	1	0	0	0	0	0	0	0	0	0	1
Dist. of Columbia:											
Washington	28	31	1	0	0	14	1	0	0	34	163
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	1	6
Norfolk	2	2	0	0	0	3	0	0	0	22	
Richmond	4	4	0	0	0	5	0	0	0	4	74
Roanoke	1	5	1	0	0	1	0	0	0	0	21
West Virginia:											
Charleston	0	0	0	0	0	2	0	0	0	14	37
Wheeling	2	0	0	0	0	0	0	0	0	3	20
North Carolina:											
Raleigh	0	1	0	0	0	0	0	0	0	0	17
Wilmington	0	0	1	3	0	0	0	0	0	0	8
Winston-Salem	1	1	3	0	0	2	0	0	0	27	18
South Carolina:											
Charleston	1	3	1	0	0	2	0	0	0	1	25
Columbia	0	1	0	0	0	2	0	0	0	0	13
Georgia:											
Atlanta	5	6	4	0	0	6	0	0	0	4	
Brunswick	0	0	0	0	0	1	0	0	0	0	4
Savannah	1	0	2	0	0	2	0	0	0	0	29
Florida:											
Miami	1	1	1	0	0	0	0	0	0	24	37
Tampa	0	0	0	0	0	2	1	0	0	7	25
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	8	0	1	0	1	0	0	0	0	19
Tennessee:											
Memphis	5	12	3	0	0	7	0	0	1	15	84
Nashville	3	3	0	0	0	7	0	1	0	1	48
Alabama:											
Birmingham	3	4	7	0	0	7	1	0	0	7	83
Mobile	0	0	0	0	0	1	0	0	0	0	28
Montgomery	0	2	0	0			0	0		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	1	0	0			0	0		0	
Little Rock	2	2	0	0	0	5	0	0	0	7	

City reports for week ended March 9, 1929—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—continued											
Louisiana:											
New Orleans	8	51	0	0	0	16	2	2	1	1	176
Shreveport	1	2	1	1	0	0	0	0	0	0	33
Oklahoma:											
Oklahoma City	2	8	4	8	0	5	0	0	0	0	48
Tulsa	1	3	2	3			0	0		1	
Texas:											
Dallas	3	5	5	22	0	0	0	0	0	5	
Fort Worth	1	9	2	31	0	2	0	0	0	1	50
Galveston	0	0	0	0	0	0	0	3	0	0	12
Houston	1	4	3	1	0	4	0	0	0	0	80
San Antonio	1	6	0	1	0	10	0	0	0	0	93
MOUNTAIN											
Montana:											
Billings	1	3	0	1	0	0	0	0	0	0	6
Great Falls	2	3	1	0	0	0	0	0	0	2	10
Helena	0	0	0	0	0	0	0	0	0	0	5
Missoula	0	0	0	0	0	0	0	0	0	0	8
Idaho:											
Boise	0	1	2	0	0	0	0	0	0	0	7
Colorado:											
Denver	15	7	2	0	0	7	0	0	0	11	100
Pueblo	1	1	0	0	0	1	0	0	0	0	11
New Mexico:											
Albuquerque	1	0	0	0	0	5	0	0	0	39	18
Utah:											
Salt Lake City	3	3	2	4	0	2	0	0	0	3	41
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle	11	4	5	1			0	1		41	
Spokane	6	3	9	1			0	0		0	
Tacoma	3	2	3	4	0	0	1	1	0	0	27
Oregon:											
Portland	6	11	12	24	0	2	1	0	0	0	63
Salem	1	2	0	0	0	0	0	0	0	0	
California:											
Los Angeles	32	66	6	0	0	29	1	1	0	45	313
Sacramento	2	20	1	0	0	3	0	2	0	2	45
San Francisco	17	75	3	1	0	8	0	2	0	29	170

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									
New Hampshire:									
Manchester	0	0	0	1	0	0	0	0	0
Massachusetts:									
Boston	1	0	0	0	1	0	0	0	0
Connecticut:									
Hartford	0	0	0	1	0	0	0	0	0
New Haven	0	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	28	13	4	0	0	0	1	0	0
Syracuse	1	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelhpia	7	3	1	0	0	0	0	0	0
Pittsburgh	11	2	0	1	0	0	1	0	0

City reports for week ended March 9, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	3	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis	0	1	0	0	0	0	0	0	0
Illinois:									
Chicago	13	4	2	0	0	0	1	0	0
Michigan:									
Detroit	24	8	3	1	0	0	1	1	0
Flint	0	0	0	1	0	0	0	0	0
Wisconsin:									
Milwaukee	6	5	1	1	0	0	0	0	0
Racine	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	1	1	0	0	0	0	0
Missouri:									
Kansas City	10	7	0	0	0	0	0	0	0
St. Louis	11	5	0	0	0	0	0	0	0
North Dakota:									
Fargo	0	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	1	0	0	0	0	0	0	0	0
Virginia:									
Richmond	0	0	0	1	0	0	0	0	0
West Virginia:									
Wheeling	1	0	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta [1]	1	0	0	0	0	0	0	0	0
Savannah	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham	1	0	0	0	1	2	0	0	0
Mobile	0	0	0	0	0	2	0	0	1
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	1	1	0	0	2	2	0	0	0
Shreveport	1	0	0	0	0	1	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:									
Fort Worth	0	0	0	0	0	1	0	0	0
Galveston	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Denver	4	2	0	0	0	0	0	0	0
Pueblo	0	0	0	0	0	0	0	0	1
Utah:									
Salt Lake	14	8	0	0	0	0	0	0	0
Nevada:									
Reno	2	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	4	0	0	0	0	0	0	0	0
Spokane	1	0	0	0	0	0	0	0	0
Tacoma	0	0	0	0	0	0	0	1	0
California:									
Los Angeles	5	1	0	0	1	1	1	0	0
Sacramento	1	0	0	0	0	0	0	0	0
San Francisco	10	1	1	0	0	0	0	0	0

[1] Typhus fever; 1 case at Atlanta, Ga.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended March 9, 1929, compared with those for a like period ended March 10, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases had estimated aggregate populations of more than 31,000,000. The 91 cities reporting deaths had nearly 30,000,000 estimated population. 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, February 3 to March 9, 1929—Annual rates per 100,000 population compared with rates for the corresponding period of 1928 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 9, 1929	Feb. 11, 1928	Feb. 16, 1929	Feb. 18, 1928	Feb. 23, 1929	Feb. 25, 1928	Mar. 2, 1929	Mar. 3, 1928	Mar. 9, 1929	Mar. 10, 1928
98 cities	118	170	122	177	118	177	[2] 122	174	[3] 133	174
New England	118	136	131	172	118	138	124	140	109	145
Middle Atlantic	141	231	147	235	139	224	140	234	[3] 187	214
East North Central	113	174	115	169	106	169	131	163	130	171
West North Central	146	100	150	125	131	125	[4] 136	113	144	131
South Atlantic	67	121	73	155	67	168	64	140	67	132
East South Central	81	63	81	63	68	35	54	98	68	84
West South Central	119	130	119	126	182	191	[5] 156	93	119	170
Mountain	78	44	44	186	44	71	61	186	61	97
Pacific	70	133	80	82	110	161	75	141	37	171

MEASLES CASE RATES

98 cities	418	790	406	885	458	993	[2] 585	1,123	[3] 547	1,120
New England	566	1,614	545	1,658	385	1,908	640	1,980	428	1,658
Middle Atlantic	129	649	114	702	140	880	158	1,003	[3] 166	973
East North Central	703	440	760	530	882	564	1,141	760	982	884
West North Central	1,192	217	982	241	1,252	256	[4] 1,687	342	1,698	491
South Atlantic	133	2,034	135	2,275	167	2,499	197	2,698	234	2,830
East South Central	14	1,312	41	1,543	0	1,171	61	1,543	61	1,227
West South Central	36	1,321	51	1,925	83	1,986	[5] 63	1,719	107	1,309
Mountain	1,341	186	1,019	97	923	168	697	142	819	283
Pacific	140	719	170	693	150	750	237	893	147	906

SCARLET FEVER CASE RATES

98 cities	247	300	278	290	262	291	[2] 301	290	[3] 297	299
New England	308	432	376	441	294	414	339	347	310	377
Middle Atlantic	186	334	222	331	202	336	230	346	[3] 220	359
East North Central	318	310	340	280	340	285	401	369	410	292
West North Central	311	291	360	266	373	276	[4] 340	262	356	291
South Atlantic	146	224	157	222	144	243	137	207	155	245
East South Central	244	77	258	98	183	98	217	112	197	175
West South Central	241	101	265	118	281	122	[5] 220	97	281	130
Mountain	113	540	87	346	113	204	218	257	157	195
Pacific	314	192	339	230	302	233	509	194	424	192

[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, 1929 and 1928, respectively.
[2] Omaha, Nebr., Fort Smith, Ark., and Galveston, Tex., not included.
[3] Buffalo, N. Y., not included.
[4] Omaha, Nebr., not included.
[5] Fort Smith, Ark., and Galveston, Tex., not included.

Summary of weekly reports from cities, February 3 to March 9, 1929—Annual rates per 100,000 population compared with rates for the corresponding period of 1928—Continued

SMALLPOX CASE RATES

	Week ended—									
	Feb. 9, 1929	Feb. 11, 1928	Feb. 16, 1929	Feb. 18, 1928	Feb. 23, 1929	Feb. 25, 1928	Mar. 2, 1929	Mar. 3, 1928	Mar. 9, 1929	Mar. 10, 1928
98 cities	5	22	8	20	12	25	[2] 16	17	[2] 12	23
New England	0	0	0	0	0	0	2	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	[3] 0	0
East North Central	8	14	15	12	15	13	24	18	18	14
West North Central	2	110	0	102	15	92	[4] 10	63	6	92
South Atlantic	0	23	2	27	4	29	7	21	6	25
East South Central	0	21	0	35	0	56	7	0	7	21
West South Central	51	16	24	20	99	8	[5] 118	20	99	36
Mountain	26	44	70	168	35	62	87	53	44	115
Pacific	7	69	25	18	20	125	25	49	17	69

TYPHOID FEVER CASE RATES

98 cities	5	7	5	5	4	5	[2] 4	10	[2] 5	4
New England	2	9	5	5	9	7	2	0	5	2
Middle Atlantic	4	6	4	3	4	5	2	8	[4] 4	3
East North Central	3	6	2	3	2	1	0	7	3	4
West North Central	2	6	12	4	6	4	[4] 8	6	4	2
South Atlantic	6	10	6	8	4	10	2	13	6	10
East South Central	7	7	14	14	7	28	14	70	7	7
West South Central	28	41	12	12	8	16	[5] 21	32	20	4
Mountain	9	0	0	0	0	0	9	9	0	0
Pacific	7	0	7	8	5	5	7	8	17	3

INFLUENZA DEATH RATES

91 cities	58	18	54	23	45	22	[4] 40	25	[2] 34	23
New England	90	7	57	11	41	7	20	7	16	21
Middle Atlantic	58	15	44	18	35	24	30	16	[3] 24	29
East North Central	28	10	36	12	33	14	31	17	31	16
West North Central	51	6	33	9	45	3	[4] 45	15	21	18
South Atlantic	92	31	60	38	69	31	67	34	47	27
East South Central	126	54	222	54	81	46	148	123	74	54
West South Central	106	58	158	92	138	75	89	104	122	75
Mountain	78	53	87	71	78	35	52	89	61	62
Pacific	43	20	43	27	39	20	33	24	23	20

PNEUMONIA DEATH RATES

91 cities	231	172	223	177	194	166	[4] 222	193	[2] 204	196
New England	387	149	305	170	235	147	274	193	219	205
Middle Atlantic	298	201	254	196	192	156	240	218	[3] 234	221
East North Central	133	114	182	137	170	156	180	148	159	156
West North Central	186	159	180	141	207	107	[4] 214	159	195	144
South Atlantic	240	230	243	216	238	231	255	205	234	212
East South Central	193	222	163	192	155	222	281	245	237	306
West South Central	199	204	219	283	260	275	215	266	235	258
Mountain	235	151	244	168	226	248	279	266	183	266
Pacific	134	182	128	172	134	115	154	155	144	121

[2] Omaha, Nebr., Fort Smith, Ark., and Galveston, Tex., not included.
[3] Buffalo, N. Y., not included.
[4] Omaha, Nebr., not included.
[5] Fort Smith, Ark., and Galveston, Tex., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities of each group, approximated as of July 1, 1929 and 1928, 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	
			1929	1928	1929	1928
Total	98	91	31, 568, 400	31, 052, 700	29, 995, 100	29, 498, 600
New England	12	12	2, 305, 100	2, 273, 900	2, 305, 100	2, 273, 900
Middle Atlantic	10	10	10, 809, 700	10, 702, 200	10, 809, 700	10, 702, 200
East North Central	16	16	8, 181, 900	8, 001, 300	8, 181, 900	8, 001, 300
West North Central	12	9	2, 712, 100	2, 673, 300	1, 736, 900	1, 708, 100
South Atlantic	19	19	2, 783, 200	2, 732, 900	2, 783, 200	2, 732, 900
East South Central	6	5	767, 900	745, 500	704, 200	682, 400
West South Central	8	7	1, 319, 100	1, 289, 900	1, 285, 000	1, 256, 400
Mountain	9	9	598, 800	590, 200	598, 800	590, 200
Pacific	6	4	2, 090, 600	2, 043, 500	1, 590, 300	1, 551, 200

FOREIGN AND INSULAR

INFLUENZA IN FOREIGN COUNTRIES

According to current publications of the health section of the League of Nations, the death rate from influenza in 107 large English towns was 31.8 per 1,000 population during the week ended February 23, as compared with 24.4 during the preceding week. During the week ended March 2, 2,183 deaths from influenza occurred in these towns, an increase of 23.2 per cent over the 1,764 deaths reported during the preceding week. Influenza deaths were reported to be decreasing in London, and in most Lancashire towns. The incidence in Leeds remained the same, while there was an increase at Birmingham, Sheffield, and Stoke-on-Trent. The epidemic was spreading in Yorkshire and the Midlands. It was reported to be increasing in western Ireland, and decreasing in Scotland and northern Ireland.

A large sickness insurance society of west German towns reported a decrease in influenza cases during the week ended February 23. There was also a decrease in north German towns. There was an increase in the death rates of towns of the Rhine area to February 16. On February 25, however, reports showed a much lower incidence at Frankfort, Dortmund, Mannheim, and Cologne than was reported on the corresponding day of the preceding week. The death rates of south German towns increased slightly, influenza deaths, however, being rare.

The death rate of Amsterdam, Netherlands, was 20.9 during the week ended February 23, as compared with 22.3 during the preceding week.

The death rate in certain Spanish towns was still high, being 40.1 in Barcelona, and 34.4 in Seville during the week ended February 16. In most towns, however, the epidemic was decreasing.

The deaths attributed to influenza in Hungary numbered 13, 62, 103, 203, and 182, respectively, during the 5 weeks ended March 2.

During the week ended February 16, 10 deaths from influenza were reported in Prague, Czechoslovakia, as compared with 32 and 47 during the two preceding weeks. The epidemic was still spreading in certain rural districts of Bohemia, while it was slightly decreasing in Brno, Moravia. The prevailing type was extremely mild.

On February 28, influenza was reported to be decreasing in nearly all towns of Denmark, although still increasing in a few rural districts.

The number of influenza cases reported in Sweden during the first half of February was 6,173, as compared with 6,012 during the last

half of January. The cases were distributed over the country, the incidence being perhaps lower in the north than in the south.

The influenza epidemic had decreased in Norway, the death rates for Bergen and Oslo during the week ended February 23 having returned to their normal seasonal level.

CANADA

Provinces—Communicable diseases—Week ended March 2, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases from eight provinces of Canada for the week ended March 2, 1929, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal fever				1					1
Influenza	3		9	30	1			8	51
Lethargic encephalitis			1					2	3
Poliomyelitis		1						1	2
Smallpox			3	15	3	31	1	21	74
Typhoid fever	1		7	6		2	2	1	19

CZECHOSLOVAKIA

Communicable diseases—January, 1929.—During the month of January, 1929, communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	1		Puerperal fever	53	19
Cerebrospinal meningitis	18	7	Rabies	1	1
Diphtheria	1,426	99	Scarlet fever	1,998	53
Dysentery	14	1	Trachoma	138	
Malaria	1		Typhoid fever	553	48
Paratyphoid fever	11		Typhus fever	6	

GREAT BRITAIN

England and Wales—Vital statistics—October–December, 1928, and year 1928.—During the fourth quarter of the year 1928, 155,669 births and 115,639 deaths were registered in England and Wales, giving a birth rate, on an annual basis, of 15.7 per 1,000 population, and a death rate of 11.7 per 1,000. The infant mortality rate was 69 per 1,000 births. The figures are provisional.

During the 13 weeks ended December 29, 1928, deaths from certain communicable diseases were notified in 107 county boroughs and great towns, including greater London, as follows:

Disease	Deaths	Deaths per 1,000 population	Disease	Deaths	Deaths per 1,000 population
Diarrhea and enteritis (under 2 years)	987		Scarlet fever	99	0.02
Diphtheria	457	0.09	Smallpox	1	
Influenza	829	.17	Typhoid fever	40	
Measles	203	.04	Whooping cough	415	.03

Estimated population, excluding noncivilians, 19,679,350.

Deaths from certain communicable diseases were reported in 156 smaller towns for the quarter ended December 31, 1928, as follows:

Disease	Deaths	Disease	Deaths
Diarrhea and enteritis (under 2 years)	117	Scarlet fever	17
Diphtheria	103	Typhoid fever	18
Influenza	253	Whooping cough	80
Measles	53		

The following figures are taken from the report for the year 1928, showing births and deaths for the year in England and Wales with rates per 1,000 population. The figures are provisional.

Births	660,267	Death rate per 1,000 population	11.7
Births per 1,000 population	16.7	Deaths of infants under 1 year	42,693
Stillbirths	27,567	Deaths under 1 year per 1,000 births	65
Deaths (excluding stillbirths)	460,440		

JAMAICA

Communicable diseases—Four weeks ended March 2, 1929.—During the four weeks ended March 2, 1929, cases of certain communicable diseases were reported from Kingston, Jamaica, and from the Island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		1	Puerperal fever		2
Chicken pox	3	9	Tuberculosis (pulmonary)	23	54
Dysentery	2	6	Typhoid fever	13	80
Leprosy		1			

PORTO RICO

San Juan—Communicable diseases—Eight weeks ended March 2, 1929.—During the eight weeks from January 6 to March 2, 1929, cases of communicable diseases were reported in San Juan, Porto Rico, as follows:

Disease	Week ended—							
	Jan. 12	Jan. 19	Jan. 26	Feb. 2	Feb. 9	Feb. 16	Feb. 23	Mar. 2
Diphtheria	1	1			1	3		2
Dysentery				4	1		2	
Influenza	2	1				1		
Malaria	10	4	13	11	7	4	3	3
Measles	7	52	36	65	37	94	69	117
Puerperal fever						1		
Syphilis	1	4			3	1	5	5
Tetanus (infantile)								1
Tuberculosis	4	2	16	13	14	21	18	18
Typhoid fever		1	1	2	2			
Whooping cough	1		11					

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		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				Mar. 2, 1929
						22	29	5	12	19	26	2	9	16	23	
Ceylon	C						5	2								
	D						2	2								
Colombo	C								3	1	1					
	D								1							
Ingiriya Province	C			1												
	D			1												
China:																
Canton	C	1		2		2			1							
	D	1				1										
Kwantung—Dairen	C	3														
	D	1														
Shanghai	C	2														
	D	3	3													
India	C	32,287	17,028	20,937	23,528	4,602	4,507	4,128								
	D	17,731	10,187	12,490	14,950	2,839	2,673	2,589								
Bassein	D				1					1	4	1		2		
Bombay	C	6	15	1	4					1						
	D	4	7	1	4											
Calcutta	C	68	41	219	247	28	12	33	30	23	43	34	29			
	D	40	39	140	155	15	13	13	20	13	30	19	23	30	31	
Madras	C	149	97	203	102	6		6	4	1		1	2	2		
	D	88	73	115	42	4	2	8	3		1	4		1		
Madras Presidency	C				1											
	D				1											
Moulmein	D				1											
Negapatam	C	1			1		3	1	2	8	9		1	1	1	
	D	7	1		1											
Rangoon	C	2	1		5				6	4	4	1				
	D	2	2		3			1	4	1	3	1	4			
Tuticorin	C	1	1		2	33	39	27	16	31	31	7	16	5	1	
	D			1		19	18	15	9	15	21	5	11	2	1	
Vizagapatam	D	5														

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

CHOLERA—Continued

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				Mar. 2, 1929
						22	29	5	12	19	26	2	9	16	23	
India (French):																
Chandernagor	C	3	16	42	25	2	1		1							
	D	2	7	34	10	2	1		1							
Karikal	C	41	9	111	7	4	9	20	21	40	61	31	18	28		
	D	26	8	85	4	4	8	13	16	34	46	31	17	21		
Pondicherry Province	C	132	31	6	37	5	25	37	25	27	58	32	22	29		
	D	72	19	5	30	3	12	21	19	21	45	22	16	24		
Indo-China (see also table below):																
Pnompenh	C	3		1	1		1	3	2	1		1	7	22	12	
	D	2		1	1		1					1	5	20	10	
Saigon	C	2		1			3	1	2	3	1	2				
	D	1					1	1	2	1	1	1				
Japan: Osaka	C		1													
Kwangchow-Wan (see table below).																
Siam	C	21	14	47	104	35	45	84	60	59	72	29	35	39	43	41
	D	14	10	27	68	13	33	53	51	50	38	23	27	26	32	22
Anthoang	C					4				1				3		
	D					1				1				2		
Ayudhaya	C	1	7	15	2	1	2	8	5	1		2	1			4
	D	1	6	12	2	1	1	6	6	1		2	1			4
Bangkok	C	5	4	5	18	9	8	2	3	11	14	12	17	17	19	12
	D	1	1	3	12	3	1	2		18	8	8	9	12	7	5
Chaxoengsao	C									1		3	5		1	
	D									1		3	5		1	
Dhannapuri	C	3			6	2	3	9	2	2			1	1	1	1
	D	3			5	1	2	7		2						
Lobpuri	C						26	27	21					2		
	D						23	18	20					1		
Nondpuri	C				1		4									
	D				1		2									
Pradhumdham	C												1			
	D												1			
Singhapuri	C								17	2		3	1	1		
	D								12	2		4	1	1		

Smud Prakar	C				37	19	6	3	2	6		2	2	1			
	D				28	4	5	1		5		2	1				
Smud Sagara	C			27	34												
	D			12	16												
On vessel: S. S. Glenapp, at Yokohama, from Shanghai	C	P															

Place		August 1928	September, 1928	October, 1928	November, 1928			December, 1928			January, 1929			February, 1929	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20
Indo-China (French) (see also table above):															
Annan	C	11	4	11			5								
Cambodia	C	38	16	25		4	17		21	4	26	25	28	29	40
Cochin-China	C	28	28	52	27	48	81		351	346	232	202	226	107	115
Tonkin	C	2													
Kwangchow-Wan	C	1				1									

PLAGUE

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended—													
						December, 1928		January, 1929				February, 1929				March, 1929			
						22	29	5	12	19	26	2	9	16	23	2	9	16	23
Algeria:																			
Algiers	C			2															
Oran	C		1	2															
Philippeville	C		2																
Argentina: [1]																			
Buenos Aires [2]																			
Catamarca Province: Recreo	C			P	9														
Cordoba Province—																			
Canada Honda	C			14															
Laborde	C							1											
Jujuy Province: Perico	C							1					3						
Rosario	C						1	1					1						[3] 20

[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.
[3] Unofficial report.

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

PLAGUE—Continued

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				March, 1929			
						22	29	5	12	19	26	2	9	16	23	2	9	16	23
Argentina—Continued.																			
Santiago del Estero	C			7															
Tucuman Province: El Mollar	C				5														
Azores: St. Michaels Island	C	2	3	3			1	1		1									
	D			1															
Belgian Congo:																			
Djugu	C			2									1						
Lenza	C			1	1		1												
Brazil:																			
Para	C										1								
Santos	C				2														
British East Africa (see also table below):																			
Mombasa	C	1	3																
	D	1	3																
Plague-infected rats			2																
Tanganyika	C	8																	
	D	8																	
Uganda	C	102	106	114	124	36	21	51	47	39	37								
	D	64	86	103	121	35	21	51	45	38	37								
Canary Islands:																			
Las Palmas	C	2	2																
	D	1	1																
Teneriffe	C	5	2		1														
	D	3																	
Laguna	C		4										1						
Ceylon:																			
Colombo	C	3	2	1	4	2	1	2	3		1	2	3	2					
	D	3	1	1	4	2	1	2	3		2	1	2	2					
Plague-infected rats			1		5								2	2					
Jaffna	C		2	1															
	D		2																

China:																			
Hainan	C													P					
Mongolia—																			
Chien Chia Tien	C	P	P																
Tungliao	C	220	173	19															
Urga	C	P																	
Shansi—Fengchow	C		P																
Suyuan Province	C													P					
Dutch East Indies:																			
Celebes—Makassar	C		1																
	D		1							1									
Plague-infected rats			4	2										1					
Java—																			
Batavia and West Java	C	49	29	23	43	9	18	13	14	13	12			1					
	D	49	29	22	42	9	18	12	14	13	12								
Plague-infected rats					1														
East Java and Madura	C	1	16																
	D	1	16																
Surabaya	C		1	2	1					1	1								
	D		1	2						1	1								
Kediri Residency	C										P								
Ecuador (see table below).																			
Egypt:																			
Alexandria	C	2									2	1							
Amrieh District	C	11	1																
	D	5	1																
Assiout Province	D	1	1	3															
Beheira Province	C	5	1																
Beni-Suef	C	16			4		4	2	3	1	2							4	2
	D	5			1		1	1			3							1	1
Dierout	D			1															
Girga	C	5			1														
Kena Province	C				4														
Menoufieh Province	C			7															
Tanta	C			5															
Greece (see also table below):																			
Athens and Piræus	C	2	5	5															
Corfu	C	1			1														
Patras	C	1																	
Hawaii Territory—Hawaii:																			
Hamakua District—Honokaa	D	2																	
Plague-infected rats		4																	
India	C	3,354	6,209	8,710	7,767	1,760	1,289	2,402											
	D	1,573	3,225	4,428	4,863	1,194	771	1,611											
Bassein	D	1		2					1	1			3		2	1			
Bombay	C	7	4	5	4					1									
	D	6	5	2	6					1	1	2		1	1				
Plague-infected rats		20	13	7	32	7	5	14	9	11	10	11	6		8				
Calcutta	D	1																	
Cochin	D							10											
Madras Presidency	C	317	196	539	686	136	111	152	101	120	107								
	D	147	97	235	307	69	41	73	48	65	60								

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

PLAGUE—Continued

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				March, 1929			
						22	29	5	12	19	26	2	9	16	23	2	9	16	23
India—Continued.																			
Rangoon	C	17	7	2	1				1		1	2							
	D	15	5	3	1	1			1	1	1	2	1	1	1				
Plague-infected rats		2		4									5	1	4				
Indo-China (see also table below):																			
Pnompenh	C	6	1	1	4		2	2	4	2	4	1	3	2		1			
	D	4	1	1	4		1	2	3	2	4	1	2	1		1			
Saigon	C			1											1				
Tourane	C													5					
Iraq:																			
Baghdad	C	4		9	10	1	2	5	1	2	1	3			1	6	3	4	
	D	2		5	5	1	2	5			1	2				3			
Plague-infected rats												1	5	6	6		5		
Naudham	C										2								
Plague-infected rats													1						
Madagascar (see also table below):																			
Tamatave	C	9	13	7		2				1									
	D	4	10	3	1														
Nigeria:																			
Lagos	C	60	88	83	43	5	4	2	1	1	4	2		2	4				
	D	59	88	77	41	5	3	2	1	1	3	1		1	4				
Plague-infected rats		62	91	145	30		13	15											
Paraguay: Asuncion	C		3																
Peru (see table below).																			
Senegal (see table below).																			
Siam	C			1	9				4			6	1						
	D			1	8				3			6	1		1				
Bangkok	C			1				2	2	1				1					
	D			1				1		1		1		1					
Panknampo	C				8														
Straits Settlements:																			
Ipoh	C	2																	
Penang	C		1																
Singapore	C														1				
Syria (see table below).																			

Turkey:																			
Adalia	C		1	1															
Constantinople	C		1																
Union of South Africa:																			
Cape Province	C			2	1			2	2										
Orange Free State	C		1	P					1	1									
Transvaal	C								3										
Union of Socialist Soviet Republics:																			
Astrakan—																			
Kirghiz District	D	54																	
Krasnoiarsk District	D	1																	
Chita District	C	1																	
Kalmouks District	C			10															
Kasacks	C			7															
Ural Government	C			7															
Uruguay: Rivera	C								1										
On vessel:																			
S. S. Automedon, at Penang, Straits Settlements	C		P																
S. S. Halydan, at Bangkok, from Singapore	C						1				1								
S. S. Sjomand, at Alexandria, from Batoum	C																		

Place		September, 1928	October, 1928	November, 1928	December, 1928	January, 1929	February, 1929
British East Africa (see also table above):							
Kenya	C	15	37	16	15		
Uganda	C	128	134				
	D	98	108				
Ecuador: Guayaquil	C	3	3	21	20	25	
	D		2	8	7	12	
Plague-infected rats		27	21	29	75	29	
Greece (see also table above)	C			1	2	3	
	D			1	1	1	
Indo-China (see also table above)	C	6	2			11	
Madagascar (see also table above)	C	59	88		282		
	D	51	84		116		
Ambositra Province	C		8	14	30		
	D		8	14	25		
Antisirabe Province	D	10	2	6	3		
Itasy Province	D	2	5	6	6		
Moramanga Province	C	20	38	32	10		
	D	18	35	32	10		
Tamatave	C	18	9	2	1		
	D	10	7	2	1		
Tananarive Province	C	75	100	159	75		
	D	62	95	141	71		

Place		September, 1928	October, 1928	November, 1928	December, 1928	January, 1929	February, 1929
Peru	C	3	10	18	26		
	D	1	4	6	6		
Senegal	C	199					
	D	127					
Baol [1]	C	73	39	18	4		
	D	40	14	6	2		
Cayor [1]	C	20	17		14		
	D	8	6		10		
Fatick [1]	C		35				
	D		20				
Louga [1]	C		14	2			
	D		5	1			
Rufisque [1]	C	1	49	8			
	D	1	14	4			
Thies [1]	C	106	51	11			6
	D	78	29				4
Tivaouane [1]	C						12
Syria: Beirut	C		1	3			

[1] Reports incomplete.

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

SMALLPOX

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				March, 1929		
						22	29	5	12	19	26	2	9	16	23	2	9	16
Algeria:																		
Algiers	C	2	4	2	1													
Oran	C		21		7													
Arabia: Aden	C	1		1	1				1	1	1							
Brazil (see table below).																		
British East Africa (see also table below), Kenya—																		
Mombasa	C		1			3												
British South Africa:																		
Northern Rhodesia	C	382	195	342	67	173												
	D	22	7	14	8	23												
Southern Rhodesia	C	5	9	1	5													
Tanganyika	C			1								1						
Canada:																		
Alberta	C	6	4	4	21	1		1	1	3					2	1		
Calgary	C																1	
Edmonton	C					1	11	1	1	2					2			
British Columbia—Vancouver	C	5	16	21	25	13	9	17	12	24	16	16	10	17	14	21		
Manitoba	C		1	14	29	16	2	1	4	3		12	6	2	5	3		
Winnipeg and vicinity	C				17		1	1										
Nova Scotia	C								5	1		1						
Ontario	C	3	15	12	15	4	1	14	17	7	4	25	47	38	23	15		
Kingston	C	1		1														
North Bay	C				1									1	2			
Ottawa	C	6	2	6	2										1			
Sarnia	C			1														
Toronto	C											1						
Prince Edward Island	C											2						
Quebec	C	28	75	118	125	10	8	7	12	9	5	5	5	6	14	3		
Montreal	C	12	4	10	3	2	1	2	3	5	2	2	1	3	10	2	1	
Quebec	C	13	12	12	6				4	4	2		2					
Saskatchewan	C	3	1	10	52	1	6	7		3	2	13	17	13	22	31		
Moose Jaw	C	2		2	1													
Regina	C	1			2			1		2	4							
Saskatoon	C											3	1					

China:																		
Amoy	C	P	P	P	2	2	1	1	1									
Canton	C				14	7			11	14	21	36	16	17	25	15		
	D								2	1			1	3	1	2		
Chefoo	C	P		P	P													
Foochow	C	P	P	P	P	P	P	P	P	P	P	P						
Hong Kong	C	9	13	66	202	81	73	80	85	91	78	58	80	47	54	51	37	
	D	7	8	21	78	22	38	48	44	83	77	67	59	61	59	34	42	
Manchuria—																		
Changshun	C											3			2			
Fushun	C	1		1						1		1	3					
Harbin	C	1	1	7	4				2	5								
Kwantung—Dairen	C	2	1	2	5								1		1	3		
	D		1										1			2		
Mukden	C	2	1					1					3					
	D												1					
Shanghai—																		
Foreigners only	C	2	3	9	6	5	9	5	4	8	3	4	8	3				
Including natives	D		6	20	32	14	12	14	24	15	18	18	9	9	9	10		
Tientsin	C	1	4	6	2			4	2		2		1					
Tsingtao	C													P				
Colombia: Cartagena	D				7													
Dominican Republic	C												1					
Dutch East Indies:																		
Balikpapan	C														1			
Belawan Deli	C	10	9	5	6		2	3	2	5	11	2	8	4	3			
	D	2	3	2	2			3		1	4		1	3	2			
Borneo—																		
Pontianak	C	4	2	1														
	D		1															
Samarinda	C		3	16	27	8	3						4		17			
	D			2	4	2		1							3			
Celebes—Makassar	C				1													
Java—																		
Batavia and West Java	C	1	6	2	1													
	D		2															
East Java and Madura	C	5	5	1														
	D	6		1														
Surabaya	C	4	2	1	2													
Palembang	D													1				
Sumatra—																		
Baros	C							70	26	50	14	25						
	D							22	8	12	7	5						
Medan	C	7	14	4	3	3	1	3	2		1	2	8					
	D		4	2	1	1	1	3			4		1					
Ecuador (see table below).																		
Egypt:																		
Gharbieh	C													1				
Port Said	C												1					
Suez	C				1													

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

SMALLPOX—Continued

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				March, 1929		
						22	29	5	12	19	26	2	9	16	23	2	9	16
France (see table below).																		
Great Britain:																		
England and Wales	C	430	514	581	719	201	131	188	213	171	239	250	231	275	.....	.....	.....	.....
Birmingham	C	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bradford	C	1	1	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....
Bristol	C	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Cardiff	C	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
Castleford	C	5	8	6	8	3	2	4	7	4	14	16	14	22	31	.....	.....	.....
Hull	C	13	7	3	1	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Leeds	C	6	.....	1	2	1	.....	.....	.....	.....	1	1	1	1	1	.....	.....	.....
Liverpool	C	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
London	C	8	12	21	14	6	10	14	6	6	13	17	4	9	17	.....	.....	.....
Manchester	C	3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newcastle-on-Tyne	C	.....	1	1	3	.....	.....	.....	.....	.....	.....	1	5	2	.....	.....	.....	.....
Nottingham	C	15	5	1	3	3	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Plymouth	C	3	2	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sheffield	C	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stoke-on-Trent	C	.....	.....	9	11	1	1	1	1	2	8	2	2	5	.....	.....	.....	.....
Scotland—																		
Arbroath	C	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dundee	C	1	3	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greece (see table below).																		
Hedjaz	C	.....	.....	.....	.....	.....	.....	22	26	55	21	22	55	29	42	.....	.....	.....
	D	.....	.....	.....	.....	.....	.....	9	6	20	7	9	20	13	15	.....	.....	.....
India	C	4,553	2,792	3,041	5,902	1,583	1,621	2,176	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	D	1,116	696	836	1,602	388	406	702	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bombay	C	14	24	9	11	.....	3	10	21	34	42	44	38	44	93	.....	.....	.....
	D	11	12	4	4	.....	1	6	14	13	17	25	23	32	37	.....	.....	.....
Calcutta	C	13	7	2	13	6	.....	.....	4	8	4	7	13	13	9	.....	.....	.....
	D	17	4	2	7	2	1	.....	3	5	1	3	7	6	7	.....	.....	.....
Karachi	C	.....	1	.....	.....	.....	.....	2	4	.....	10	1	16	28	24	.....	.....	.....
	D	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	4	7	4	.....	.....	.....
Madras	C	90	77	71	58	8	5	36	45	50	82	37	54	60	56	.....	.....	.....
	D	21	23	22	16	2	1	4	18	6	11	12	6	13	6	.....	.....	.....

Moulmein	C	4	2		5				3	2	2	2		4				
	D	1			1			1			1	1						
Negapatam	C	46	51	38	33		4	3	1	3	14	2	7	2	2			
	D	10	11	8	5						1		5	2	1			
Rangoon	C			1	1			1			4	1	3	4	6			
	D											1		1	1			
Tuticorin	C		3							1		1			1			
Vizagapatam	C	14	1						2	2			6	12	4			
	D	3												2				
India (French):																		
Chandernagor	C	9	4	3														
	D	2	4	3														
Pondicherry Province	C	92	111	84	48	24	19	11	21	22	13	12	12	18				
	D	87	73	67	46	20	18	11	14	20	13	10	8	14				
Indo-China (see also table below):																		
Pnompenh	C	19	28	30	44	13	10	6	9	11	6	38	22	19	15	13		
	D	15	10	5	20	8	6	1	6	8	3	17	14	10	8	11		
Saigon	C	1	3	2			2	1	9	2		1			1	1		
	D			2					6			1						
Iraq:																		
Baghdad	C	34	38	40	46	5	6	7	2	13	1	1	2	4	2	1		2
	D	17	12	23	45	10	1	6	12	2	1			4	1			
Basra	C	1	23	35	35	3	3	5		5	4	1	8	4	2		1	
	D	1	9	33	26	2	2	3		4	3	1	2	3	1		1	
Hillah Liwa	C							34	20	20								
	D							5	9	9								
Kirkuk Liwa	C				173			86						9	9			
	D				38			17						2	2			
Mossoul	C			58	294	6	13	30	6	2		23	5	14	14			
	D			23	110	12	14	5	8	4		12	1	2	2			
Sinjar	C							45	8	61								
	D							1	4	15								
Italy:																		
Palermo	C			2	3	1	2											
Turin	C													1				
Ivory Coast (see table below).																		
Jamaica (outside Kingston) (alastrim)	C	3	2						1									
Kingston (alastrim)	C				1													
Japan:																		
Nagasaki	C									1	1	1						
	D										1	1						
Osaka	C															1		
Macao	D							5	4	2	8		14	24	24	12		
Malta: Valetta	C		1															
Mexico:																		
Aguascalientes	D				2			1		1	1	1			3			
Chihuahua	D									1								
Jalisco (State)	C		11															
Guadalajara	D	3	1		4		1				2	2	4	4	2	1	1	
Juarez	D		1			2	3				1					1		
Mexico City and surrounding territory	C	1	1	5		1		1	5	2								
	D	1																
Palomas	C															1		

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

SMALLPOX—Continued

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				March, 1929		
						22	29	5	12	19	26	2	9	16	23	2	9	16
Mexico—Continued.																		
Saltillo	D			1														
San Luis Potosi	D	1	2	1														
Tampico	C			1														
Torreon	D		1															
Morocco (see table below).																		
Nigeria:																		
Lagos	C			1														
Southern Provinces	C										57	105						
	D										11	20						
Poland	C		1	1	3	1							41					
	D			1									3					
Portugal (see also table below):																		
Lisbon	C					2				2		2						
Senegal (see table below).																		
Siam	C	1	3	1	8				19				2					
	D								2									
Bangkok	C				1													
Spain: Valencia	C														1	1		
Straits Settlements: Singapore	C	1	2					1			2	1	2	2		1		
Sudan (Anglo-Egyptian)	C	152	89	79	220	192	157	129	13	190	17	58		49	71	13	55	30
	D	34	19	13	42	12	43	1	1	24	5	5		13	14	11	16	6
Sudan (French) (see table below).																		
Sweden: Stockholm	C				1													
Switzerland: Lucerne Canton	C		1															
Syria (see table below).																		
Tunisia: Tunis	C	1		1	2	13		1										
Union of South Africa:																		
Cape Province	C	P	P	P	P													
Natal	C						1											
Orange Free State	C		P	P														
Transvaal	C	P	P	P														
Upper Volta	C	P	10	5							1			2				

Place																					
On vessel:																					
S. S. Ballarat, en route to Cape Town, South Africa	C			1																	
Motorship Tantalus at Amsterdam	C															3					

Place		September, 1928	October, 1928	November, 1928			December, 1928			January, 1929			February, 1929	
				1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20
Indo-China (see also table above)	C	73	100	55	57	32	23	100	120	74	130	107	128	236
Ivory Coast	C	2	1											
Senegal	C	4	2											
Sudan (French)	C	P	32				2		P					
	D		2											
Syria: Beirut	C		1	1		1			1		1		21	3

Place		September, 1928	October, 1928	November, 1928	December, 1928	January, 1929	February, 1929
Brazil: Porto Alegre	C	1	12	3			
British East Africa (see also table above):							
Kenya	C		36	37	31		
Zanzibar	C		2				
Ecuador: Guayaquil	C	22	6	6	13	12	7
	D	1	3	1	1	1	2
France	C	3	3		18		

Place		September, 1928	October, 1928	November, 1928	December, 1928	January, 1929	February, 1929
Greece	C	6	6	6	6	8	
	D		1			1	
Morocco	C	4	5	2			
Portugal (see also table above)	C	24	27				
	D	2	3				
Turkey	C					16	

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

TYPHUS FEVER

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Oct. 21–Nov. 17, 1928	Nov. 18–Dec. 15, 1928	Week ended— December, 1928		January, 1929				February, 1929				March, 1929		
						22	29	5	12	19	26	2	9	16	23	2	9	16
Algeria:																		
Algiers	C	2	1	4														
Constantine Department	C												2	2				
Oran	C	2	1	2							5							
Bulgaria	C	6	8	4	9			4	1	3	4			3				
	D			1														
Sofia	C	3											1					
Chile: Valparaiso	C				1													
China:																		
Canton	C									2								
Hong Kong	C									1								
Manchuria—																		
Harbin	C				2													
Kwantung	C	3	2	1														
Chosen (see table below).																		
Egypt:																		
Alexandria	C	2																1
	D	1																
Assiout Province	C		1															
Assouan Province	C													2				
Behaira Province	C		2							6								
	D		1															
Cairo	C	1	1															
	D	1	1															
Daqalhiya Province	C				15	4	3	3	1									34
	D				1				2									
Gharbieh	C												1					
Menoufieh Province	C		1															
	D		1															
Port Said	C	1	1	1														
Suez	C	6	4															

Greece (see table below).																		
Ireland:																		
Irish Free State—																		
Clare County—Scariff	C			1														
Cork County	C															1		
Dublin	C	5									1							
	D											1						
Kerry County—Tralee	C	1	7															
Japan: Miyagi	C		2															
Lithuania (see table below).																		
Mexico (see also table below):																		
Aguascalientes	D				2													
Chihuahua	D						1											
Mexico City, including municipalities in Federal District	C	15	9	15	12	3	2	1	3	3	4	1	3	1				
	D	1	1	2	1			1	1		1		2	1				
San Luis Potosi	D					1												
Morocco	C	3	1	1	16				4	1	7	7	5	6	10			
Palestine	C	10	11	6	12	1		1			2		1		2			
Peru (see table below).																		
Poland	C	65	31	81	117	47	73	38	45	33	76	72	41	47				
	D		4	10	11	2	5	4	5	5	3	4	3	6				
Portugal: Oporto	C	1			1													
Rumania	C	12	11	17	42	21	49	38	59	56	40	47						
	D	3			1		2	3	6	5	7	7						
Tunisia	C	7		4	6							2		3				
Menzel	C		1	1														
Sfax	C		11															
Turkey (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P	P		P	P						
East London	C		1															
	D			1														
Natal	C	1	P	P	P	1	1	P										
Orange Free State	C		P	P	P	P	P	P	P		P	P						
Transvaal	C								P		1							
Yugoslavia (see table below).																		

Place		September, 1928	October, 1928	November, 1928	December, 1928	January, 1929	February, 1929
Chosen	C	36					
Chemulpo	C		1	1			
Seoul	C	2	3		3		
Greece: Athens	C	1	1	4	1		
Lithuania	C	1		4	11	32	24

Place		September, 1928	October, 1928	November, 1928	December, 1928	January, 1929	February, 1929
Mexico: Sonora (see also table above)	D					1	
Peru	C			3			
Turkey	C	6	4		19	1	
Yugoslavia	C	6	1	17	7	15	

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

YELLOW FEVER

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

Place		Aug. 26–Sept. 22, 1928	Sept. 23–Oct. 20, 1928	Week ended— Oct. 27, 1928	November, 1928				December, 1928					January, 1929			
					3	10	17	24	1	8	15	22	29	5	12	19	26
Brazil:																	
Bahia	C	1		1													
	D	2												1			
Para	D														2		1
Rio de Janeiro [1]	C	9	6	1	1					2				2			
	D	8	4	1										2			
Dahomey: Ouidah Military Camp	C						1		1								
	D						1										
Gambia: Bathurst	C				2		2	2		1							
	D					1		1		1							
Liberia: Monrovia	C																[2] 3
	D																2
On vessel:																	
S. S. Berini, at Santos, Brazil	C		4														
	D		1														
S. S. Victoria, at Manaos, from Para, Brazil	C														1		
	D														1		

[1] 29 cases of yellow fever with 14 deaths were reported at Rio de Janeiro during January, 1929, mostly suburban. During February there were 25 confirmed cases of yellow fever at Rio de Janeiro, with a mortality of about 66 per cent of the cases.

[2] Suspected cases.