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A TRACHOMA SURVEY OF 29 PUBLIC SCHOOLS ON OR NEAR INDIAN RESERVATIONS IN MONTANA

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Previous surveys made by the medical service of the Office of Indian Affairs and by the Montana State Department of Health had shown that there was much trachoma among the Indians on the seven reservations in Montana, the incidence ranging from 25 to 50 per cent and being greater among the poorer and more primitive tribes. Dr. C. E. Yates, of the medical service of the Office of Indian Affairs, states that more work has been done on the Blackfeet Reservation than in any other place, and that 15 per cent of the population of this tribe have been treated, leaving 10 per cent of them as active untreated cases.

There has been a gradual increase in the number of Indian children attending the public schools, and we have known that there is some trachoma among the white children in the public schools on and adjacent to the various Indian reservations.

Local health officers have tried on several occasions to enforce the State regulations which require the exclusion from school of trachoma cases. Naturally some mild or border-line trachoma cases and some cases of follicular conjunctivitis were found; and, since the diagnosis is based entirely on the clinical appearance, there has been much difference of opinion among the local doctors, and even among the specialists to whom the cases were referred. This has caused many disputes between the parents of pupils and the local health authorities and has brought considerable discredit upon our public health program.

PURPOSE OF THE PRESENT SURVEY

The Montana State Department of Health, in deciding upon the present survey, had two purposes in mind: First, to determine as accurately as possible the amount of trachoma which actually existed among the white children in the public schools on and adjacent to the Indian reservations; second, to determine the importance of school contact as a factor in the spread of trachoma.

PERSONNEL

It was very desirable, for obvious reasons, that the diagnoses should be as accurate as possible; and in order to accomplish this the United States Public Health Service and the medical service of the Office of Indian Affairs were requested to furnish expert personnel for making the examinations. The Public Health Service detailed for the work Surg. Paul D. Mossman and Asst. Surg. W. C. Plumlee. The Office of Indian Affairs detailed Dr. C. E. Yates.

AREA COVERED

In arranging the schedule so as to see as many children as possible in the time available, it was decided to limit the survey to three counties and to visit the largest and most accessible schools in these counties. In Roosevelt County 13 schools were visited, in Glacier County 8 schools, and in Big Horn County 8 schools, making 29 schools. It will be noted that at Wolf Point, Hardin, Lodge Grass, and Wyola 2 schools were listed at each place. This is because of the fact that at each of these places, although having one school system, some of the grades were put in a separate building so far removed from the main school that there was no contact between the pupils either in classes or during recess periods. It often happened that several children from the same family would be part in one school building and part in the other.

In Roosevelt County the county seat is at Wolf Point and the Indian agency offices are at Poplar. The reservation is known as the Fort Peck Reservation, and the Indians belong mostly to the Yankton Sioux and Assiniboin Tribes. This is no longer a "closed" reservation, and the Indians have gradually spread out into the surrounding territory. Poplar and Wolf Point are the chief Indian trading centers.

In Glacier County the county seat is at Cut Bank and the Indian agency offices are at Browning. The Indians belong to the Blackfeet Tribe. This is a "closed" reservation, and the Indians are rather concentrated in and around Browning, which is their chief trading center. Cut Bank, Meadow Brook, F. Lake, and Boundary are just outside the reservation.

In Big Horn County, the county seat is at Hardin and the Indian agency headquarters are at Crow Agency. The Indians belong to the Crow Tribe. This is a "closed" reservation. The Crow Indians seem to be more rural in their tastes—that is, there seemed to be far less tendency to live in the settlements than was apparent in the other two counties. Even at Crow Agency itself there were only a few Indian families living in the town. The chief trading centers are Hardin and Lodge Grass.

PROCEDURE AND RECORD KEEPING

In order to complete the survey at each school as rapidly as possible, the method adopted was to have the teacher of each classroom make a list of the pupils present, noting race, sex, and age. Then, each of the three examiners would be assigned a room, examine the eyes of the children, weed out the obvious negatives, including those with normal eyes and those with simple conjunctivitis, and refer to the office all children who were either positive or about whom there could be the slightest doubt as to diagnosis. After the entire school had been covered in this way the examiners then went to the office and jointly examined each referred child, discussed the case where necessary, and arrived at a conclusion as to diagnosis. The positive cases, therefore, represent the joint opinion of all three examiners.

The diagnoses include, besides the normal cases and conjunctivitis cases, a small group classed as suspicious. This group includes those border-line cases upon which no definite diagnosis could be made and also those cases, which were very few in number, in which there was a difference of opinion among the examiners as to diagnosis. The positive cases are divided into active untreated trachoma, post-operative active trachoma, and post-operative arrested trachoma. The active untreated trachoma cases are those upon which a positive diagnosis was made and which have never had any surgical work done. No record was made of medical treatment in these cases. The post-operative active group is subdivided into post-operative active, which includes those cases which need further operative procedure, and post-operative slightly active, which includes those cases having a few islands of granulation tissue and needing medical but not surgical treatment.

FINDINGS

The number of children examined in each school and the conditions found are given in detail in the accompanying tables. Table 1 represents 13 schools in Roosevelt County; Table 2, the 8 schools in Glacier County; Table 3, the 8 schools in Big Horn County. In each of these tables the schools are arranged in the order in which they were visited. Table 4 is a summary of each county with the final total, and in Table 5 the schools are classified according to the relative number of white and Indian children and the amount of trachoma found in each race. In giving the totals, the post-operative arrested cases are included as positive trachoma, since this is necessary in order to give an accurate picture of the amount of disease, both past and present, which was found in each community.

TABLE 3.—*Trachoma survey in Big Horn County, Mont.*

[Sept. 24—Oct. 4, 1928.]

School.....	Hardin High		Hardin Grade		Crow Agency		Lodge Grass Upper		Lodge Grass Lower		St. Annis		Wyola Main		Wyola Branch		
	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.	
Race.....																	
Trachoma, active untreated.....	0	0	0	13	0	8	2	2	1	0	0	0	0	0	0	0	1
Trachoma, post-operative active.....	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
Trachoma, post-operative slightly active.....	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0
Trachoma, post-operative arrested.....	0	0	0	1	0	9	1	4	0	0	0	0	0	0	0	0	1
Suspicious.....	1	0	2	1	1	5	1	1	0	0	0	2	1	0	0	0	0
Conjunctivitis.....	39	1	40	7	20	14	32	1	3	0	3	5	3	3	0	0	0
Normal.....	139	5	229	9	56	41	97	32	34	13	1	9	29	9	9	3	3
Total examined.....	179	7	271	33	77	79	133	48	36	17	1	20	34	14	12	5	5
Total trachoma.....	0	1	0	16	0	19	3	8	1	1	0	0	0	0	0	0	2
Multiple cases in families.....	0	1	0	0	0	11	2	2	1	0	0	2	0	2	0	0	2

TABLE 4.—*Summary of trachoma survey in Montana*

[Sept. 24—Oct. 4, 1928]

County.....	Roosevelt		Glacier		Big Horn		Total	
	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.	Wh.	Ind.
Race.....								
Trachoma, active untreated.....	5	15	0	9	3	31	8	55
Trachoma, post-operative active.....	0	17	0	22	0	5	9	35
Trachoma, post-operative slightly active.....	4	1	5	14	0	4	9	26
Trachoma, post-operative arrested.....	16	1	2	56	1	15	20	81
Suspicious.....	15	20	3	20	5	9	28	15
Conjunctivitis.....	207	23	63	84	140	38	410	84
Normal.....	1,010	131	347	182	594	121	1,651	434
Total examined.....	1,260	198	496	302	743	223	2,435	723
Total trachoma.....	34	37	8	98	44	55	46	190
Multiple cases in families.....	10	19	4	50	3	29	23	104

DISCUSSION

In Table 5 the first classification includes those schools which have only white children; these are six schools in Roosevelt County, all of them except Bainville having one or two rooms, and three schools in Glacier County, all 1-room schools. These schools have no Indian children and, in addition, they have no trachoma. Living conditions in the homes of these children are, presumably, similar to conditions in the other white homes in the county, the only difference being that there are no Indians living in the immediate neighborhood. The negative findings in these schools is rather suggestive evidence that the presence of Indians is an important factor in the spread of trachoma in Montana.

The second classification includes one school in Roosevelt County and two schools in Glacier County in which there are both white and Indian children and in which neither white children nor Indian children have trachoma. The findings in this group make it necessary to qualify the previous statement by stating that the presence of Indians *with trachoma* is an important factor in the spread of the disease in Montana.

The third classification includes two schools in Roosevelt County, two in Glacier County, and six in Big Horn County in which there are both white and Indian children, and in which there is some trachoma among the Indian children but no trachoma among the white children. This will require further qualification of the statement to the extent of recognizing that something more than the mere presence of trachomatous Indians in the neighborhood or even their presence in the school is necessary before the disease will make its appearance among the white population.

In the fourth classification there are two schools in Roosevelt County, one school in Glacier County, and two schools in Big Horn County in which there are both white and Indian children and some trachoma among both races.

TABLE 5.—Results of survey classified as to presence of Indians and incidence of trachoma

Classification	County	School	Examined			Trachoma		
			Wh.	Ind.	Total	Wh.	Ind.	Total
(1) All white children. trachoma.	Roosevelt.	South District No. 3	6	-----	6	-----	-----	-----
		do.....	Pioneer	8	-----	8	-----	-----
		do.....	Lanark	8	-----	8	-----	-----
		do.....	Bainville	184	-----	184	-----	-----
		do.....	Harvey	18	-----	18	-----	-----
		do.....	McCabe	38	-----	38	-----	-----
	Glacier.	Boundary	16	-----	16	-----	-----	-----
		do.....	F. Lake	15	-----	15	-----	-----
		do.....	Meadow Brook	10	-----	10	-----	-----
		Total.....		303	0	303	0	0	0

TABLE 5.—Results of survey classified as to presence of Indians and incidence of trachoma—Continued

Classification	County	School	Examined			Trachoma		
			Wh.	Ind.	Total	Wh.	Ind.	Total
(2) Both white and Indian children. No trachoma.	Roosevelt.	Froid.....	87	6	93	-----	-----	-----
		Glacier.....	4	6	10	-----	-----	-----
		do.....	263	36	299	-----	-----	-----
		Total.....	354	48	402	0	0	0
(3) Both white and Indian children. White, no trachoma; Indian, trachoma.	Roosevelt.	North Side (W. P.)...	17	5	22	-----	2	2
	do.....	Brook on.....	51	29	80	-----	1	1
	Glacier.....	Glacier Park.....	35	18	53	-----	4	4
	do.....	Blackfoot.....	4	23	27	-----	9	9
	Big Horn.	Hardin High.....	179	7	186	-----	1	1
	do.....	Hardin Grade.....	271	33	304	-----	16	16
	do.....	Crow Agency.....	77	79	156	-----	19	19
	do.....	St. Annis.....	1	20	21	-----	6	6
	do.....	Wyola Main.....	34	14	48	-----	2	2
do.....	Wyola Branch.....	12	5	17	-----	2	2	
Total.....		681	233	914	0	62	62	
(4) Both white and Indian children. White, trachoma; Indian, trachoma.	Roosevelt.	Wolf Point.....	449	37	486	6	11	17
	do.....	Poplar.....	203	90	293	20	13	33
	Glacier.....	Browning.....	79	219	298	8	85	93
	Big Horn.	Lodge Grass (upper).....	133	48	181	3	8	11
	do.....	Lodge Grass (lower).....	36	17	53	1	1	2
Total.....		900	411	1,311	38	118	156	
(5) Both white and Indian children. White, trachoma; Indian, no trachoma.	Roosevelt.	Culbertson ¹	197	2	199	8	-----	3
(6) All Indian children. Some trachoma.	Roosevelt.	Riverside.....	-----	29	29	-----	10	10
Total.....		2,435	723	3,158	46	190	236	

¹ In previous years Culbertson School has had 25 to 30 Indian children enrolled, some of them having trachoma.

The fifth classification, in which is found one school in Roosevelt County having both white and Indian children with white children having trachoma but the Indians none, needs a little further explanation. This school, while having only 2 Indian pupils this year, has previously had 25 to 30 Indian pupils each year, some of them having trachoma. The fact that only 2 are present this year does not give the true picture of the contact in the school and community, so that this school really belongs in Group 4.

Classification 6 includes one school in Roosevelt County in which the pupils are all Indian and the survey was made at the special request of local physicians.

In the further discussion of Group 4 is included the one school in Group 5. The two schools in Big Horn County, called the Upper Lodge Grass School and the Lower Lodge Grass School, really represent one school unit. The two lowest grades in this school are in a separate building about one-half mile from the main school, and there is no

contact between the children in the classroom or on the school grounds, although many of the children in the lower school have brothers and sisters in the main school, and, therefore, the contact in the homes is close. There are in reality, then, only five communities in which white children were found having trachoma, namely, Wolf Point, Poplar, Culbertson, Browning, and Lodge Grass. The question naturally arose as to why these five communities should have trachoma among the white children when so many other communities have none although the amount of exposure in school is as great.

In order to obtain additional information about contacts between the races, a questionnaire was sent to the various school principals asking about contact in the homes, playgrounds, churches, movies, dances, and elsewhere. The replies brought to light some important facts. It will be noted that three of the five communities in which trachoma was found in the white children are in Roosevelt County, where the Fort Peck Reservation is located, and 75 per cent of the white cases are in these three communities. The Fort Peck Reservation is an "open" one, the Indians have spread out more among the whites, there is more intermarriage between the races, the mixed bloods are more numerous and associate more with the whites, and social contact between the races is much closer than on the other two reservations. This is especially true at Wolf Point, Poplar, Brockton, and Culbertson. At Brockton, for some unknown reason, there is little trachoma among the Indians, the only case found in school being post-operative, slightly active.

At Browning the situation differs from all other places covered by the survey in that the Indian population is overwhelmingly greater than the white. Inquiry as to contact outside of schools in Browning brought this reply: "The children play together considerably, otherwise most of the white children would have no playmates." Only eight cases were found among the white children in Browning school; all of them were post-operative, and, judging from their ages, were probably infected during the preschool age.

At Lodge Grass there seemed to be very little contact between the races outside of school. There were four cases here, three of them being in one family which has lived on the reservation for many years, and the other being in a Mexican child recently come to the place and infected elsewhere.

If school contact were an important factor in the spread of trachoma we would expect to note a tendency to concentration in certain classrooms, but a study of the records shows a remarkably even spread throughout the various schools, the only exception to this being room 6 in Poplar School, where nine post-operative cases were found.

A further study of the individual records shows that about 50 per cent of the cases in both whites and Indians are multiple cases in

families. This was determined by the duplication of surnames and by many inquiries. It is probable that many of the single cases had other members of their respective families infected also, but this could not be determined during the survey.

SUMMARY

Trachoma was found in the white school children at Wolf Point, Poplar, Culbertson, Browning, and Lodge Grass.

No trachoma was found in the white school children at North Side (W. P.), Brockton, Blackfeet, Hardin, Crow Agency, and Wyola, although there was exposure in the school.

No trachoma was found in the white school children in the other schools where there were no Indians with active trachoma.

Fifty per cent of both white and Indian children were multiple cases in families.

CONCLUSIONS

The presence in the community of Indians with trachoma is a necessary factor in the appearance of trachoma among the white school children in Montana.

Home contact is an important factor in the spread of trachoma.

School contact is not an important factor in the spread of trachoma.

SANITARY ENGINEERING COURSES OF ENGINEERING COLLEGES OF THE UNITED STATES

By ISADOR W. MENDELSON, *Associate Sanitary Engineer, United States Public Health Service*

A previous compilation¹ of data concerning sanitary engineering courses in colleges of the United States, prepared in 1924, brought forth considerable supplementary information from colleges and sanitarians. At the request of the committee on education of sanitary engineers of the public health engineering section of the American Public Health Association, and because of the interest shown in this compilation by university officials and sanitarians, the information is here brought up to 1928.

Data were obtained from universities in the summer of 1928 in the form given in the publication mentioned. A review of this information will show that, although more extensive than the earlier compilation, it is not complete, due to failure to receive replies from certain institutions; also, that a number of sanitary engineers are

¹ Sanitary Engineering Courses of Engineering Colleges in the United States. By Isador W. Mendelsohn. Pub. Health Rep., vol. 39, Aug. 15, 1924, pp. 1989-1997. (Reprint No. 945.)

graduating from colleges not offering a sanitary engineering course, but simply a regular civil engineering curriculum with water-supply and sewage-disposal subjects, and bacteriology, chemistry, and public health electives. Examples of such universities are Johns Hopkins, Princeton, Wisconsin, and Yale.

The returns show that 19 colleges of the United States have given sanitary engineering courses. Of these, three had discontinued the course for various reasons. Six of the remaining 16 institutions were offering regular, distinct courses in sanitary engineering, and 10 were giving optional courses; that is, as part of the civil engineering curriculum. An interesting feature of this phase of the subject, and one which bespeaks a healthy development of the sanitary engineering profession, is the location of these colleges in every section of the country. For the sake of a clear conception of these data, they have been assembled in certain tables presented herewith.

TABLE 1.—Relative time allotted to subject groups in sanitary engineering and civil engineering courses of engineering colleges in the United States, 1928

College	Sanitary engineering course— Per cent of total time in course given to subject group						Civil engineering course— Per cent of total time in course given to subject group					
	Cultural	Pure science	General en- gineering	Sanitary en- gineering	Public health	Miscellaneous	Cultural	Pure science	General en- gineering	Sanitary en- gineering	Public health	Miscellaneous
1. Agricultural & Mechanical College of Texas (1925).....	13.0	27.7	39.9	11.6	1.9	5.0	13.9	27.7	50.2	3.2	0.0	5.0
2. Carnegie Institute of Technology (1908-1918) ¹	14.9	29.0	40.7	12.7	0	2.7	18.9	24.3	49.5	4.1	0.5	2.7
3. Columbia University (1909).....	12.6	34.6	35.0	7.0	1.3	2.5	19.6	30.7	45.3	1.9	0	2.5
4. Cornell University.....	6.3	19.4	58.3	16.0	0	0	6.3	19.4	63.1	4.9	0	6.3
5. Harvard University.....	12.5	20.0	43.5	20.0	4.0	0	16.0	25.5	55.0	3.5	0	0.0
6. Iowa State College.....	13.0	26.5	49.1	8.7	0	2.7	14.4	26.5	50.5	5.9	0	2.7
7. Massachusetts Institute of Technology (1889).....	14.0	32.0	41.0	9.0	0	4.0	14.0	28.0	48.0	6.0	0	4.0
8. Pennsylvania State College.....	18.6	25.6	45.3	4.9	0.6	5.0	18.6	20.5	52.2	3.1	0.6	5.0
9. Stanford University.....	20.5	18.3	33.0	20.5	0	7.7	20.5	18.3	48.0	5.0	0	7.7
10. State University of Iowa.....	10.9	27.6	48.5	9.4	0	3.6	10.9	27.6	52.9	5.0	0	3.6
11. University of California (1902).....	14.0	26.0	40.0	14.7	0	5.3	31.4	25.3	36.7	1.3	0	5.3
12. University of Illinois (1890).....	14.1	27.5	41.6	12.7	0	4.1	14.1	27.5	50.0	4.9	0	3.5
13. University of Kansas (1908).....	11.6	34.0	40.6	13.8	0	0	11.7	31.4	53.2	3.7	0	0
14. University of Michigan (1912).....	20.0	27.2	44.2	18.6	0	0	20.0	27.2	49.2	3.6	0	0
15. University of North Carolina (1922).....	14.0	22.0	46.0	16.0	2.0	0	14.0	22.0	58.0	5.0	1.0	0
16. University of Pittsburgh ²	15.0	35.0	43.0	7.0	0	0	15.0	28.0	52.0	5.0	0	0
17. University of Texas (1903).....	16.9	35.6	37.3	10.2	0	0	17.4	28.2	51.4	3.0	0	0
18. Villanova College.....	10.0	31.1	44.4	11.8	0	2.7	10.0	30.0	51.2	6.1	0	2.7

¹ Year sanitary engineering course was established.

² From Reprint No. 945, Sanitary Engineering Courses of Engineering Colleges in the United States. From Pub. Health Rep., Aug. 15, 1924.

³ Data regarding this sanitary engineering course are lacking.

In Table 1, the subjects of both sanitary engineering and civil engineering courses are grouped under six headings, and the percent-

age of the curriculum time spent on each was computed by the colleges and furnished the writer. The table is interesting for several reasons. (1) The wide variation in time allotted to the groups by the universities: For instance, in the sanitary engineering course, the percentage of time for the cultural group of subjects varied from 6.3 to 20.5; for the pure science group, 18.3 to 35.6; for the general engineering group, 3.3 to 58.3; for the sanitary engineering group, 4.9 to 20.5; for the public health group, 0 to 4; and for the miscellaneous group, 0 to 7.7. Similarly, in the civil engineering curriculum, the variations by groups are cultural, 6.3 to 31.4; pure science, 18.3 to 31.4; general engineering, 36.7 to 63.1; sanitary engineering, 1.3 to 6.1; public health, 0 to 1; and miscellaneous, 0 to 7.7. Such variations as these denote considerable difference of opinion as to the fundamental concept of a sanitary engineering course. (2) The increase in number of universities offering sanitary engineering courses: The first university to establish a course was Columbia, in 1886. Massachusetts Institute of Technology followed in 1889, and Illinois in 1890. In the period 1900–1910, five additional universities offered sanitary engineering courses—the Universities of California, Texas, and Kansas, Pennsylvania State College, and Carnegie Institute of Technology; from 1910 to 1920, four more—Michigan, West Virginia, Harvard, and Iowa State; and since 1920, four others—State University of Iowa, North Carolina, Agricultural and Mechanical College of Texas, and Stanford University. (3) In comparison with the 1924 compilation, there are three additional institutions offering sanitary engineering courses in the present data, viz, Agricultural and Mechanical College of Texas, Cornell University, and Stanford University. Information already at hand indicates that several other colleges will be included in the list in the next two or three years. In the period between 1924 and 1928, three institutions dropped this course—Carnegie Institute of Technology, University of Pittsburgh, and Villanova College, making a net increase of 16. Such a growth evidently is the outcome of a greater interest in, and the gradual and positive development of, the sanitary engineering profession.

With a small number of graduates annually, it is questionable whether this course need be offered in so many institutions. It would be conducive to greater proficiency in sanitary engineering training were the number of institutions less and were the facilities of the remaining schools increased so that a far more intensive curriculum could be presented than is now the case.

TABLE 2.—Average relative time allotted to subject groups in sanitary engineering and civil engineering courses of engineering colleges in the United States, 1928

Course	Subject groups											
	Regular courses (6 colleges)					Optional courses (10 colleges)						
	Cultural	Pure science	General engineering	Sanitary engineering	Public health	Miscellaneous	Cultural	Pure science	General engineering	Sanitary engineering	Public health	Miscellaneous
Sanitary engineering.....	14.0	25.5	44.1	12.3	1.1	3.0	14.4	28.2	42.9	11.8	0.3	2.4
Civil engineering.....	17.5	24.8	50.5	4.0	.2	3.0	14.5	28.7	51.3	4.5	0	3.0

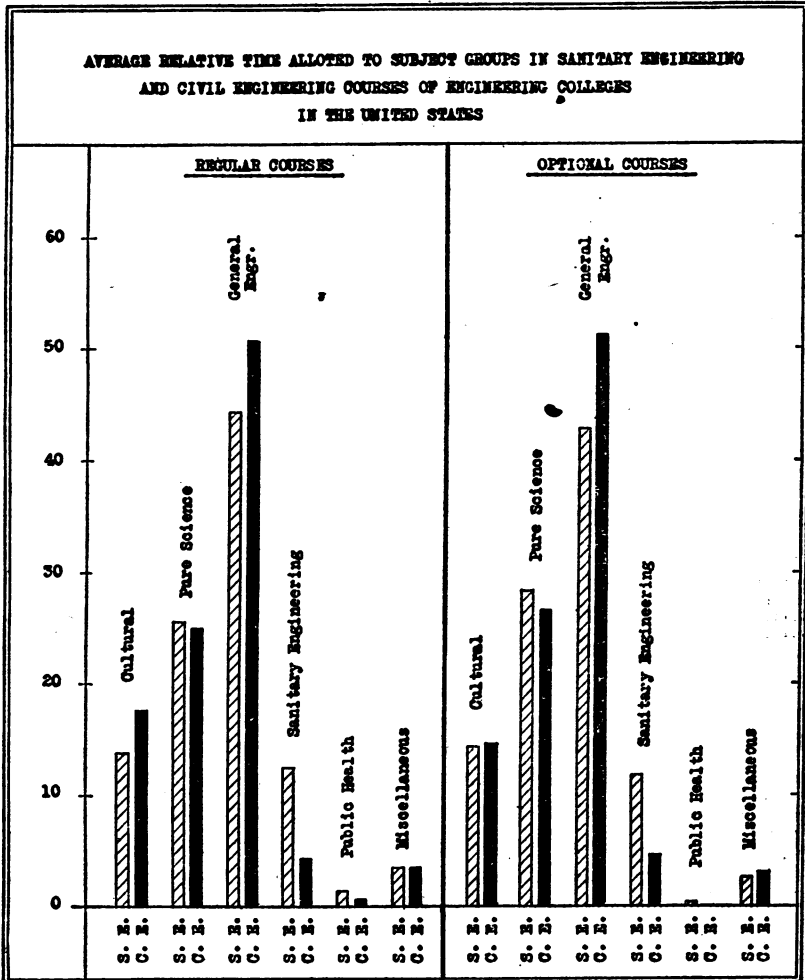


Fig. 1.

In order to provide for a more definite comparison between the sanitary engineering and civil engineering curricula, Table 2 was compiled from Table 1, omitting information for the three colleges which discontinued sanitary engineering courses. Upon reference to Table 2 it is noted that (1) there is no marked difference between sanitary engineering and civil engineering courses, the comparatively slight variation being due to additional time allotted sanitary engineering subjects in the sanitary engineering course at the expense of the general engineering subjects in the civil engineering curriculum; (2) there is no great difference between courses designated as regular sanitary engineering and those known as sanitary options in the civil engineering curriculum; (3) the time devoted to public-health subjects in the sanitary engineering courses is very meager; (4) emphasis on sanitary engineering and public health subjects almost uniformly reflects the personality of the professor of sanitary engineering; (5) Columbia, Harvard, Stanford, and North Carolina, with 5 or 6 year courses, devote more time relatively to sanitary engineering and public-health subjects than do the other institutions with 4-year courses. However, even in the case of these four institutions there is a great variation in the time allotted to sanitary engineering and public-health subjects, and the time spent on the latter is comparatively meager. Comparison of the data in Table 2 with similar information in the 1924 compilation indicates a slight increase in time devoted to sanitary engineering subjects in both curricula.

TABLE 3.—*Subjects given in sanitary engineering and civil engineering courses of engineering colleges in the United States*¹

Subjects	Universities giving subjects	
	Sanitary engineering	Civil engineering
I. Cultural:		
Citizenship.....	9.....	0.
Economics.....	All except 5.....	All except 5.
English.....	All.....	All.
History.....	1, 3, 7, 8, 9, 15.....	1, 3, 7, 8, 9.
Languages.....	2, 3, 8, 9, 12, 13, 14.....	2, 3, 8, 9, 12, 13, 14.
Law (business).....	3, 6, 9, 10, 11, 15, 19.....	2, 3, 6, 9, 10, 19.
Public speaking.....	1, 4, 6, 8, 9, 10, 15, 17.....	1, 4, 6, 8, 9, 10, 17.
II. Pure science:		
Astronomy.....	14.....	3, 14.
Biology.....	1, 2, 4, 6, 7, 8, 9, 11, 12, 15, 17, 19.	2, 6, 11, 13.
Chemistry.....	All.....	All.
Geology.....	All.....	All.
Mathematics.....	All.....	All.
Physics.....	All.....	All.
III. General engineering:		
Contracts and specifications.....	1, 2, 3, 4, 8, 9, 10, 12, 14, 15.....	1, 3, 4, 8, 9, 10, 12, 13, 14.
Cost keeping and management.....	4, 5.....	4, 5.
Drawing.....	All.....	All.
Electrical engineering.....	1, 2, 3, 4, 5, 7, 9, 10, 12, 13, 14, 15, 17, 19.	All except 6.
Engineering discussion.....	2, 6, 10, 13, 19.....	2, 6, 10, 13, 19.
Heat engineering.....	All except 2 and 6.....	All except 6.
Hydraulics.....	All.....	All.
Industrial engineering.....	13.....	2.
Materials.....	All.....	All.
Mechanics.....	All.....	All.

¹ University of Pittsburgh and Villanova College courses, and civil engineering course of University of North Carolina not included; data lacking.

TABLE 3.—*Subjects given in sanitary engineering and civil engineering courses of engineering colleges in the United States—Continued*

Subjects	Universities giving subjects	
	Sanitary engineering	Civil engineering
III. General engineering—Continued.		
Public utilities engineering.....	6, 10, 14.....	6, 10, 12, 14.
Railroad engineering.....	All except 9.....	All except 9.
Roads and pavements.....	All.....	All.
Shop.....	1, 2, 4, 9, 13, 14, 19.....	1, 2, 4, 9, 14, 19.
Structures.....	All.....	All.
Surveying.....	All.....	All.
Water power.....	3, 5, 6, 8, 15.....	3, 5, 6, 14, 19.
IV. Sanitary engineering:		
Municipal sanitation.....	1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 14, 15, 19.....	4, 6, 8, 9.
Sanitary laboratory.....	All except 4 and 17.....	10.
Sewerage and sewage disposal.....	All.....	All except 4.
Waterworks and water treatment.....	All.....	All.
V. Public health:		
Sanitary science and public health.....	1, 3, 5, 6, 8, 11, 15.....	2, 8, 11.
Vital statistics.....	3, 6, 15.....	
VI. Miscellaneous:		
Gymnasium.....	1, 2, 3, 6, 7, 8, 10, 11, 12, 13, 17.....	1, 2, 3, 6, 7, 8, 10, 11, 12, 13, 17.
Military drill.....	1, 6, 7, 8, 10, 11, 12, 19.....	1, 6, 7, 8, 10, 11, 12, 19.

When considering the sanitary and civil engineering courses, a definite variation in subjects would be expected, particularly with so many recent developments in the sanitary engineering profession. Table 3 indicates that, with but few exceptions, the subjects required in the civil engineering course are also required in the sanitary engineering curriculum. Certain of these subjects have but a remote relation to the sanitary engineering curriculum, as, for example, railroad engineering and water power. In many of the subjects, such as electrical and heat engineering, structures and surveying, the time allotted in both curricula is identical, when from the very nature of the courses it would appear that less time would be necessary in the sanitary engineering course. All told, the data in Table 3 indicate a too close adherence to the civil engineering course in the present sanitary engineering curriculum.

To those with the interests of the sanitary engineering profession at heart, it must be somewhat of a surprise to realize that the sanitary engineering course offered at present is really a civil engineering course with certain appended subjects. One would expect that, since sanitation is concerned to a certain extent with the principles of life as well as of matter, of biology, bacteriology, and chemistry, as well as materials and structures, a sanitary engineering curriculum would include a thorough consideration of all these subjects.

TABLE 4.—Number of graduates annually in sanitary engineering courses of engineering colleges in the United States

	Year																					
	188—										19—											
	9	0	1	2	3	4	5	6	7	8	9	0	0	1	2	3	4	5	6	7	8	9	10
Colleges with regular course:																						
5. Harvard University.....																						
7. Massachusetts Institute of Technology.....																						
8. Pennsylvania State College.....																						
10. State University of Iowa.....																						
11. University of California.....																						
15. University of North Carolina.....																						
Colleges with optional course:																						
1. Agricultural and Mechanical College of Texas.....																						
3. Columbia University.....																						
4. Cornell University ¹																						
6. Iowa State College.....																						
9. Stanford University.....																						
12. University of Illinois.....																						
13. University of Kansas.....																						
14. University of Michigan.....																						
17. University of Texas.....																						
19. West Virginia University.....																						
Colleges with discontinued course:																						
2. Carnegie Institute of Technology.....																						
16. University of Pittsburgh.....																						
18. Villanova College.....																						
Total.....	2	0	0	6	0	4	6	4	5	4	2	6	5	8	6	5	14	30	21	0	23	25

	Year																			
	19—																			
	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
Colleges with regular course:																				
5. Harvard University.....																				
7. Massachusetts Institute of Technology.....																				
8. Pennsylvania State College.....																				
10. State University of Iowa.....																				
11. University of California.....																				
15. University of North Carolina.....																				
Colleges with optional course:																				
1. Agricultural and Mechanical College of Texas.....																				
3. Columbia University.....																				
4. Cornell University ²																				
6. Iowa State College.....																				
9. Stanford University.....																				
12. University of Illinois.....																				
13. University of Kansas.....																				
14. University of Michigan.....																				
17. University of Texas.....																				
19. West Virginia University.....																				
Colleges with discontinued course:																				
2. Carnegie Institute of Technology.....																				
16. University of Pittsburgh.....																				
18. Villanova College.....																				
Total.....	34	29	43	59	63	85	71	14	28	25	32	38	40	61	59	48	58	66		

¹ Including graduates for higher degrees.² From 5 to 10 each year.

Table 4 shows a gradual increase in the number of graduates to a peak in the years just before the World War, then a setback as an aftermath of the war, followed by a rapid increase to 1928. If the

graduates from Cornell were included, it may well be that the number would be greater than in 1915 to 1917. The tendency is toward a

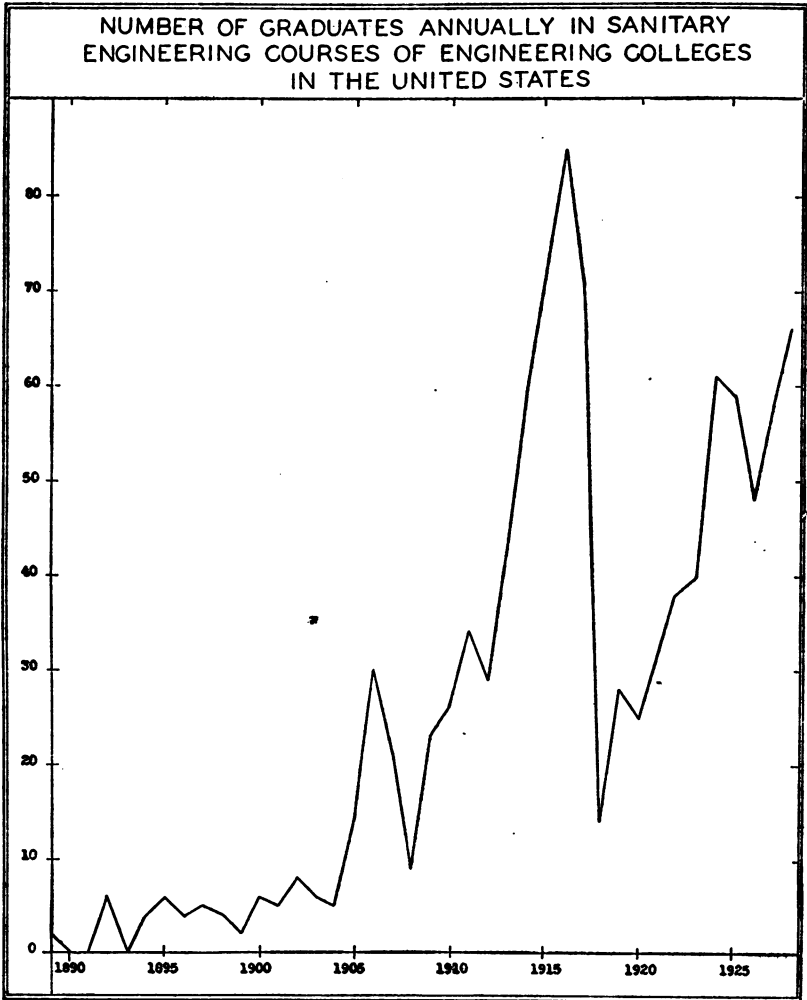


Fig. 2.

rapid and still further increase in graduates. The time may be propitious to consider what the demand for graduates will be in the future.

TABLE 5.—Miscellaneous data of sanitary engineering courses of engineering colleges in the United States

Degree	Number of years in college	College granting degree	Name of course by colleges			
			Sanitary engineering	Sanitary and municipal engineering	Industrial sanitation	Sanitary chemistry
Bachelor of science (civil engineering).....	4	1, 3, 16, 10, 11, 12, 13, 14, 17, 19	3, 6, 10, 12, 14, 17, 19	1, 11, 13		
Bachelor of science (engineering). Bachelor of science (sanitary engineering).....	4			7		
Engineer (civil engineering).....	4			8		
Civil engineer.....	6			9		
Master of civil engineering.....	5	1, 3, 4		3		
Master of science (civil engineering).....	5					
Master of science (engineering).....	5	15, 17	15, 17			
Doctor of science (engineering).....	5	5, 6, 7	6	5, 7	5	5
Doctor of science (engineering).....	6	5		5		

¹ Bachelor of science degree can be obtained in 4 or 5 years. Civil engineering in 5 or 6 years. Prior to 1909, there was a post-graduate course requiring 2 years of work for the degree of sanitary engineer.

² Degree obtained in 4 years at Cornell.

³ Master of science in sanitary chemistry.

⁴ In 1925 present arrangement established—all engineering students completing an undergraduate curriculum of 4 years, followed by a graduate curriculum of 2 years in one of the engineering departments.

Table 5 is interesting because of the variety of degrees offered, the several names by which the courses are known, the number of colleges which give a bachelor of science (civil engineering) degree, and the existence of several institutions with courses requiring more than the established 4-year term. These data open a wide field for discussion as to what form a sanitary engineering course should assume—a period of collegiate work followed by a period of distinctly professional training; or, in addition to these two stages, a third of intensive sanitary engineering specialization to provide for a partition of graduates in accordance with their activities with Federal, State, county, or municipal governments, or in design and construction of sanitary engineering structures with consulting engineers, or in the teaching profession, or in the operation of sanitary utilities; should the special work be given in a greater number of schools or be limited to a few; and should the term of years be lengthened, and to what extent. Attendant upon such consideration is the question of the granting of similar degrees for equivalent training.

It is well at this point to consider the views of one who has had considerable experience with engineering education in this country and abroad. Mr. W. E. Wickenden, director of investigation, Society for the Promotion of Engineering Education, in a letter dated October 1, 1928, expresses himself concerning sanitary engineering education and of engineering education in general in the United States as follows:

Rightly or wrongly, sanitary engineering is viewed by most engineers and educators as a specialty within civil engineering, and there appears to be no well-

defined standard which indicates how great the degree of specialization should be. The general sentiment in American educational circles favors continuing general education as long as possible and deferring specialization to a fairly mature age. In keeping with this policy there is little real specialization in regular undergraduate engineering curricula. Subjects are grouped in accordance with the principal divisions of engineering, but little effort is made to prepare men for the individual types of activity which fall within these broader divisions. While the plan is open to some rather severe criticisms from the theoretical point of view, as a practical expedient it fits in with American conditions and is rather broadly favored by this organization, which would like to inaugurate the introduction of a post-graduate year of intense specialization in a group of finishing schools having special facilities as a more general practice.

Earlier specialization than at the beginning of the senior year is made difficult by the shoddy quality of scientific and mathematical preparation in our secondary schools and the universal habit of using the undergraduate college less as a place for professional training than as a place for personal adjustment. There is a striking lack of continuity between successive generations in this country. We assume as a matter of course that the son will not follow in his father's steps or remain in the same geographical or social circles. This condition places an unparalleled burden of social adjustment on the schools and results in a tendency to subordinate the intellectual and professional elements in education to "adjustment to life's situation." This attitude almost completely dominates the public high schools at the moment, and educators in general are biased in favor of general rather than specific forms of preparation and defer as long as possible any choice which might tend to narrow the field of professional or vocational opportunity for young men.

In all our efforts to improve the standard of professional preparation in America we have to contend with the national tradition of improvising. It seems to be generally assumed that if a young man has good general qualities and training he can turn his hand to anything.

This hang-over from our pioneer life makes it difficult to get young men to select and pursue definite goals. This difficulty is increased by the lack of specialized professional competency among our teachers who are becoming, to an increasing degree, educationists by career. It is rarely the case that an engineering college can draw into the circle of its professorships men who have risen to a responsible level of professional achievement. The variety of subjects which many engineering teachers must cover precludes their being expert in any of them.

A wider inclusion of biological science in secondary and professional education of engineers is highly desirable both from a cultural and technical point of view. If we could gain some margin of time by improvement in the effectiveness of secondary education so that young men would enter universities at the age of eighteen more nearly on a par with those in Germany and France, I firmly believe that it would be desirable to introduce a biological science into all our curricula. This would be of some advantage to the education of sanitary engineers, but would not meet the problem of providing special training in bacteriology, a subject which students are unlikely to elect without a special aim in view.

Our records show that engineering students in the great majority of cases attend colleges which are near their homes and that not much discrimination is shown in the choice of an institution. In fact, every institution seems to be surrounded by the zone in which it enjoys the reputation of being the outstanding leader in its field. As long as this condition exists, it seems best not to push the undergraduate schools toward further degrees of specialization but to try to get the abler students who have special professional interests to migrate after the

undergraduate period to one of a smaller group of institutions that has specialized on a particular field. The French plan of a "complementary year" of intensive specialization for students who have had a rather general preliminary training looks good under American conditions. Perhaps 6 to 10 institutions might develop special centers of training in sanitary engineering on this plan where graduates in civil engineering could point up in one or possibly two years.

These matters are worthy the earnest efforts of university officials and sanitarians to the end that the sanitary engineer of the future may be adequately trained to solve the problems ever arising.

SUMMARY

1. There are 16 colleges in every section of the United States at present offering either regular or optional courses in sanitary engineering.

2. There is considerable difference of opinion among the universities as to the fundamental concept of a sanitary engineering course.

3. The sanitary engineering courses are in reality civil engineering courses with certain appended subjects, such as water supply, sewage disposal, the bacteriology and chemistry of water and sewage, and a little public health.

4. Emphasis in both sanitary engineering and public-health subjects reflects in practically all the institutions the personality of the professor of sanitary engineering.

5. The number of sanitary engineering graduates annually is increasing.

6. There is a great variation in the degrees granted by the institutions for equivalent work and also in the names of the course.

7. In 4 of the 16 institutions the term of the sanitary engineering course is either five or six years.

COURT DECISION RELATING TO PUBLIC HEALTH

Interpretation of term "public laundry" as used in licensing statute.—(Rhode Island Supreme Court; *State v. Wah Lee*, 144 A. 159; decided January 17, 1929.) Sections 1 and 2 of chapter 1200, Laws 1928, provided in part as follows:

SECTION 1. In this act unless the context otherwise requires "public laundry" shall mean and include any plant or equipment conducted or operated as a laundry for profit, and for which business is solicited from the general public, but shall not mean or include a laundry operated exclusively for and in connection with a hospital, school or other institution, hotel, boarding house or private dwelling, nor a laundry operated by one institution which also serves another institution.

* * * * *

SEC. 2. No person shall conduct or operate a public laundry in any city or town * * * until the licensing authorities of such city or town shall have caused an inspection to be made of such laundry and shall have issued a permit

for the operation thereof. Such permit shall be issued upon such terms and subject to such rules and regulations not inconsistent with law, as said licensing authorities may prescribe for the purpose of protecting the public health and the suppression of insanitary conditions. * * *

In a criminal proceeding, in which was charged the conducting of a public laundry in violation of section 2 of said chapter 1200, the district court certified to the supreme court for determination the following question:

If a person operates and conducts an establishment having signs with the word "laundry" printed thereon attached to the building in which such establishment is located, solicits laundry business from the general public for profit, receives soiled clothes to be washed, cleaned, and ironed, sends those clothes to a wet wash laundry, operated by some person other than the defendant, for washing, and upon their return to the person operating and conducting the establishment first in this question mentioned, starches, irons, and prepares them for delivery in packages to the customers, said establishment being equipped with electric ironing machines, flats, starching materials and apparatus, which electric ironing machines, flats, starching materials and apparatus are used by the person first mentioned in this question in such starching, ironing, and preparing for delivery (but such person does no washing of clothes on his premises), is such an establishment to be deemed a "public laundry" within the meaning of section 1, chapter 1200 of the Public Laws of 1928?

The supreme court's answer was that "an establishment such as that described in the question is to be deemed a public laundry within the meaning of section 1, chapter 1200, of the Public Laws of 1928." The reasons which impelled such decision are pointed out in the following excerpts from the opinion:

* * * The standard dictionaries define a laundry as "a place where laundering is being done;" and among the definitions given to the term "to launder" is "to wash, and to smooth with a flatiron or mangle." * * *

The act is based upon a legislative determination that the public health is liable to be endangered by the contamination of clothes while they remain in the possession of a public laundry which is maintained in an insanitary condition or operated in an insanitary manner. The purpose of the general assembly in the enactment is plainly to guard the communities of the State from this danger by a system of inspection and a control of the operation of such laundries through permits.

* * * * *

Whatever may be the etymological derivation of the word, in the social and domestic life of to-day the popular and ordinary meaning of the term "laundry," used in connection with the word "public," is that of a place to which the public are invited to deliver soiled clothes to be washed, dried, starched, ironed, and subjected to the processes ordinarily employed to render soiled clothes suitable for further use. An establishment which performs all or any considerable portion of those services for the public is in common acceptation "a public laundry." We know of no general term other than that of a "public laundry" which would properly designate a place where all of such services are rendered save that of washing the clothes. We think that this is well illustrated by the subject matter with regard to which the question before us arose. It was fully set forth in the arguments of both counsel at the hearing that the respondent is one of a very

large class of Chinamen who conduct establishments throughout all the urban communities of the State; that the proprietor of each of those establishments carries on his business in the same manner as this respondent, and for his own advantage has the washing of the clothes performed by others as set out in the question. It was noticeable that each counsel, apparently for lack of a better designation, constantly referred to those establishments as "Chinese laundries." It can not be controverted that for many years they have advertised themselves as laundries, have always been so called in this State, and their proprietors are popularly known as "Chinese laundrymen." It is unreasonable to conclude that the general assembly, in adopting this act in the interest of the public health, intended to exclude this large number of "Chinese laundries" from the inspection and regulation provided by the act for the purpose of the "suppression of insanitary conditions" in public laundries. * * *

* * * It can not fairly be assumed, however, that the general assembly did not intend to guard the clothes from contamination arising from insanitary surroundings during the manipulation of the clothes while drying, and while being prepared for starching and ironing, and during the process of starching and ironing, and while they were waiting to be returned to the customer. A different view would lead to the unreasonable conclusion that, if the inspection of a public laundry showed the room in which the washing was done to conform to the rules and regulations of the licensing authorities and to be in a sanitary condition, it was the intention of the general assembly that the licensing authorities should disregard perfectly patent insanitary conditions in the other rooms where the later processes of drying, starching, and ironing were carried on.

DEATHS DURING WEEK ENDED MARCH 9, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended March 9, 1929, and corresponding week of 1928. (From the Weekly Health Index, March 13, 1929, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 9, 1929	Corresponding week, 1928
Policies in force.....	73, 509, 710	70, 512, 392
Number of death claims.....	16, 767	14, 754
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 9, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, March 13, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 9, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Mar. 9, 1929 ¹
	Total deaths	Death rate ¹		Week ended Mar. 9, 1929	Corresponding week, 1928	
Total (64 cities).....	8, 322.	14. 6	14. 2	866	862	376
Akron.....	55	-----	-----	8	6	83
Albany ¹	41	17. 8	16. 9	3	4	59
Atlanta.....	90	18. 4	16. 4	17	10	176
White.....	53	-----	-----	7	6	-----
Colored.....	37	(²)	(²)	10	4	-----

(Footnote at end of table.)

Deaths from all causes in certain large cities of the United States during the week ended March 9, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, March 13, 1929, issued by the Bureau of the Census, Department of Commerce)—Contd.

City	Week ended Mar. 9, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Mar. 9, 1929 ¹
	Total deaths	Death rate ¹		Week ended Mar. 9, 1929	Corresponding week, 1928	
Baltimore	276	17.4	15.2	21	22	67
White	214			16	15	64
Colored	62	(²)	(²)	5	7	79
Birmingham	83	19.5	19.0	11	12	100
White	34			3	7	45
Colored	49	(²)	(²)	8	5	183
Boston	248	16.2	15.4	22	38	61
Bridgeport	44			4	4	69
Buffalo	164	15.4	17.0	19	13	82
Cambridge	36	15.0	12.1	4	1	72
Camden	41	15.8	13.5	8	3	138
Canton	31	13.9	7.6	3	2	71
Chicago	608	13.4	13.7	109	81	97
Cincinnati	173			17	8	99
Cleveland	231	12.0	10.0	28	12	82
Columbus	69	12.1	11.9	5	6	47
Dallas	45	10.8	10.1	6	1	
White	31			5	1	
Colored	14	(²)	(²)	1	0	
Dayton	43	12.2	11.3	6	4	95
Denver	100	17.8	17.8	9	9	87
Des Moines	20	6.9	10.3	4	5	72
Detroit	369	14.0	12.3	65	62	104
Duluth	21	9.4	9.0	3	2	72
Erie	28			2	3	41
Fall River	32	12.5	12.5	3	3	56
Flint	32	11.2	12.6	8	2	97
Fort Worth	50	15.3	15.0	7	6	
White	35			5	4	
Colored	15	(²)	(²)	2	2	
Grand Rapids	22	7.0	11.8	2	2	30
Houston	80			9	9	
White	46			9	7	
Colored	34	(²)	(²)	0	2	
Indianapolis	115	15.7	13.7	12	6	96
White	96			10	5	93
Colored	19	(²)	(²)	2	1	119
Jersey City	83	13.4	12.2	3	13	23
Kansas City, Kans.	16	7.1	14.1	0	9	0
White	10			0	7	0
Colored	6	(²)	(²)	0	2	0
Kansas City, Mo.	120	16.0	15.4	10	14	84
Knoxville	21	10.4	17.9	8	9	175
White	13			7	7	171
Colored	8	(²)	(²)	1	2	211
Los Angeles	313			26	26	76
Louisville	88	14.0	13.8	7	8	57
White	69			5	7	47
Colored	19	(²)	(²)	2	1	126
Lowell	37			6	4	136
Lynn	24	11.9	7.4	1	0	27
Memphis	84	23.1	22.0	14	11	165
White	42			3	3	57
Colored	42	(²)	(²)	11	8	344
Milwaukee	143	13.7	11.3	24	16	105
Minneapolis	117	13.4	10.8	11	4	68
Nashville	48	18.0	20.2	5	7	81
White	25			1	4	22
Colored	23	(²)	(²)	4	3	252
New Bedford	41			7	5	150
New Haven	54	15.0	13.6	4	3	61
New Orleans	176	21.4	21.2	17	19	84
White	112			6	11	42
Colored	64	(²)	(²)	11	8	185
New York	1,737	15.1	14.1	164	169	67
Bronx Borough	245	13.5	11.0	14	23	41
Brooklyn Borough	563	12.8	11.6	76	53	77
Manhattan Borough	702	21.0	21.8	54	83	66
Queens Borough	173	10.6	9.0	14	8	57
Richmond Borough	54	18.7	11.1	6	2	109

(Footnotes at end of table)

Deaths from all causes in certain large cities of the United States during the week ended March 9, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, March 13, 1929, issued by the Bureau of the Census, Department of Commerce)—Contd.

City	Week ended Mar. 9, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Mar. 9, 1929 ¹
	Total deaths	Death rate ¹		Week ended Mar. 9, 1929	Corresponding week, 1928	
Newark, N. J.	130	14.4	16.8	14	18	74
Oakland	80	15.3	11.8	7	7	78
Oklahoma City	48			3	7	60
Omaha	75	17.6	13.4	7	3	82
Paterson	45	16.2	12.3	2	4	35
Philadelphia	571	14.5	15.0	48	65	68
Pittsburgh	223	17.3	17.6	23	30	79
Portland, Oreg.	63			2	2	23
Providence	77	14.1	13.1	6	9	53
Richmond	66	17.8	13.4	7	8	98
White	41			5	4	106
Colored	25	(²)	(²)	2	4	82
Rochester	82	13.1	12.4	10	4	85
St. Louis	231	14.2	17.6	12	22	40
St. Paul	75			3	11	31
Salt Lake City ⁴	41	15.5	11.7	1	11	15
San Antonio	93	22.3	19.4	17	11	
San Diego	40	17.5	22.3	5	1	96
San Francisco	161	14.4	16.3	6	11	38
Schenectady	29	16.3	9.0	1	1	32
Seattle	84	11.5	12.8	4	6	42
Somerville	21	10.7	13.2	5	3	180
Spokane	44	21.1	15.8	3	4	78
Springfield, Mass.	41	14.3	11.9	3	6	50
Syracuse	56	14.7	18.4	5	12	60
Tacoma	27	12.8	9.9	4	1	102
Toledo	85	14.2	12.4	6	2	56
Trenton	51	19.2	18.4	3	6	54
Washington, D. C.	163	15.4	13.6	12	13	70
White	86			4	5	34
Colored	77	(²)	(²)	8	8	152
Waterbury	28			5	1	127
Wilmington, Del.	23	9.4	13.4	2	2	52
Worcester	60	15.9	11.4	1	3	13
Yonkers	25	10.8	9.5	6	7	140
Youngstown	20	6.0	8.4	3	4	43

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 9, 1929, and March 10, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 9, 1929, and March 10, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928
New England States:								
Maine.....		10	7	10	234	53	0	0
New Hampshire.....		3	24	9	36	17	0	0
Vermont.....	1	1			1	47	0	0
Massachusetts.....	88	90	186	8	365	1,655	6	2
Rhode Island.....	6	10	8		70	69	0	0
Connecticut.....	18	23	51	175	494	377	5	0
Middle Atlantic States:								
New York.....	319	354	180	149	1,123	1,910	31	18
New Jersey.....	125	124	67	22	294	996	1	1
Pennsylvania.....	148	184			1,910	924	22	3
East North Central States:								
Ohio.....	228	70	76	39	847	934	4	1
Indiana.....	34	31	37	21	426	175	0	0
Illinois.....	174	154	235	51	1,109	149	21	13
Michigan.....	84	70	26	6	520	780	36	1
Wisconsin.....	23	30	88	104	850	120	17	5
West North Central States:								
Minnesota.....	14	12	1	2	595	41	2	1
Iowa.....	5	10	2		17	36	1	1
Missouri.....	61	56	99	86	397	239	28	6
North Dakota.....	7	3		3	49	4	4	2
South Dakota.....	1			2	81	20	8	0
Nebraska.....	33	10	10	14	29	8	5	1
Kansas.....	15	14	40	47	167	48	1	7
South Atlantic States:								
Delaware.....	2	2	1		34	10	0	0
Maryland.....	24	44	230	51	125	951	3	1
District of Columbia.....	10	15	7	4	14	102	1	0
West Virginia.....	13	17	55	18	143	197	1	0
North Carolina.....	36	36			100	3,662	0	0
South Carolina.....	11	22	716	1,194	2	1,256	0	0
Georgia.....	3	16	87	128	41	236	1	0
Florida.....	9	7	7	25	19	32	0	0
East South Central States:								
Kentucky.....	5	15	32			128	0	0
Tennessee.....	14	20	214	170	7	338	1	1
Alabama.....	17	16	204	282	224	369	1	2
Mississippi.....	10	13						1

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 9, 1929, and March 10, 1928—Continued

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

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928
West South Central States:								
Arkansas.....	7	2	267	579	96	539	3	0
Louisiana.....	29	33	55	157	58	315	3	1
Oklahoma ¹	12	37	313	283	30	397	6	2
Texas.....	55	45	400	685	577	439	1	1
Mountain States:								
Montana.....	5	14	2	-----	149	2	3	5
Idaho.....	1	1	1	-----	11	-----	2	2
Wyoming.....	1	-----	4	-----	3	110	0	2
Colorado.....	12	10	4	1	16	41	13	10
New Mexico.....	1	9	-----	8	11	121	7	0
Arizona.....	6	7	-----	1	-----	17	9	6
Utah ¹	3	3	11	2	-----	4	20	1
Pacific States:								
Washington.....	5	22	16	-----	76	308	8	4
Oregon.....	14	17	136	32	271	24	1	4
California.....	41	127	155	48	58	284	21	5

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928
New England States:								
Maine.....	0	2	17	40	5	0	0	2
New Hampshire.....	0	0	31	10	0	0	0	0
Vermont.....	0	0	8	13	4	0	0	0
Massachusetts.....	1	1	283	329	0	0	4	2
Rhode Island.....	0	0	19	38	0	0	1	0
Connecticut.....	0	0	55	71	0	4	2	1
Middle Atlantic States:								
New York.....	2	5	567	864	13	13	22	17
New Jersey.....	0	0	183	285	0	0	2	4
Pennsylvania.....	1	0	508	513	1	0	9	6
East North Central States:								
Ohio.....	0	0	283	272	28	24	5	3
Indiana.....	1	1	312	144	108	79	0	5
Illinois.....	1	3	570	409	147	47	0	4
Michigan.....	1	0	414	284	58	37	2	5
Wisconsin.....	1	0	213	245	7	42	3	5
West North Central States:								
Minnesota.....	0	0	146	173	4	1	1	5
Iowa.....	0	0	219	88	58	68	3	4
Missouri.....	1	1	106	161	49	53	4	3
North Dakota.....	0	1	34	73	0	0	0	0
South Dakota.....	0	0	34	42	17	10	0	1
Nebraska.....	1	2	128	126	43	51	2	0
Kansas.....	0	1	204	149	68	70	5	0
South Atlantic States:								
Delaware.....	1	0	8	11	0	0	0	0
Maryland.....	0	0	60	70	1	4	7	2
District of Columbia.....	0	0	31	58	0	1	0	0
West Virginia.....	0	1	21	54	9	76	5	8
North Carolina.....	0	0	27	39	20	93	3	4
South Carolina.....	0	1	14	5	2	14	3	0
Georgia.....	0	0	13	19	18	15	0	1
Florida.....	1	1	8	7	0	7	7	1

¹ Week ended Friday.

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

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 9, 1929, and March 10, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928	Week ended Mar. 9, 1929	Week ended Mar. 10, 1928
East South Central States:								
Kentucky.....	0	0	58	54	19	32	1	3
Tennessee.....	0	0	38	32	1	26	5	4
Alabama.....	0	0	14	16	3	12	2	4
Mississippi.....	0	0	13	21	0	4	7	3
West South Central States:								
Arkansas.....	0	0	21	30	62	7	3	4
Louisiana.....	0	0	55	19	2	32	2	6
Oklahoma ¹	0	1	31	78	127	189	4	5
Texas.....	1	0	74	134	140	65	25	3
Mountain States:								
Montana.....	0	0	35	40	12	23	1	0
Idaho.....	0	0	10	9	5	0	0	0
Wyoming.....	0	0	30	30	3	15	0	0
Colorado.....	3	1	33	130	18	12	2	1
New Mexico.....	0	0	19	25	1	2	2	1
Arizona.....	1	0	8	11	20	25	2	0
Utah ¹	0	0	8	6	5	13	0	0
Pacific States:								
Washington.....	2	1	32	62	65	79	3	1
Oregon.....	1	2	64	23	46	64	0	4
California.....	0	6	497	185	75	19	10	6

¹ Week ended Friday.

¹ 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	Me-ningo-coccus menin-gitis	Diph-theria	Influ-enza	Ma-laria	Mea-sles	Pel-agra	Polio-my-e-litis	Scarlet fever	Small-pox	Ty-phoid fever
<i>February, 1929</i>										
Arkansas.....	3	45	2,869	72	284	23	0	107	18	15
Connecticut.....	9	106	6,511	-----	1,397	-----	0	207	2	0
Nebraska.....	16	80	89	6	208	-----	2	555	0	5
Vermont.....	-----	17	-----	-----	195	-----	0	37	13	2

February, 1929

February, 1929—Continued

Chicken pox:	Cases	Rabies in animals:	Cases
Arkansas.....	135	Connecticut.....	7
Connecticut.....	288	Septic sore throat:	
Nebraska.....	161	Connecticut.....	5
Vermont.....	99	Nebraska.....	12
German measles:		Tetanus:	
Connecticut.....	203	Connecticut.....	1
Nebraska.....	8	Trachoma:	
Hookworm disease:		Arkansas.....	8
Arkansas.....	5	Undulant fever:	
Lethargic encephalitis:		Connecticut.....	1
Connecticut.....	2	Whooping cough:	
Mumps:		Arkansas.....	61
Arkansas.....	175	Connecticut.....	95
Connecticut.....	346	Nebraska.....	62
Nebraska.....	113	Vermont.....	108
Vermont.....	261		
Ophthalmia neonatorum:			
Connecticut.....	2		

PLAGUE-INFECTED GROUND SQUIRRELS IN CALIFORNIA

Under date of March 8, 1929, the Director of the California Department of Public Health reports that two ground squirrels from a ranch $1\frac{1}{2}$ miles east of Edna, San Luis Obispo County, Calif., had been found positive for plague by smear and animal inoculation. The squirrels were sent to the California State Bacteriological Laboratory on February 23, 1929.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 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 31,255,000. The estimated population of the 90 cities reporting deaths is more than 29,765,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 2, 1929, and March 3, 1928

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,579	1,954	
95 cities.....	731	1,030	946
Measles:			
45 States.....	12,524	19,483	
95 cities.....	3,508	6,666	
Meningococcus meningitis:			
46 States.....	303	100	
95 cities.....	176	42	
Poliomyelitis:			
46 States.....	15	46	
Scarlet fever:			
46 States.....	5,625	5,762	
95 cities.....	1,805	1,705	1,543
Smallpox:			
46 States.....	1,032	1,198	
95 cities.....	96	95	162
Typhoid fever:			
46 States.....	212	154	
95 cities.....	22	59	32
<i>Deaths reported</i>			
Influenza and pneumonia:			
90 cities.....	1,495	1,226	
Smallpox:			
90 cities.....	0	0	

City reports for week ended March 2, 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 nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 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.

City reports for week ended March 2, 1929—Continued

Division, State, and city	Population July 1, 1928, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Mea-sles, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated ex-pectancy	Cases re-ported	Cases re-ported	Deaths re-ported			
NEW ENGLAND									
Maine:									
Portland.....	78, 600	1	1	1		0	37	0	1
New Hampshire:									
Concord.....	(1)	0	0	0		0	1	0	1
Vermont:									
Barre.....	(1)	1	1	0		0	0	2	0
Massachusetts:									
Boston.....	799, 200	76	45	28	33	3	29	20	64
Fall River.....	134, 300	0	4	1	1	0	24	0	5
Springfield.....	149, 800	0	3	5	1	0	43	1	1
Worcester.....	197, 600	1	3	2	7	0	8	0	7
Rhode Island:									
Pawtucket.....	73, 100	4	1	5		0	22	0	3
Providence.....	286, 300	0	10	7		1	68	0	19
Connecticut:									
Bridgeport.....	(1)	2	7	3	5, 148	1	18	0	3
Hartford.....	172, 300	3	8	3	5	4	27	4	8
New Haven.....	187, 900	30	1	0			6	1	9
MIDDLE ATLANTIC									
New York:									
Buffalo.....	555, 800	18	15	10		1	8	2	18
New York.....	6, 017, 500	297	225	191	101	23	69	150	293
Rochester.....	328, 200	12	10	1		3	38	17	6
Syracuse.....	199, 300	26	5	3		2	2	2	6
New Jersey:									
Camden.....	135, 400	8	5	4		4	0	1	5
Newark.....	473, 600	46	15	38	10	0	17	60	26
Trenton.....	139, 000	3	3	0	5	3	0	0	7
Pennsylvania:									
Philadelphia.....	2, 064, 200	158	71	37	25	15	47	17	94
Pittsburgh.....	673, 800	37	23	4	22	11	25	13	37
Reading.....	115, 400	5	3	2		0	121	0	6
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	413, 700	19	10	3		4	3	0	20
Cleveland.....	1, 010, 300	101	30	22	25	4	478	12	31
Columbus.....	299, 000	10	4	3	3	6	22	0	9
Toledo.....	313, 200	21	7	3	3	2	4	8	8
Indiana:									
Fort Wayne.....	105, 300	4	3	2		0	8	0	1
Indianapolis.....	382, 100	69	7	7		1	75	6	31
South Bend.....	86, 100	4	1	0			34	0	1
Terre Haute.....	73, 500	1	1	2		1	4	0	7
Illinois:									
Chicago.....	3, 157, 400	85	79	102	25	13	291	10	104
Springfield.....	67, 200	11	0	0	4	3	0	0	1
Michigan:									
Detroit.....	1, 378, 900	107	55	55	22	11	48	45	44
Flint.....	148, 800	11	4	1		2	3	1	3
Grand Rapids.....	164, 200	3	2	1		1	172	1	4
Wisconsin:									
Kenosha.....	56, 500	10	1	1		0	27	0	0
Milwaukee.....	544, 200	107	18	5	4	2	424	4	22
Racine.....	74, 400	23	2	0		0	201	0	3
Superior.....	(1)	3	1	1		0	0	6	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	116, 800	9	0	0		1	0	86	4
Minneapolis.....	455, 900	118	16	13		3	279	81	6
St. Paul.....	(1)	33	11	1		1	109	44	11
Iowa:									
Des Moines.....	151, 900	0	3	0			8	0	
Sioux City.....	80, 000	13	1	0			0	0	
Waterloo.....	37, 100	1	0	1			1	43	

¹No estimate of population made.

City reports for week ended March 2, 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			
WEST NORTH CENTRAL—continued									
Missouri:									
Kansas City.....	391,000	25	7	5	-----	4	356	7	22
St. Joseph.....	78,500	0	1	0	-----	0	28	1	9
St. Louis.....	848,100	28	49	40	13	3	29	14	-----
North Dakota:									
Fargo.....	(1)	1	0	0	-----	0	2	0	1
Grand Forks.....	(1)	0	0	0	-----	0	0	0	-----
South Dakota:									
Aberdeen.....	(1)	1	0	0	-----	-----	43	0	-----
Sioux Falls.....	(1)	0	1	0	-----	0	0	0	-----
Nebraska:									
Omaha.....	222,800	-----	3	-----	-----	-----	-----	-----	-----
Kansas:									
Topeka.....	62,800	18	1	4	-----	0	-----	0	1
Wichita.....	99,300	31	3	1	-----	1	-----	61	8
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	128,500	0	3	0	-----	0	27	0	4
Maryland:									
Baltimore.....	830,400	94	28	11	85	10	5	101	62
Cumberland.....	(1)	2	0	0	-----	0	4	1	2
Frederick.....	(1)	0	0	0	-----	0	0	0	0
District of Columbia:									
Washington.....	552,000	37	15	11	10	1	11	0	24
Virginia:									
Lynchburg.....	38,600	6	1	0	-----	1	2	45	2
Norfolk.....	184,200	9	2	0	5	0	1	122	6
Richmond.....	194,400	6	3	1	-----	4	2	5	7
Roanoke.....	64,600	7	1	1	-----	3	0	3	1
West Virginia:									
Charleston.....	55,200	4	0	0	-----	2	25	0	3
Wheeling.....	(1)	0	1	0	3	1	24	9	2
North Carolina:									
Raleigh.....	(1)	17	1	1	-----	1	1	0	1
Wilmington.....	39,100	15	0	1	-----	0	1	0	1
Winston-Salem.....	80,000	2	1	0	-----	0	0	0	1
South Carolina:									
Charleston.....	75,900	0	0	1	24	2	0	0	3
Columbia.....	50,600	21	1	2	-----	1	0	7	5
Greenville.....	(1)	1	0	0	-----	-----	0	2	1
Georgia:									
Atlanta.....	255,100	1	3	4	19	9	2	3	12
Brunswick.....	(1)	1	0	0	-----	0	0	0	1
Savannah.....	99,900	0	1	0	8	1	1	0	3
Florida:									
Miami.....	156,700	6	3	4	-----	0	3	0	2
St. Petersburg.....	53,300	-----	0	-----	-----	0	-----	-----	0
Tampa.....	113,400	9	2	1	-----	1	0	2	2
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	59,000	0	1	0	1	0	0	0	5
Tennessee:									
Memphis.....	190,200	19	4	2	-----	5	2	0	6
Nashville.....	139,600	4	1	1	-----	5	1	0	13
Alabama:									
Birmingham.....	222,400	11	1	3	29	8	0	2	14
Mobile.....	69,800	1	1	0	4	2	5	0	0
Montgomery.....	63,100	5	0	2	0	-----	1	0	-----
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	(1)	-----	0	-----	-----	-----	-----	-----	-----
Little Rock.....	79,200	0	0	0	-----	0	5	8	3
Louisiana:									
New Orleans.....	429,400	3	12	15	7	5	3	0	13
Shreveport.....	81,300	2	1	1	-----	0	1	1	5

1 No estimate of population made.

City reports for week ended March 2, 1929—Continued

Division, State, and city	Population July 1, 1928, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-les, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expec-tancy	Cases re-ported	Cases re-ported	Deaths re-ported			
WEST SOUTH CENTRAL—continued									
Oklahoma:									
Oklahoma City.....	(1)	5	2	5	23	2	2	0	9
Tulsa.....	170,500	20	1	2			5	2	
Texas:									
Dallas.....	217,800	17	6	8	4	3	2	0	7
Fort Worth.....	170,600	8	2	14		3	9	0	7
Galveston.....	50,600		1			0			2
Houston.....	(1)	1	3	6		4	1	0	8
San Antonio.....	218,100	1	2	7		10	3	1	15
MOUNTAIN									
Montana:									
Billings.....	(1)	5	0	0		0	1	0	1
Great Falls.....	(1)	2	1	0		0	41	0	4
Helena.....	(1)	0	1	0		0	12	0	1
Missoula.....	(1)	0	0	0		0	17	0	3
Idaho:									
Boise.....	(1)	1	0	0		0	0	0	0
Colorado:									
Denver.....	294,200	11	11	4		6	3	20	15
Pueblo.....	44,200	8	1	0		0	5	1	3
New Mexico:									
Albuquerque.....	(1)	1	0	0		1	0	0	2
Utah:									
Salt Lake City.....	138,000	27	2	2		0	1	85	4
Nevada:									
Reno.....	(1)	0	0	1		0	0	0	1
PACIFIC									
Washington:									
Seattle.....	383,200	45	6	4			5	20	
Spokane.....	109,100	6	2	0			73	0	
Tacoma.....	110,500	14	1	0		1	0	14	2
Oregon:									
Portland.....	(1)	19	7	6	9	3	78	9	6
Salem.....	(1)	3	0	0	4		15	2	
California:									
Los Angeles.....	(1)	83	40	16	34	5	16	58	34
Sacramento.....	75,700	14	2	0	2	1	0	4	5
San Francisco.....	585,300	42	22	10	21	4	1	8	6

Division, State, and city	Scarlet fever		Smallpox			Tuber-culo-sis, deaths re-ported	Typhoid fever			Whoop-ing cough, cases re-ported	Deaths, all causes
	Cases, esti-mated expec-tancy	Cases re-ported	Cases, esti-mated expec-tancy	Cases re-ported	Deaths re-ported		Cases, esti-mated expec-tancy	Cases re-ported	Deaths re-ported		
NEW ENGLAND											
Maine:											
Portland.....	4	2	0	1	0	1	0	0	0	0	17
New Hampshire:											
Concord.....	0	0	0	0	0	0	0	0	0	0	11
Vermont:											
Bare.....	1	0	0	0	0	0	0	0	0	0	1
Massachusetts:											
Boston.....	83	85	0	0	0	14	2	1	0	25	298
Fall River.....	4	2	0	0	0	6	1	0	0	6	31
Springfield.....	9	10	0	0	0	1	0	0	0	0	42
Worcester.....	10	14	0	0	0	3	0	0	0	13	66
Rhode Island:											
Pawtucket.....	1	8	0	0	0	0	0	0	0	2	32
Providence.....	10	15	0	0	0	3	0	0	0	2	100

¹No estimate of population made.

City reports for week ended March 2, 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—continued											
Connecticut:											
Bridgeport.....	12	7	0	0	0	2	0	0	0	0	38
Hartford.....	5	5	0	0	0	1	0	0	0	2	48
New Haven.....	11	2	0	0	0	1	0	0	0	3	44
MIDDLE ATLANTIC											
New York:											
Buffalo.....	27	43	0	0	0	7	0	0	0	39	149
New York.....	344	269	0	0	0	120	7	3	3	65	1,796
Rochester.....	13	6	0	0	0	5	1	0	0	28	89
Syracuse.....	15	5	0	0	0	2	0	0	0	32	52
New Jersey:											
Camden.....	6	8	0	0	0	4	0	1	1	5	50
Newark.....	42	17	0	0	0	6	0	0	0	14	143
Trenton.....	5	3	0	0	0	4	0	0	0	3	64
Pennsylvania:											
Philadelphia.....	95	80	0	0	0	49	2	1	1	71	653
Pittsburgh.....	33	37	0	0	0	10	0	0	0	19	221
Reading.....	5	9	0	0	0	0	0	0	0	4	36
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	22	54	1	1	0	11	1	0	0	31	151
Cleveland.....	54	26	0	3	0	14	0	0	0	54	246
Columbus.....	12	7	2	0	0	4	0	0	0	5	99
Toledo.....	13	37	0	1	0	6	0	1	0	74	75
Indiana:											
Fort Wayne.....	5	4	1	0	0	2	0	0	0	2	23
Indianapolis.....	12	47	13	5	0	3	0	0	0	43	129
South Bend.....	3	2	0	0	0	0	0	0	0	1	16
Terre Haute.....	3	0	2	2	0	1	0	0	0	0	34
Illinois:											
Chicago.....	140	146	3	1	0	73	3	0	0	32	878
Springfield.....	3	12	0	0	0	2	1	0	0	1	26
Michigan:											
Detroit.....	109	232	3	5	0	27	1	0	0	115	357
Flint.....	11	20	1	11	0	1	0	0	0	10	26
Grand Rapids.....	11	13	1	4	0	0	0	0	0	22	37
Wisconsin:											
Kenosha.....	3	4	0	0	0	0	0	0	0	1	3
Milwaukee.....	31	59	1	5	0	5	1	0	0	105	132
Racine.....	6	1	1	0	0	0	0	0	0	9	16
Superior.....	3	3	1	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	8	5	1	0	0	2	0	0	0	2	30
Minneapolis.....	62	23	3	0	0	1	0	2	0	51	97
St. Paul.....	34	10	1	1	0	0	0	0	0	15	68
Iowa:											
Des Moines.....	8	18	2	1	0	0	0	0	0	4	31
Sioux City.....	2	1	1	0	0	0	0	0	0	3	-----
Waterloo.....	2	67	1	0	0	0	1	0	0	15	-----
Missouri:											
Kansas City.....	14	25	3	2	0	7	0	1	0	7	145
St. Joseph.....	3	2	0	0	0	0	0	0	0	2	40
St. Louis.....	42	15	3	0	0	20	1	0	1	34	285
North Dakota:											
Fargo.....	2	3	0	0	0	0	0	0	0	0	8
Grand Forks.....	1	1	0	0	0	0	0	0	0	0	-----
South Dakota:											
Aberdeen.....	3	0	0	0	0	0	0	0	0	0	-----
Sioux Falls.....	3	0	0	0	0	0	0	0	0	0	7
Nebraska:											
Omaha.....	4	-----	5	-----	-----	-----	0	-----	-----	-----	-----
Kansas:											
Topeka.....	2	5	1	0	0	1	0	0	0	1	18
Wichita.....	3	6	1	2	0	1	0	0	0	15	47

City reports for week ended March 2, 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		
MOUNTAIN—contd.											
Idaho:											
Boise.....	0	0	1	0	0	0	0	0	0	2	9
Colorado:											
Denver.....	15	5	2	0	0	5	0	0	0	6	110
Pueblo.....	1	1	0	0	0	0	0	0	0	0	9
New Mexico:											
Albuquerque..	2	1	0	0	0	8	0	0	0	28	18
Utah:											
Salt Lake City..	3	11	2	0	0	1	0	1	0	4	62
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle.....	12	6	5	0			2	0		42	
Spokane.....	6	2	9	1			0	0		1	
Tacoma.....	2	1	3	6	0	0	0	0	0	2	29
Oregon:											
Portland.....	7	15	12	34	0	4	0	0	0	0	79
Salem.....	1	2	1	0			0	0		0	
California:											
Los Angeles....	32	73	7	1	0	44	1	2	1	42	352
Sacramento....	2	20	0	2	0	4	0	1	0	6	52
San Francisco..	17	102	3	0	0	8	1	0	0	25	192

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									
Maine:									
Portland.....	1	0	0	0	0	0	0	0	0
Massachusetts:									
Boston.....	0	0	1	0	0	0	1	0	0
MIDDLE ATLANTIC									
New York:									
New York.....	37	21	2	2	0	0	1	0	2
Syracuse.....	0	0	0	1	0	0	0	0	0
New Jersey:									
Newark.....	6	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia..	6	4	1	0	0	0	0	0	0
Pittsburgh.....	2	1	1	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati....	0	1	0	0	0	0	0	0	0
Cleveland.....		1	1	0	0	0	0	0	0
Indiana:									
Indianapolis..	0	3	0	0	0	0	0	0	0
Illinois:									
Chicago.....	4	2	1	1	1	1	0	0	0
Michigan:									
Detroit.....	19	17	0	1	1	0	1	0	0
Flint.....	2	0	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee....	6	4	0	0	0	0	0	0	0
Superior.....	1	0	0	0	0	0	0	0	0

City reports for week ended March 2, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	2	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	17	9	0	0	0	0	0	0	0
St. Louis.....	9	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Virginia:									
Norfolk.....	1	0	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	1	0	0	0
Wilmington.....	0	0	0	0	0	0	0	0	0
Winston-Salem.....	0	0	0	0	1	1	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	1	0	0	0	0
Georgia:									
Savannah.....	0	0	0	0	1	1	0	0	0
Florida:									
Tampa ²	0	0	0	0	0	0	0	1	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	2	1	0	0	0	0	0	0	0
Nashville.....	0	0	0	0	0	2	0	0	0
Alabama:									
Birmingham.....	1	0	0	0	0	0	0	0	0
Mobile.....	0	0	0	0	0	0	0	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	1	0	0	0	0	0	0	0	0
Louisiana:									
New Orleans.....	8	4	0	0	0	0	0	0	0
Shreveport.....	0	0	0	1	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	1	0	0	0	1	0
Galveston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	2	2	0	0	0	0	0	0	0
Pueblo.....	0	0	0	0	0	0	0	2	0
Utah:									
Salt Lake City.....	20	9	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	14	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	6	3	0	0	0	0	1	0	0
Sacramento.....	2	2	0	0	2	1	0	0	0
San Francisco.....	5	0	0	1	0	0	0	0	0

¹ Dengue; 2 cases at Charleston, S. C.

² Typhus fever; 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended March 2, 1929, compared with those for a like period ended March 3, 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, January 27 to March 2, 1929—Annual rates per 100,000 population compared with rates for the corresponding period of 1928*¹

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 2, 1929	Feb. 4, 1928	Feb. 9, 1929	Feb. 11, 1928	Feb. 16, 1929	Feb. 18, 1928	Feb. 23, 1929	Feb. 25, 1928	Mar. 2, 1929	Mar. 3, 1928
98 cities.....	110	194	118	170	122	177	118	177	² 122	174
New England.....	109	193	118	136	131	172	118	138	124	140
Middle Atlantic.....	133	279	141	231	147	235	139	224	140	234
East North Central.....	106	145	113	174	115	163	106	169	131	163
West North Central.....	90	113	146	100	150	125	131	125	³ 136	113
South Atlantic.....	107	180	67	121	73	155	67	168	64	140
East South Central.....	68	77	81	63	81	63	68	35	54	98
West South Central.....	99	154	119	130	119	126	182	191	⁴ 156	93
Mountain.....	70	106	78	44	44	186	44	71	61	186
Pacific.....	67	156	70	133	80	82	110	161	75	141

MEASLES CASE RATES

98 cities.....	275	718	418	790	406	885	458	993	² 585	1, 123
New England.....	518	1, 508	566	1, 614	545	1, 658	385	1, 908	640	1, 980
Middle Atlantic.....	93	620	129	649	114	702	140	880	158	1, 003
East North Central.....	417	358	703	440	760	530	882	564	1, 141	760
West North Central.....	769	223	1, 192	217	982	241	1, 252	256	³ 1,687	342
South Atlantic.....	103	1, 823	133	2, 084	135	2, 275	167	2, 489	197	2, 698
East South Central.....	7	1, 459	14	1, 312	41	1, 543	0	1, 171	61	1, 543
West South Central.....	36	928	36	1, 321	51	1, 925	83	1, 986	⁴ 63	1, 712
Mountain.....	697	115	1, 341	186	1, 019	97	923	168	697	142
Pacific.....	102	709	140	719	170	693	150	750	237	893

SCARLET FEVER CASE RATES

98 cities.....	233	270	247	300	278	290	262	291	² 301	290
New England.....	305	359	308	432	376	441	294	414	339	347
Middle Atlantic.....	190	296	186	334	222	331	202	336	230	346
East North Central.....	280	289	318	310	340	280	340	285	401	309
West North Central.....	306	248	311	291	360	266	373	276	³ 340	262
South Atlantic.....	131	201	146	224	157	222	144	243	137	207
East South Central.....	156	70	244	77	258	98	183	98	217	112
West South Central.....	150	134	241	101	265	118	281	122	⁴ 220	97
Mountain.....	61	381	113	540	87	346	113	204	218	257
Pacific.....	362	217	314	192	339	230	302	233	509	194

SMALLPOX CASE RATES

98 cities.....	7	21	5	22	8	20	12	25	² 16	17
New England.....	0	0	0	0	0	0	0	0	2	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	10	9	8	14	15	12	15	13	24	18
West North Central.....	8	117	2	110	0	102	15	92	³ 10	63
South Atlantic.....	11	19	0	23	2	27	4	29	7	21
East South Central.....	7	28	0	21	0	35	0	56	7	0
West South Central.....	28	12	51	16	24	20	99	8	⁴ 118	20
Mountain.....	78	115	26	44	70	168	35	62	87	53
Pacific.....	7	59	7	69	25	18	20	125	25	49

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 Omaha, Nebr., not included.

⁴ Fort Smith, Ark., and Galveston, Tex., not included.

Summary of weekly reports from cities, January 27 to March 2, 1929—Annual rates per 100,000 population compared with rates for the corresponding period of 1928—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Feb. 2, 1929	Feb. 4, 1928	Feb. 9, 1929	Feb. 11, 1928	Feb. 16, 1929	Feb. 18, 1928	Feb. 23, 1929	Feb. 25, 1928	Mar. 2, 1929	Mar. 3, 1928
98 cities.....	4	7	5	7	5	5	4	5	4	10
New England.....	2	14	2	9	5	5	9	7	2	0
Middle Atlantic.....	4	5	4	6	4	3	4	5	2	8
East North Central.....	1	3	3	6	2	3	2	1	0	7
West North Central.....	6	2	2	6	12	4	6	4	8	6
South Atlantic.....	7	6	6	10	6	8	4	10	2	13
East South Central.....	0	21	7	7	14	14	7	28	14	70
West South Central.....	8	41	28	41	12	12	8	16	21	32
Mountain.....	0	9	9	0	0	0	0	0	9	9
Pacific.....	7	10	7	0	7	8	5	5	7	8

INFLUENZA DEATH RATES

	85	20	58	18	54	23	45	22	40	25
91 cities.....	143	9	90	7	57	11	41	7	20	7
New England.....	82	14	58	15	44	18	35	24	30	16
Middle Atlantic.....	48	13	28	10	36	12	33	14	31	17
East North Central.....	57	15	51	6	33	9	45	3	45	15
West North Central.....	114	25	92	31	60	38	69	31	67	34
South Atlantic.....	296	100	126	54	222	54	81	46	148	123
East South Central.....	174	46	106	56	158	92	138	75	89	104
West South Central.....	35	53	78	53	87	71	78	35	52	89
Mountain.....	43	34	43	20	43	27	30	20	33	24
Pacific.....										

PNEUMONIA DEATH RATES

	274	155	231	172	223	177	194	166	222	193
91 cities.....	511	126	387	149	305	179	235	147	274	193
New England.....	369	178	296	201	254	196	192	156	240	218
Middle Atlantic.....	170	129	133	114	182	137	170	156	180	148
East North Central.....	189	73	186	159	180	141	207	107	214	159
West North Central.....	268	207	240	230	243	216	238	231	255	205
South Atlantic.....	207	146	193	222	163	192	155	222	281	245
East South Central.....	199	212	199	204	219	283	260	275	215	266
West South Central.....	148	204	235	151	244	168	226	248	279	266
Mountain.....	118	128	134	182	128	172	134	115	154	155
Pacific.....										

¹ Omaha, Nebr., Fort Smith, Ark., and Galveston, Tex., not included.

² Omaha, Nebr., not included.

³ 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	29,956,100	29,496,600
New England.....	12	12	2,305,800	2,273,900	2,306,100	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	764,200	692,400
West South Central.....	8	7	1,314,100	1,299,900	1,285,600	1,256,400
Mountain.....	9	9	598,800	590,200	598,800	590,200
Pacific.....	6	4	2,060,600	2,043,500	1,599,300	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 in 107 large English towns was 24.4 per 1,000 population for the week ended February 16, 1929, the highest death rate recorded in England since March, 1919. During the week ended February 23, 1,764 deaths from influenza occurred in these towns, the highest weekly mortality since March, 1919, and 42 per cent higher than the number recorded for the preceding week. Influenza was reported to be generally decreasing in Scotland, Ireland, and the southern part of England, while an increase was reported in the Midlands, Yorkshire, and Wales.

Returns for the first 10 days of February showed a marked increase of influenza deaths in Paris, the general death rate rising to 28.7. There was a corresponding increase in the death rate at Lille, and also at Lyons, where the rate was 32.6 for the week ended February 20.

An increase of influenza was reported in the Netherlands. The town of Arnhem near the German frontier, was the most severely affected. The death rate there increased to 43.9 per 1,000 during the week ended February 22.

Influenza continued to decrease in eastern Germany during the week ended February 16, while a marked increase was reported in western Germany. The death rate of south German towns had not been affected, very few deaths being attributed to influenza in Munich and Stuttgart.

Influenza of mild type had appeared in certain localities in Switzerland, but had had no effect on the general mortality up to February 9.

Influenza appeared in epidemic form in Hungary about the middle of January. The death rate of Budapest increased from 13.9 per 1,000 during the week ended February 2 to 18.8 during the week ended February 9 and to 26.9 during the week ended February 16.

On February 23 influenza was reported to be spreading in Italy, particularly in the Provinces of northern and central Italy. The disease was of mild type.

In Prague, Czechoslovakia, influenza deaths numbered 32 during the week ended February 9, as compared with 47 during the preceding week. Influenza was reported to be increasing in several dis-

tricts of Bohemia, and in the northern and eastern part of Moravia-Silesia.

The influenza cases reported in Finland during the second half of January numbered 17,382, as compared with 5,084 during the first half of the month. The cases were distributed throughout the country, the highest number being reported at Helsingfors.

Reports from Spain showed a decrease in influenza in most Provinces. The epidemic was also generally abating in the Scandanavian countries.

BRAZIL

Rio de Janeiro—Mortality during 1928.—According to statistics published by the National Department of Public Health at Rio de Janeiro, 25,376 persons died in the Federal District of Brazil during the year 1928, as compared with 23,348 during 1927. These figures do not include 2,605 and 2,561 stillbirths in 1928 and 1927, respectively.

The following table shows the numbers of deaths from certain causes in Rio de Janeiro during the year 1928 as compared with 1927:

Deaths from certain causes in Rio de Janeiro during 1927 and 1928

Cause	1927	1928	Cause	1927	1928
Beriberi.....	4	.....	Measles.....	242	470
Broncho-pneumonia.....	1,398	2,049	Paratyphoid fever.....	24	30
Cancer and other malignant tumors.....	594	620	Plague (bubonic).....	.....	6
Cerebrospinal meningitis.....	16	13	Pneumonia.....	325	449
Cirrhosis of the liver.....	180	187	Poliomyelitis.....	2	7
Diarrhea and enteritis (under 2 years).....	2,982	3,215	Scarlet fever.....	.....	1
Diphtheria.....	84	99	Smallpox.....	69	1
Dysentery.....	218	301	Suicide.....	183	119
Erysipelas.....	48	58	Syphilis.....	657	699
Influenza.....	918	976	Tetanus.....	143	146
Kidney diseases.....	1,767	1,764	Tuberculosis (pulmonary).....	4,213	4,145
Leprosy.....	54	57	Typhoid fever.....	87	98
Malaria:			Whooping cough.....	105	217
Acute.....	321	265	Yellow fever.....	.....	73
Chronic.....	100	98			

Estimated population of Rio de Janeiro, December 31, 1927, 1,395,634.

CANADA

Provinces—Communicable diseases—Week ended February 23, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases from eight Provinces of Canada for the week ended February 23, 1929, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal fever.....	5	2	.....	.....	.....	.....	7
Influenza.....	34	.....	10	48	2	.....	.....	58	152
Lethargic encephalitis.....	1	.....	.....	.....	.....	1
Poliomyelitis.....	1	.....	.....	1	.....	.....	.....	3
Smallpox.....	13	23	.....	22	2	14	79
Typhoid fever.....	1	8	17	1	1	3	.....	31

Ontario—Communicable diseases—Comparative—Four weeks ended February 23, 1929.—The following table shows the number of cases of certain communicable diseases and deaths, reported in the Province of Ontario, Canada, for the four weeks ended February 23, 1929, as compared with the corresponding period of 1928:

Disease	1929		1928	
	Cases	Deaths	Cases	Deaths
Bronchitis.....		1		
Cerebrospinal meningitis.....	10	5	2	3
Chancroid.....			1	
Chicken pox.....	563		939	
Conjunctivitis.....	1		7	
Diphtheria.....	273	7	271	14
Dysentery.....				1
Erysipelas.....	1		3	1
German measles.....	26		41	
Goiter.....	3	1	6	3
Gonorrhoea.....	164		107	
Influenza.....		100		23
Lethargic encephalitis.....	4		6	2
Measles.....	3,521	6	1,509	1
Mumps.....	548		4,244	
Paratyphoid fever.....	1			
Pneumonia.....		228		192
Poliomyelitis.....		2		
Puerperal septicemia.....		3		3
Rabies.....			1	
Scarlet fever.....	465	5	685	2
Septic sore throat.....	1		55	1
Smallpox.....	133		204	
Syphilis.....	131		74	
Tuberculosis.....	114	56	122	50
Typhoid fever.....	87	3	41	2
Whooping cough.....	368	2	333	8

Quebec Province—Communicable diseases—Two weeks ended February 23, 1929.—The bureau of health reports cases of certain communicable diseases for the two weeks ended February 23, 1929, as follows:

Week ended February 16, 1929

Disease	Cases	Disease	Cases
Chicken pox.....	47	Scarlet fever.....	101
Diphtheria.....	67	Smallpox.....	6
German measles.....	6	Tuberculosis.....	33
Influenza.....	12	Typhoid fever.....	5
Measles.....	50	Whooping cough.....	12

Week ended February 23, 1929

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	5	Ophthalmia neonatorum.....	1
Chicken pox.....	61	Scarlet fever.....	129
Diphtheria.....	42	Smallpox.....	14
German measles.....	5	Tuberculosis.....	53
Influenza.....	10	Typhoid fever.....	7
Measles.....	97	Whooping cough.....	23

CUBA

Provinces—Communicable diseases—October 28–December 15, 1928.—
 During the seven weeks from October 28 to December 15, 1928, cases of communicable diseases were reported from the six Provinces of Cuba as follows:

Disease	Pinar Del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cerebrospinal meningitis.....	1						1
Chicken pox.....		9	1			29	39
Diphtheria.....	2	30	7		5	9	60
Malaria.....	11	252	1	3	149	127	543
Measles.....	2	230	1	2		1	236
Paratyphoid fever.....	1	4	1			4	10
Scarlet fever.....		6	2			2	10
Typhoid.....	35	66	9	27	9	32	178

GREAT BRITAIN

Scotland—Vital statistics—October–December, 1928, and year 1928.—
 The Registrar General of Scotland has published statistics for the fourth quarter of 1928, which show that the birth rate for that quarter was 19.0 per 1,000 population, the death rate 12.9 per 1,000, and the death rate of infants under 1 year of age 85 per 1,000 births. The total number of births, marriages, and deaths for the year 1928, together with the rates per 1,000 and deaths from certain diseases, are given in a table below:

Year 1928

Births.....	96,815	Deaths from—Continued	
Birth rate per 1,000 population.....	19.8	Heart disease.....	8,461
Marriages.....	32,955	Influenza.....	961
Marriage rate per 1,000 population.....	6.7	Lethargic encephalitis.....	114
Deaths (total).....	65,263	Measles.....	1,065
Death rate per 1,000 population.....	13.3	Nephritis.....	1,914
Deaths under 1 year.....	8,301	Pneumonia.....	5,731
Deaths under 1 year per 1,000 births.....	86	Puerperal septicaemia.....	234
Deaths from—		Scarlet fever.....	140
Bronchitis.....	3,491	Tuberculosis (pulmonary).....	3,318
Cerebrospinal meningitis.....	149	Tuberculosis (all other forms).....	856
Diarrhea and enteritis, under 2 years....	738	Typhoid fever.....	29
Diphtheria.....	488	Whooping cough.....	1,072

The following items for the quarter ended December 31, 1928, are taken from the Quarterly Returns of Births, Deaths, and Marriages Registered in Scotland:

October-December, 1928

Population, estimated.....	4, 888, 700	Deaths from—Continued	
Births.....	23, 403	Malaria.....	3
Marriages.....	8, 426	Measles.....	18
Deaths.....	15, 851	Nephritis, acute.....	51
Deaths under 1 year.....	1, 984	Nephritis, chronic.....	417
Deaths from—		Paratyphoid fever.....	1
Bronchitis.....	951	Pneumonia.....	754
Broncho-pneumonia.....	704	Poliomyelitis.....	15
Cancer.....	1, 758	Puerperal septicemia.....	73
Cerebrospinal meningitis.....	36	Scarlet fever.....	37
Diabetes.....	147	Syphilis.....	39
Diarrhea and enteritis under 2 years.....	192	Tetanus.....	4
Diphtheria.....	119	Tuberculosis (pulmonary).....	813
Dysentery.....	3	Tuberculosis (all other forms).....	285
Heart disease.....	2, 031	Typhoid fever.....	3
Influenza.....	255	Whooping cough.....	115
Lethargic encephalitis.....	32		

INDIA

Bombay—Public health, 1928.—According to a review of the public health of Bombay for the year 1928 issued by the health officer for the municipality of Bombay, the total number of deaths during the year from all causes was 27,312—321 less than in 1927, and 15,895 less than the average of the last 10 years (1918–1927). The death rate per 1,000 population was 21, as compared with 21.3 in 1927. This figure is the lowest ever recorded since demographical calculation began. The deaths among infants under one year of age during the year numbered 7,468, being 611 more than in 1927, but 2,362 less than the average of the last 10 years. The infant mortality rate was 311 per 1,000 births registered, the lowest rate ever recorded in the official statistics for the city.

The following table gives the deaths from certain diseases in the city of Bombay for the year 1928, as compared with 1927 and the average of the last 10 years:

Disease	1928	1927	Average of last 10 years (1918–1927)
Cholera.....	34	82	1, 064
Diseases of respiratory system.....	10, 467		16, 438
Influenza.....	79	79	1, 006
Malaria.....	295	365	427
Plague.....	257	207	574
Smallpox.....	597	842	618

MEXICO

Vera Cruz—Communicable diseases—Five weeks ended February 23, 1929.—During the five weeks ended February 23, 1929, deaths from communicable diseases were reported from Vera Cruz, Mexico, as follows:

Disease	Week ended—				
	Jan. 26	Feb. 2	Feb. 9	Feb. 16	Feb. 23
Bronchitis.....	1	1			1
Cancer.....	2	2	2	2	
Cerebrospinal meningitis.....		1			
Erysipelas.....	1				
Gastro-intestinal disorders.....	7	9	14	10	10
Hookworm disease.....	1	1			
Influenza.....	6	5	12	7	5
Malarial fever.....	1	3	1		3
Pneumonia.....	1	2	6	2	2
Syphilis.....					1
Tetanus.....					1
Tuberculosis.....	1	4	7	1	9
Whooping cough.....			1		

TUNISIA

Tunis—Vital statistics, 1928.—According to statistics compiled by the bureau of hygiene of the city of Tunis for the year 1928, the number of deaths during the year was 4,306, as compared with 4,853 in 1927, 4,447 in 1926, and 5,765 in 1925. The mortality among the natives had decreased appreciably between the years 1925 and 1928, but still remained very high in comparison with that of the European population. The statistics showed 6,441 births in 1928, as compared with 6,394 in 1927, 6,667 in 1926, and 6,599 in 1925. Deaths from contagious diseases numbered 192 in 1928, 249 in 1927, 210 in 1926, and 908 in 1925. Scarlet fever caused 5 deaths in 1928, as compared with 103 for the preceding year; smallpox caused 41 deaths in 1928, 10 in 1927, and 540 in 1925. Tuberculosis and pneumonia remained the most serious of the diseases in Tunis, tuberculosis causing one-seventh of the general mortality and one-sixth of the native mortality, while pneumonia was responsible for one-tenth and one-ninth, respectively.

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

CHOLERA—Continued

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

Place	Week ended—													
	Nov. 1928			December, 1928				January, 1929				February, 1929		
	1	8	15	22	29	5	12	19	26	2	9	16		
India (French):														
Chandernagor.....	3	16	43	2	3	1	1	1	1	1	1	1	1	1
Karikal.....	2	7	34	6	3	1	1	1	1	1	1	1	1	1
Pondicherry Province.....	26	8	85	3	1	1	1	1	1	1	1	1	1	1
Indo-China (see also table below):	132	31	6	13	16	8	5	25	37	27	58	32	46	31
Pnompenh.....	72	19	5	9	11	7	3	12	21	19	21	45	22	7
Saigon.....	3	2	1	1	1	1	1	1	3	2	1	1	1	7
Japan: Osaka.....	2	2	1	1	1	1	1	1	1	1	1	1	1	5
Kwangchow-Wan (see table below).	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Siam.....	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Anhoang.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ayudhya.....	21	14	47	20	29	29	35	45	84	60	59	72	29	35
Bangkok.....	14	10	27	15	17	25	13	33	53	51	50	38	23	27
Chachoengsao.....	1	7	15	2	2	1	1	1	1	1	1	1	1	3
Dhannapuri.....	3	3	12	2	2	1	1	1	1	1	1	1	1	2
Lobpuri.....	1	6	12	2	2	1	1	1	1	1	1	1	1	1
Nondpuri.....	6	4	5	4	2	4	9	8	2	2	3	11	14	17
Pradhundham.....	1	1	3	1	1	4	3	1	2	2	1	8	8	12
Singhapuri.....	3	3	1	1	1	1	1	1	1	1	1	1	1	1
Smud Prakar.....	3	3	1	1	1	1	1	1	1	1	1	1	1	1
Smud Sagers.....	27	16	12	8	3	1	6	6	3	2	0	5	2	1
On vessel: S. S. Glenapp, at Yokohama, from Shanghai.....	12	6	6	1	3	1	3	3	1	1	1	1	1	1

Place	Aug. Sept., 1928	October, 1928			November, 1928			December, 1928			January, 1929			Feb. 1-10, 1929
		Sep. term, 1928			1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-31	
		1-10	11-20	21-31										
Indo-China (French) (see also table above):														
Annam.....	11	4	5	2			5							
Cambodia.....	38	16	19		4	4	17						28	29
Cochin-China.....	28	6	25	20	27	48	81	21	351	346	4	26	202	107
Tonkin.....	2													
Kwangchow-Wah.....	1				1									

PLAGUE

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

Place	Aug. 20-22, 1928	Sept. 20, 1928	Oct. 21-17, 1928	Nov. 15, 1928	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
Algeria:																		
Oran.....			2															
Philippeville.....		1	2															
Argentina:																		
Buenos Aires:																		
Catamarca Province: Recreo.....			P	9														
Cordoba Province—																		
Canada Honda.....																		
Laborde.....			14															
Injuy Province: Perico.....				1														
Rosario.....				1														
Santiago del Estero.....				7														
Tucuman Province: El Mollar.....				5														
Azores: St. Michael's Island.....		2	3	3	1													
Belgian Congo:																		
Diugu.....				2														
Lenza.....				1														

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

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

