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PUBLIC HEALTH REPORTS

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THE THYROID GLAND AND COMMUNICABLE DISEASES

Immediate and Remote Effects of Communicable Diseases Upon the Thyroid Glands of Elementary School Children in Cincinnati

By ROBERT OLESEN, *Surgeon, United States Public Health Service*

INTRODUCTION

It is not sufficient to say that enlargement of the thyroid gland, familiarly known as simple goiter, is due to a deficiency of iodine. While an absence or deficiency of iodine undoubtedly is the immediate cause of the malady, there is often an underlying or secondary cause which is less tangible in its accessibility but nevertheless certain in its influence. These remote causes of simple thyroid enlargement have long been recognized and clearly presented by Marine.[1] Owing to the widespread misunderstanding of this phase of the subject it may be well to recall and emphasize the numerous subsidiary factors involved in the production of the disease.

Etiology of endemic goiter.—In all probability endemic goiter is due either to an absolute or relative deficiency of iodine. By an absolute deficiency is meant an absence of iodine from food and water customarily consumed. Deprived of an element essential to its efficient functioning the thyroid undergoes compensatory hypertrophy. Enlargement may also follow a relative deficiency of iodine. Demands for iodine in excess of available amounts often cause simple thyroid enlargement during puberty, pregnancy, and lactation. Interference with the intake and utilization of iodine available in ample quantity, such as probably occurs in infections and intoxications, or when partaking of abnormal food combinations, also causes simple goiter.

Infection as cause of goiter.—Infections and intoxications have long been believed to constitute etiological factors in goiter production. Many English observers, notably McCarrison, have relegated iodine to a minor etiological rôle. McCarrison considers goiter a waterborne infectious disease, the exciting cause of which is a *contagium vivum* and suggests that it belongs to the colon group of bacteria. The writings of McCarrison [2] clearly present his views on this sub-

[1] David Marine: The Importance of Our Knowledge of Thyroid Physiology in the Control of Thyroid Diseases. Arch. of Int. Med., vol. 32, No. 6, p. 811. December, 1923.

[2] Robert McCarrison: The Thyroid Gland in Health and Disease. 1917.

ject. McCarrison's principal arguments in favor of the infectious origin of simple goiter may be summed up as follows:

1. Goiter incidence decreases as the water supply increases in purity.

2. Goiter has been produced by the ingestion of the residue from a Berkefeld filter through which goitrigenous water has passed.

3. Intestinal antiseptics cause the disappearance of endemic goiter.

Crotti,[3] who strongly supports the infectious origin of simple goiter, points out that the iodine deficiency theory is hardly acceptable, for only a small proportion of the general population and a relatively large proportion of females in certain geographical areas are affected. He believes that the occurrence of goiter in wild fish, the production of goiter among fish in hatcheries, and the specific endemicity of goiter in certain regions indicate a living organism as the causative factor. Furthermore, he points to the experimental evidence of goiter transmissibility, the efficiency of such germicides as iodine, arsenic, and mercury in preventing and treating the malady, the effect of filtration and the boiling of water upon the capability of water in producing goiter as additional evidences of the fact that a living organism is involved. An organism of the genus *Trypansoma* is believed to be involved.

Exceptions to infectious theory.—If the supposed infection in goiter is active in character, it is, as Adami has pointed out, of a peculiar type. Such an infection differs from others in appearing at a particular age and remaining only so long as the individual remains in the goitrous region. When the person moves from this district before permanent changes occur in the thyroid function, the goiter tends to become reduced in size and may even disappear. Most American investigators consider simple goiter a deficiency disease, the malady being due to a lack rather than the presence of some substance or element in the food and drinking water.

Goiter and foci of infection.—The conception that endemic goiter may be caused by foci of infection has encouraged a diligent search for the causative agent. Diseased tonsils and carious teeth have long been suspected of causing the disease. However, studies which have been directed along these lines have failed to disclose a definite relationship between endemic goiter and potential foci of infection. Investigations by Olesen and Taylor among school children in Cincinnati, Ohio, and the State of Connecticut failed to reveal a relationship between diseased tonsils and decayed teeth and simple goiter.[4,5]

[3] Andre Crotti: Thyroid and Thymus. 1922.

[4] Robert Olesen and Neil E. Taylor: The relationship of endemic goiter to potential foci of infection. Pub. Health Rep., vol. 41, No. 13, pp. 557-571, Mar. 26, 1926. (Reprint No. 1069.)

[5] Robert Olesen and Neil E. Taylor: Further studies on the relationship of endemic goiter to certain potential foci of infection. Pub. Health Rep., vol. 42, No. 9, pp. 606-619, Mar. 4, 1927. (Reprint No. 1143.)

Studies by Hertzler and Bram likewise failed to establish such a connection.[6 7]

Endemic goiter and infectious disease.—Among the etiological factors suspected as being concerned in the production of simple goiter, infectious diseases have frequently been mentioned. Unfortunately but little effective work has been done in determining accurately the existence of such a relationship.

In order to throw some light upon this question a study lasting three years and involving a large number of elementary school children was undertaken in Cincinnati, Ohio. This investigation was directed along two general and complementary lines. First, the thyroid condition was noted before and after certain communicable diseases. In connection with this phase of the investigation a control group, comprising children who did not have communicable diseases in the interval between two separate thyroid examinations, was included. The second phase of the study dealt with the relationship between thyroids and past communicable diseases.

Scope of the investigation.—The present article, consisting of two portions, treats first of the thyroid status of 580 boys and 636 girls who were examined before and after they had certain communicable diseases. In the accompanying control group the thyroid glands of 1,842 boys and 1,783 girls who did not have communicable diseases during the interval were examined one year apart. The second phase of the investigation deals with the communicable disease histories and thyroid status of 7,977 boys and 8,441 girls attending the elementary schools.

PART I. THE IMMEDIATE EFFECT OF COMMUNICABLE DISEASE UPON THE THYROID GLAND, AS SHOWN BY THYROID EXAMINATIONS BEFORE AND AFTER SUCH ILLNESSES

In carrying out this phase of the study it was necessary to prepare by examining the thyroids of approximately 20,000 children in the elementary schools of Cincinnati. Inevitably a number of these children would suffer from the usual infectious diseases of childhood. Arrangements were therefore made with the Cincinnati Health Department to secure daily reports of communicable disease cases. When a child of whom a thyroid record was available was noted as having a communicable illness, a separate card was prepared. Between two weeks and two months after the recovery and release of the patient from quarantine a reexamination of the thyroid was made for the purpose of detecting changes in size. During a 3-year

[6] A. E. Hertzler: Diseases of the thyroid gland, 1922, p. 22.
[7] Israel Bram: Relationship of diseased tonsils to goiter. Med. Jour. and Record, Apr. 6, 927.

period it was possible to make thyroid examinations before and after the illness of 589 boys and 636 girls.

Results.—The results of the thyroid examinations made before and after 589 boys and 636 girls had certain communicable diseases are presented in Table 1. The findings have been recorded under the headings "No change," "Decrease in size," and "Increase in size." In 51.7 per cent of the boys and 45.6 per cent of the girls no change in the size of the thyroid could be detected. A reduction in thyroid size had occurred among 13.8 per cent of the boys and 11 per cent of the girls. The thyroid was found to have increased in size in 34.5 per cent of the boys and 43.4 per cent of the girls. Much of this increase was, of course, a natural one, due to normal adolescent

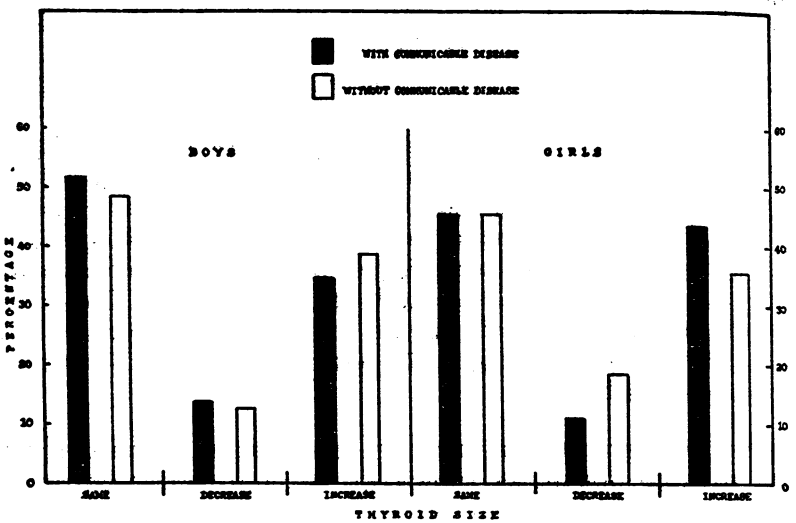

CHART 1.—Comparison of percentages and changes in the thyroid glands of 589 boys and 636 girls who had a communicable disease in the interval between examinations and of 1,842 boys and 1,783 girls who did not have a communicable disease in the interval between the examinations

demands upon the thyroid gland customary in this vicinity. Moreover, as shown in the table, the increase was greater among the girls than among the boys.

Thyroid status in a control group.—In order to learn the significance of the thyroid changes which were noted among the children who had communicable diseases, it is obviously necessary to have some means of comparison. Such comparative figures were provided by making thyroid examinations of children of the same ages and environment, but who did not have communicable illness. The results of two thyroid examinations, a year apart, in 1,842 boys and 1,783 girls who were not sick in the interval, are given in Table 2. In this control group no change in thyroid size was detected among 48.4 per cent of

the boys and 45.6 per cent of the girls. Among 12.7 per cent of the boys and 18.6 per cent of the girls a decrease in thyroid size was noted. On the other hand, an increase was recorded among 38.8 per cent of the boys and 35.7 per cent of the girls included in this portion of the investigation.

Comparison of thyroids in communicable disease and noncommunicable disease groups.—The principal features in Tables 1 and 2 have been displayed graphically in Chart 1. By this means it is possible to compare the changes in the size of the thyroid among those who had and those who did not have communicable diseases during the period of the study. It will be seen that the percentage differences in the three groups in which no changes, decreases, and increase in thyroid size are recorded, respectively, are comparatively slight. However, these slight differences are more marked among the girls. The most significant change is probably the increased incidence of thyroid enlargement among the girls who had a communicable disease. Thus, among the girls who had a communicable illness the incidence was 43.4 per cent, while among the girls of the control group the increase in thyroid size amounted to 35.7 per cent. This difference suggests that the thyroid glands of girls who have communicable diseases are more liable to simple enlargement than are those who do not have such sickness. A comparison of the findings relating to the boys reveals contradictory evidence difficult of interpretation. Boys who did not have communicable diseases show a slightly greater incidence of thyroid enlargement than those who did have such illness.

TABLE 1.—*Results of thyroid examinations before and after certain communicable diseases among 589 boys and 636 girls attending the elementary schools of Cincinnati, Ohio*

Disease	Boys				Girls			
	Thyroid status			Total examined	Thyroid status			Total examined
	No change	Decrease in size	Increase in size		No change	Decrease in size	Increase in size	
Chicken pox	41	15	36	92	37	15	41	93
Diphtheria	7	1	10	18	7	1	10	18
Influenza	1		1	2	4		3	7
Mumps	188	49	81	318	151	33	139	323
Measles	32	9	44	85	43	12	46	101
Scarlet fever	24	5	19	48	34	6	21	61
Tonsillitis	8	2	11	21	10	3	12	25
Typhoid fever							1	1
Whooping cough	4		1	5	4		3	7
Total	305	81	203	589	290	70	276	636
Per cent	51.7	13.8	34.5	100.0	45.6	11.0	43.4	100.0

TABLE 2.—*Results of thyroid examinations made one year apart in 1,842 boys and 1,783 girls who did not have a communicable disease in this interval and were attending the elementary schools in Cincinnati, Ohio*

Age	Boys				Girls			
	Thyroid status			Total examined	Thyroid status			Total examined
	No change	Decrease in size	Increase in size		No change	Decrease in size	Increase in size	
7 and under	121	18	63	202	98	20	67	185
8	124	23	97	244	120	41	86	247
9	146	35	102	283	124	47	101	272
10	94	31	106	231	120	52	98	270
11	122	36	100	258	121	51	97	269
12	110	40	96	246	96	60	87	243
13	82	18	71	171	56	24	59	139
14	50	16	27	93	44	14	30	88
15	19	12	22	53	22	14	17	53
16 and over	24	6	31	61	12	8	6	26
Total	892	235	715	1,842	813	331	639	1,783
Per cent	48.4	12.8	38.8	100.0	45.6	18.6	35.8	100.0

PART II. A STUDY OF THE RELATIONSHIP BETWEEN PRESENT THYROID STATUS AND PAST COMMUNICABLE DISEASES

Purpose of the study.—This investigation was undertaken for the purpose of learning, if possible, whether acute infectious diseases leave a definite and permanent imprint upon the thyroid gland in the form of enlargement. If simple goiter is a sequel of infectious disease, it should be possible, by appropriate analysis of available data, to determine which diseases are responsible for the abnormal condition.

Methods.—In securing necessary information relative to communicable diseases suffered by the children in the past, use was made of a form upon which the data could be placed conveniently. With the cordial cooperation of school nurses, teachers, parents, and pupils the desired information was readily obtained upon this form, which is herewith reproduced.

Treasury Department
U. S. P. H. S.
Form 8937
July, 1926

INDIVIDUAL DISEASE RECORD

Instructions to Parent or Guardian.—Please indicate by check marks the diseases which the child named below has had in the past.

Name of pupil..... Thyroid.....

Age at last birthday (years)..... Sex..... Color.....

School..... Grade.....

Chicken pox	Meningitis	Sinus infection (nose)
Diphtheria	Mumps	Smallpox
German measles	Pneumonia	Tonsilitis
Hookworm	Infantile paralysis	Trachoma
Influenza	Rheumatism	Tuberculesis
Malaria	Scarlet fever	Typhoid fever
Measles	Septic sore throat	Whooping cough

Other diseases.....

NOTE.—This information is to be used for statistical purposes only.

U. S. Public Health Service, Goiter Studies, No. 2.

In making the thyroid examinations, a standard procedure, previously explained,[8] was followed. All of the examinations were made by two observers, Dr. Neil E. Taylor and the writer, both of whom had had previous experience with the same standards.

TABLE 3.—*Number and percentage of enlarged and normal thyroids among 7,977 boys and 8,441 girls (by ages) in the elementary schools of Cincinnati, Ohio*

Age	Boys					Girls				
	Enlarged thyroids		Normal thyroids		Total	Enlarged thyroids		Normal thyroids		Total
	Number	Per cent	Number	Per cent		Number	Per cent	Number	Per cent	
7 and under	93	12.5	653	87.5	746	147	19.8	595	80.2	742
8	138	15.0	783	85.0	921	277	26.1	785	73.9	1,062
9	200	20.1	797	79.9	997	291	28.4	736	71.6	1,027
10	212	21.6	769	78.4	981	349	35.5	635	64.5	984
11	213	25.0	638	75.0	851	418	38.9	654	61.1	1,072
12	277	26.5	766	73.5	1,043	446	44.2	563	55.8	1,009
13	251	26.0	713	74.0	964	412	43.8	529	56.2	941
14	179	27.1	482	72.9	661	321	44.0	408	56.0	729
15	127	25.7	368	74.3	495	273	49.4	280	50.6	553
16 and over	64	20.1	254	79.9	318	180	55.9	142	44.1	322
Total	1,754	22.0	6,223	78.0	7,977	3,114	36.9	5,327	63.1	8,441

The thyroid findings.—The number and percentage of enlarged and normal thyroid glands among the 7,977 boys and 8,441 girls of each age are shown in Table 3. It will be noted that 22 per cent of the boys and 36.9 per cent of the girls showed some degree of thyroid enlargement. It should be said, however, that most of the thyroid thickenings were "very slight" and "slight" in character, "marked enlargements" having greatly decreased in frequency in Cincinnati during the past three years. The customary trends in goiter incidence are to be noted at the various ages of both sexes.

The communicable-disease census.—The results of the communicable-disease census are shown in Table 4. In this table the number and percentage of boys and girls who have had each of 12 communicable maladies are separately listed. In the same tabulation the thyroid-normal and thyroid-enlarged individuals are also listed. An examination of the data contained in this table shows that in the case of each disease the percentage of thyroid-normal individuals who had the disease was approximately the same as the percentage of thyroid-enlarged individuals who had it. This similarity apparently indicates that thyroid enlargement is not a lasting after effect of the ordinary communicable diseases of childhood. The interval which had elapsed between the occurrence of the various communicable diseases and the time of the thyroid examination was not accurately determined.

[8] Robert Olesen: Thyroid survey of 47,493 elementary school children in Cincinnati. Pub. Health Rep., vol. 39, No. 30, pp. 1777-1802, July 25, 1924. (Reprint No. 941.)

In some instances the diseases had been of comparatively recent occurrence, while in others a number of years had elapsed. However, in the group of children under observation, thyroid enlargement appeared to be independent of the fact that illness from communicable disease had been suffered in the past.

TABLE 4.—*Number and percentage of thyroid-normal and thyroid-enlarged individuals among 7,977 boys and 8,441 girls who had certain communicable diseases at some time prior to the thyroid examinations and were attending the elementary schools of Cincinnati, Ohio, at the time of the examination*

Disease	Boys (total normal, 6,223; total enlarged, 1,754)		Girls (total normal, 5,327; total enlarged, 3,114)	
	Number out of total normal or enlarged having the disease	Per cent	Number out of total normal or enlarged having the disease	Per cent
Chicken pox:				
Normal	4,065	65.3	3,623	68.0
Enlarged	1,129	64.5	2,196	70.5
Diphtheria:				
Normal	495	7.9	427	8.0
Enlarged	151	8.6	248	8.0
German measles:				
Normal	1,346	21.6	1,258	23.6
Enlarged	355	20.3	749	24.0
Influenza:				
Normal	1,825	29.3	1,738	32.6
Enlarged	567	32.3	1,040	33.4
Measles:				
Normal	5,186	83.3	4,661	87.5
Enlarged	1,448	82.4	2,674	85.8
Mumps:				
Normal	3,187	51.1	2,674	50.1
Enlarged	922	52.5	1,559	50.0
Pneumonia:				
Normal	817	13.1	651	12.2
Enlarged	237	13.5	383	12.3
Rheumatism:				
Normal	193	3.1	190	3.6
Enlarged	69	3.9	109	3.1
Scarlet fever:				
Normal	679	10.1	590	11.1
Enlarged	189	10.8	364	11.7
Sinus infection:				
Normal	190	3.0	128	2.4
Enlarged	37	2.1	68	2.1
Tonsillitis:				
Normal	2,139	34.4	2,072	38.9
Enlarged	590	33.7	1,212	38.9
Whooping cough:				
Normal	4,249	68.3	3,798	71.2
Enlarged	1,180	67.2	2,191	70.4

The percentages and ages of thyroid-normal and thyroid-enlarged children, at each age, who have had each of the six principal communicable diseases, are shown graphically in Charts 2 and 3. While there are variations in some of the curves, the general trends are the same. In most instances the percentages at each age are comparatively close together, suggesting that the diseases are not responsible for thyroid enlargement that can be detected by subsequent examination.

In a further attempt to determine whether communicable diseases are responsible for simple thyroid enlargements the total percentages of thyroid-normal and thyroid-enlarged individuals who have had

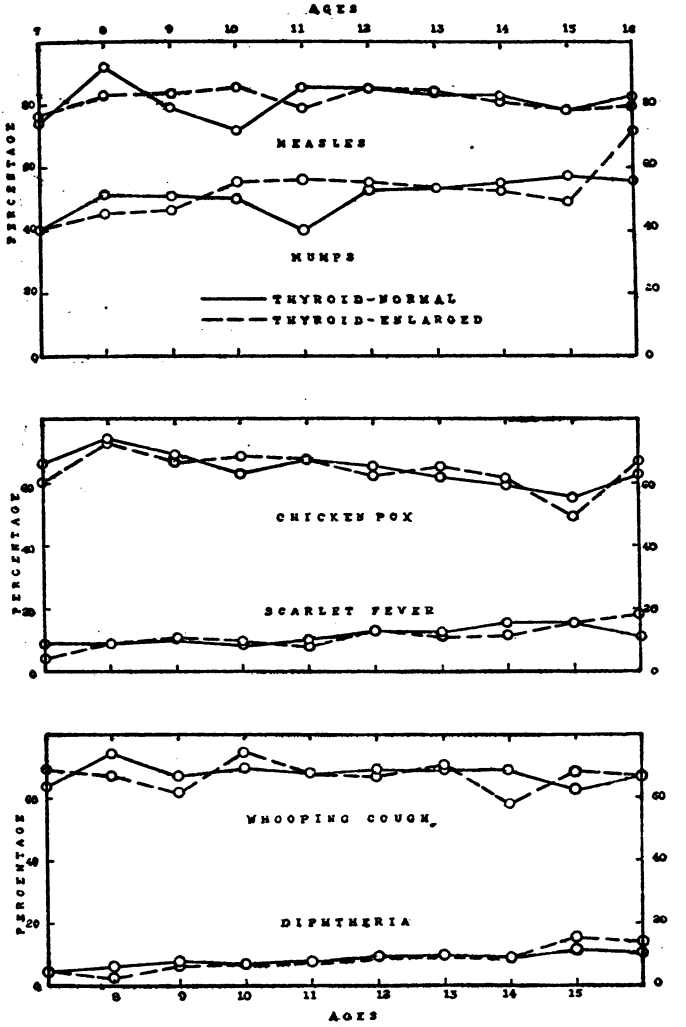

CHART 2.—Comparison of percentages of thyroid-normal and of thyroid-enlarged individuals, by ages, among 7,977 boys in the elementary schools of Cincinnati, who had the six most prevalent communicable diseases prior to the thyroid examination

the same communicable illnesses have been set forth graphically in Charts 4 and 5. An examination of these charts shows practically the same percentages of children in the thyroid-normal and thyroid-enlarged groups under each of the diseases listed.

Conclusion.—The communicable-disease census failed to disclose a relationship between endemic thyroid enlargement and certain illnesses. On the contrary, the percentages of children examined who

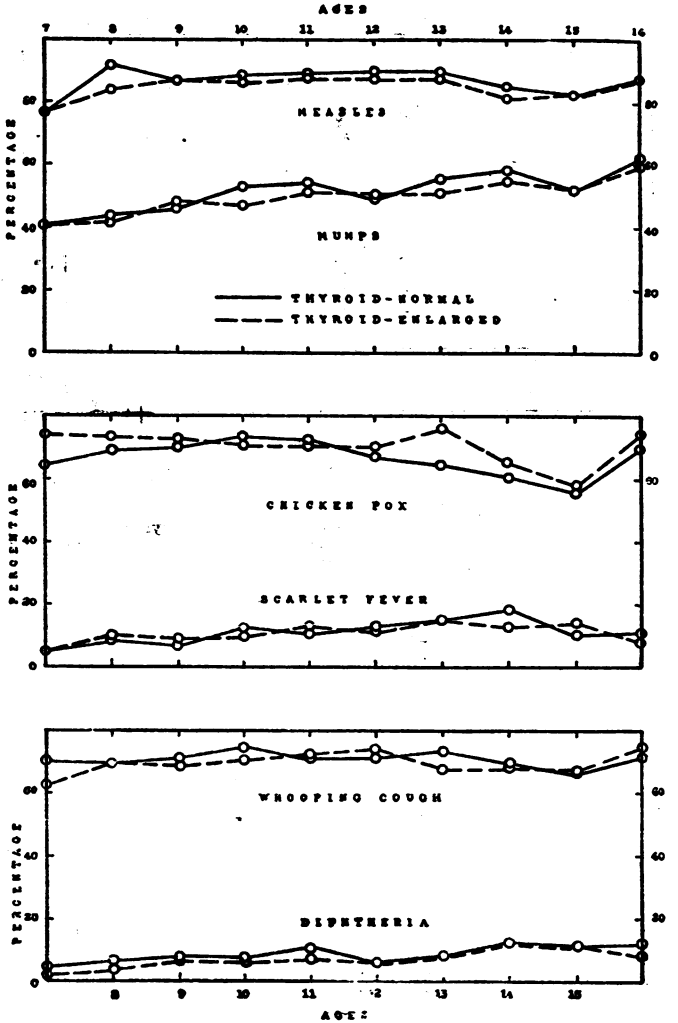

CHART 3.—Comparison of percentages of thyroid-normal and of thyroid-enlarged individuals, by ages, among 8,441 girls in the elementary schools of Cincinnati, who had the six most prevalent communicable diseases prior to the thyroid examination

were free from thyroid enlargement were approximately the same as the percentages of those who had some degree of such involvement, yet the members of both groups had had the same sicknesses.

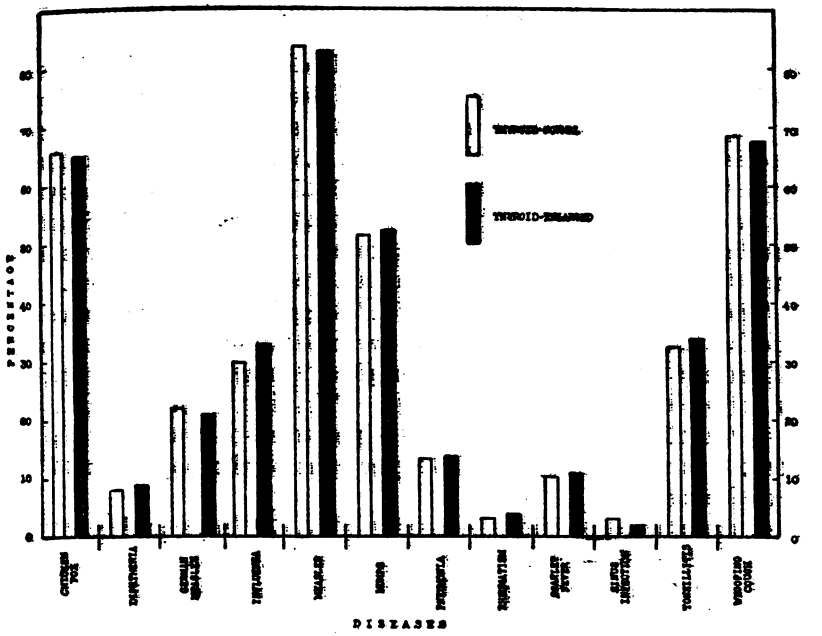

CHART 4.—Comparison of percentages of thyroid-normal and of thyroid-enlarged individuals among 7,977 boys who had various communicable diseases prior to the thyroid examination and were attending the elementary schools of Cincinnati at the time of the examination

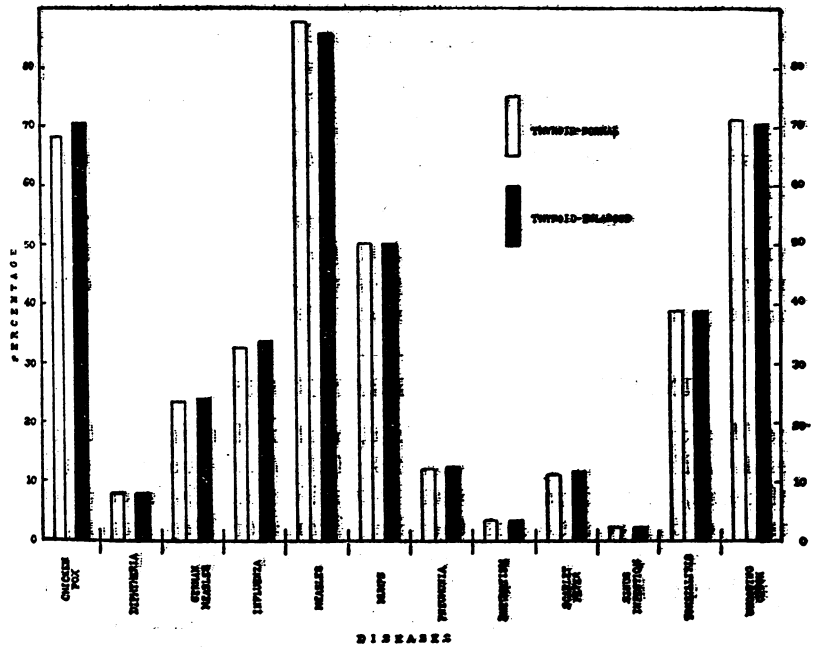

CHART 5.—Comparison of percentages of thyroid-normal and of thyroid-enlarged individuals among 8,441 girls who had various communicable diseases prior to the thyroid examination and were attending the elementary schools of Cincinnati at the time of the examination

GENERAL SUMMARY

A study of the effects of communicable disease upon the size of the thyroid glands of elementary school children revealed the following:

1. Thyroid examinations of 589 boys and 636 girls were made before and after communicable illnesses. After the illness no changes in thyroid size were detectable among 51.7 per cent of the boys and 45.6 per cent of the girls. Thyroid size was decreased in 13.8 per cent of the boys and 11 per cent of the girls. Increased size was noted among 34.5 per cent of the boys and 43.4 per cent of the girls.

2. The thyroids of 1,842 boys and 1,783 girls who did not have communicable illness in the interval were examined one year apart. No change in thyroid size had taken place among 48.4 per cent of the boys and 43.6 per cent of the girls. Thyroid size had decreased in 12.7 per cent of the boys and 18.6 per cent of the girls, while an increase was recorded among 38.8 per cent of the boys and 35.7 per cent of the girls.

3. A communicable disease census of 7,977 boys and 8,441 girls showed little difference in percentage incidence among the thyroid-normal and thyroid-enlarged children who had the same maladies.

CONCLUSION

There is some evidence to show that one of the immediate effects of communicable diseases among girls of elementary school age is a simple enlargement of the thyroid gland. However, this thyroid enlargement appears to be temporary in character. A comparatively short time, the length of which is as yet undetermined, after a child recovers from a communicable disease, he is no more prone to changes in thyroid size than a child who has not had a communicable disease.

In so far as elementary school children are concerned, there appears to be no ground for assuming that the ordinary communicable diseases are responsible for simple goiter. The underlying causes of this malady must be sought for in other directions.

INFLUENZA IN SAN FRANCISCO, CALIF.

The Weekly Bulletin of the Department of Public Health of the State of California, issued October 28, 1928, states that "an epidemic of influenza, in mild form, exists in California. It is confined, at present, to the counties of the San Francisco Bay region. Few deaths have been reported, but since the 1st of October several thousand cases have occurred."

Cases of influenza in the State of California and in the city of San Francisco have been reported to the Public Health Service as follows:

Week ended—	State of California	City of San Francisco
Oct. 6, 1928	27	9
Oct. 13, 1928	34	3
Oct. 20, 1928	158	28
Oct. 27, 1928	1,392	1,209
Nov. 3, 1928	2,389	1,114

The reports from other parts of the country do not indicate unusual prevalence of influenza except some increase in the numbers of cases reported in South Carolina and Georgia.

CITY HEALTH OFFICERS, 1928

Directory of Those in Cities of 10,000 or More Population

Directories of the city health officers in the cities of the United States having a population of 10,000 or more have been published in the Public Health Reports [1] for each year from 1916 to 1927, for the information of health officers and others interested in public-health activities. These directories have been compiled from data furnished by the health officers. The cities included in this directory are those having 10,000 or more population.

The asterisk (*) indicates that the officer before whose name it appears has been reported to be a "whole-time" health officer. For this purpose a "whole-time" officer is defined as "one who does not engage in the practice of medicine or in any other business, but devotes all his time to official duties."

City	Name of health officer	Official title
Alabama:		
Anniston	C. Hal Cleveland, M. D.	City health officer.
Bessemer	*Robert V. Hazlewood, D. V. M.	Director sanitation and food and dairy inspection.
Birmingham	*J. D. Dowling, M. D.	County health officer.
Dothan	*L. Roy Poole, M. D.	Do.
Florence	*W. D. Hubbard, M. D.	Field agent, U. S. P. H. S.
Gadsden	*Walter H. Harper, M. D.	City and county health officer.
Mobile	*C. A. Mohr, M. D.	County health officer.
Montgomery	*J. L. Bowman, M. D.	Do.
Selma	*L. Tennent Lee, M. D.	City and county health officer.
Tuscaloosa	*A. A. Kirk, M. D.	Do.
Arizona:		
Douglas	Zachary Causey, M. D.	City health officer.
Phoenix	H. K. Beauchamp, M. D.	Do.
Tucson	Alvin Kirmse, M. D.	Do.
Arkansas:		
Fort Smith	*James Edward Johnson, M. D.	District health officer.
Helena	*W. B. Bruce, M. D.	City health officer.
Hot Springs	*J. F. Merritt, M. D.	City and county health officer.
Jonesboro	E. J. Horner, M. D.	City health officer.
Little Rock	*Austin F. Barr, M. D.	Do.
North Little Rock	James A. Summers, M. D.	City physician.
Pine Bluff	*George A. Hays, M. D.	Director health department.
California:		
Alameda	Arthur Hieronymus, M. D.	Health officer.
Alhambra	*S. J. Stewart, M. D.	Senior district medical director.
Bakersfield	P. J. Cuneo, M. D., LL. B.	Health officer.

[1] Reprints Nos. 346, 416, 494, 539, 599, 702, 767, 876, 930, 1,025, 1,103, and 1,177 from the Public Health Reports.

City	Name of health officer	Official title
California—Continued.		
Berkeley	*Frank L. Kelly, M. D	Health officer.
Chico	Charles E. Tovee	City health officer.
Eureka	John N. Chain, M. D	City physician and health officer.
Fresno	Carlton Mathewson, M. D	Health officer.
Glendale	*E. M. Miller, M. D	Do.
Long Beach	*G. E. McDonald, M. D	City health officer.
Los Angeles	*George Parrish, M. D	Health officer.
Modesto	J. W. Morgan, M. D	Do.
Oakland	Charles R. Fancher, M. D	Do.
Pasadena	*Warren F. Fox, M. D	Health officer and city physician.
Pomona	*Eugene F. Fontaine, M. D	Medical director.
Richmond	Charles R. Blake, M. D	City health commissioner.
Riverside	*W. B. Wells, M. D	Commissioner of health.
Sacramento	Walter W. Cress, M. D	Health officer and registrar.
San Bernardino	Ivan Lewis Finkelberg, M. D	City health officer.
San Diego	*Alex M. Lesem, M. D	Health officer and superintendent.
San Francisco	*William C. Hassler, Ph. G., M. D	Health officer and registrar.
San Jose	*Henry C. Brown, M. D	Health officer.
Santa Ana	*K. H. Sutherland, M. D	County health officer.
Santa Barbara	*William H. Eaton, M. D	Health officer.
Santa Cruz	Norman Ross Sullivan, M. D	City health officer.
Santa Monica	*William F. Reasner, M. D	Health officer
Stockton	*John J. Sippy, M. D	District health officer.
Vallejo	Edward Peterson, M. D	Health officer.
Colorado:		
Boulder	J. H. Bush, M. D	Director of public health.
Colorado Springs	Omer R. Gillett, M. D	City health officer.
Denver	*B. B. Jaffa, M. D	Manager of health and charity.
Greeley	Burgett Woodcock, M. D	City health officer.
Pueblo	*W. E. Buck, M. D	Chief, department of health.
Trinidad	G. W. Robinson, M. D	City physician.
Connecticut:		
Ansonia	William H. O'Neil, M. D	Health officer.
Bridgeport	*William F. Wild, M. D., C. P. H	Do.
Bristol	Benjamin B. Robbins, M. D	City health officer.
Danbury	Everett J. S. Scofield, M. D	Health officer.
Derby	Thomas F. Plunkett, M. D	Do.
East Hartford	Harvey B. Goddard, M. D	Do.
Enfield	Frank F. Simonton, M. D	Do.
Fairfield	*Lawrence E. Poole, M. D., Dr. P. H.	Health officer and school physician.
Greenwich	Albert E. Austin, M. D	Health officer.
Hartford	*Charles P. Botsford, M. D	Superintendent of health.
Manchester	D. C. Y. Moore, M. D	Chairman board of health.
Meriden	H. De Forest Lockwood, M. D	City health officer.
Middletown	John H. Mountain, D. D. S., M. D.	Health officer.
Milford		
Naugatuck		
New Britain	*Richard Woollard Pullen, M. D	Superintendent of health.
New Haven	*John L. Rice, M. D	Health officer.
New London	*Benjamin N. Pennell, D. V. S	Do.
Norwalk		
Norwich	Edward J. Brophy, M. D	Do.
Orange		
Shelton	William S. Randall, Ph. B., M. D	Health officer and school physician.
Stamford	*Raymond D. Fear, M. D., Dr. P. H.	Health commissioner.
Stonington (Mystic)	D. E. Taylor, M. D	Health officer.
Stratford	DeRuyter Howland, M. D	Town health officer.
Torrington		
Wallingford		
Waterbury	*Edward J. Godfrey, M. D	City health officer.
West Hartford	L. A. Cushman, M. D	Health officer.
Willimantic	Wm. P. S. Keating, M. D	City health officer.
Windham	Frederick E. Wilcox, M. D	Town health officer.
Delaware:		
Wilmington	Fred F. Armstrong, M. D	Secretary, board of health.
District of Columbia:		
Washington	*William C. Fowler, M. D	Health officer.
Florida:		
Jacksonville	*Noble A. Upchurch, M. D	City health officer.
Key West	H. C. Galey, M. D	Do.
Miami	*George N. MacDonell, M. D	Chief, division of health.
Orlando	Sylvan McElroy, M. D	City physician.
Pensacola		
St. Petersburg	W. W. Harden, Ph. G., M. D	Health commissioner.
Tampa	*Chas. Wm. Bartlett, M. D	City health officer.
West Palm Beach	W. E. Van Landingham, M. D	Do.
Georgia:		
Albany	*Hugo Robinson, M. D., Ph. G	Commissioner of health.
Athens	*B. B. Bagby, M. D	Health commissioner.
Atlanta	*John P. Kennedy, M. D	City health officer.
Augusta	Eugene E. Murphey, M. D	Health officer.
Brunswick	*H. L. Akridge, M. D., D. P. H	Field agent, U. S. P. H. S.

City	Name of health officer	Official title
Georgia—Continued.		
Columbus	B. L. Williams, M. D.	City health officer.
La Grange	*S. C. Rutland, M. D.	Commissioner of health.
Macon	*J. D. Applewhite, M. D.	Health officer.
Rome	*Buena Vista Elmore, M. D.	Commissioner of health.
Savannah	*Victor H. Bassett, M. D.	Health officer.
Valdosta	*George T. Crosier, M. D.	Commissioner of health.
Waycross	*Geo. E. Atwood, M. D., Dr. P. H.	District commissioner of health.
Idaho:		
Boise	Harold H. Hughart, M. D.	City physician.
Pocatello	C. D. Weaver, M. D.	County health officer.
Twin Falls		
Illinois:		
Alton	D. F. Duggan, M. D.	Health commissioner.
Aurora	Geo. W. Haan, M. D.	Do.
Belleville	B. H. Portuondo, M. D.	Public health officer.
Berwyn	*P. E. Wright, M. D.	Health director.
Bloomington	*George D. Heath, M. D., Dr. P. H.	Director of health.
Blue Island	*L. A. Burkhart	Commissioner of health.
Cairo	C. L. Weber, M. D.	Health officer.
Canton	C. J. Johnston, M. D.	President, board of health.
Centralia	Gilford N. Welch, M. D.	Health officer.
Champaign	W. E. Schowengerdt, M. D.	Do.
Chicago	*Arnold H. Kegel, M. D.	Commissioner of health.
Chicago Heights	Arthur H. Pannenborg, M. D.	Do.
Cicero	J. J. Hood, M. D.	Health commissioner.
Collinsville		
Danville	W. C. Dixon, M. D.	Do.
Decatur	*George William Haan, jr., M. D.	City health physician.
East Moline	J. Henry Fowler, M. D.	Commissioner of health.
East St. Louis	*A. P. Laurman	Do.
Elgin	*Geo. H. Reber	Health officer.
Evanston	*John W. H. Pollard, B. L., M. D.	Commissioner of health.
Forest Park	Wm. C. Masslow, M. D.	Do.
Freeport	Robert J. Burns, M. D.	Do.
Galesburg	E. D. Wing, M. D.	Health commissioner.
Granite City	L. D. Danner, M. D.	City health officer.
Harvey	M. R. Morse, M. D.	Health officer.
Herrin	Louis J. Venegoni	President, board of health.
Jacksonville	*W. H. Newcomb, M. D.	County health officer.
Joliet	*Ed. J. Higgins, M. D.	Commissioner of health.
Kankakee	C. K. Smith, M. D.	Health officer.
Kewanee	H. N. Heflin, M. D.	Commissioner of health.
La Salle	*Arlington Ailes, M. D., C. P. H.	Health commissioner.
Lincoln	*Geo. Wilbur Montgomery	Health officer.
Marion	A. C. Pickard, M. D.	City physician.
Mattoon		
Maywood	R. L. Reynolds, M. D.	Health commissioner.
Moline	*A. C. Stouffer	Health officer.
Mount Vernon	Geo. O. Culli, M. D.	City physician.
Murphysboro	I. W. Ellis, M. D.	Health physician.
Oak Park	Frank S. Needham, M. D.	Commissioner of health.
Ottawa	Paul G. Pomeroy, M. D.	City health officer.
Pekin	L. R. Clary, M. D.	Health officer.
Peoria	Joel Eastman, M. D.	Commissioner of health.
Quincy	*Thomas W. Rhodes, Ph. G., M. D.	Public health officer.
Rock Island	*Ernest Russ	Health officer.
Rockford	*N. O. Gunderson, M. D.	Commissioner of health.
Springfield	H. H. Tuttle, M. D.	Superintendent of health.
Streator	D. S. Conley, M. D.	City physician.
Urbana	Daniel T. Cole, M. D.	Chairman, board of health.
Waukegan	Howard C. Hoag, M. D.	City health physician.
West Frankfort	C. E. Koons, M. D.	Chairman, board of health.
Indiana:		
Anderson	E. M. Conrad, M. D.	Secretary, city board of health.
Bloomington	J. E. Moser, M. D.	Do.
Clinton	Ott Casey, M. D.	Do.
Connersville	J. H. Clark, M. D.	Do.
Crawfordsville	Thomas Z. Ball, M. D.	City health officer.
East Chicago	M. A. Given, M. D.	Secretary, board of health.
Elkhart	Allen A. Norris, M. D.	Do.
Elwood	Harry W. Fitzpatrick, M. D.	Secretary, health department.
Evansville	William E. Barnes, M. D.	Secretary, board of health.
Fort Wayne	D. R. Benninghoff, M. D.	Health officer.
Frankfort		
Gary	B. W. Harris, M. D.	Secretary, board of health.
Hammond	William A. Buchanan, M. D.	Do.
Huntington	R. F. Frost, M. D.	Do.
Indianapolis	*H. G. Morgan, M. D.	Health commissioner.
Jeffersonville	Davis L. Field, M. D.	President and secretary, board of health.
Kokomo	T. C. Cochran, M. D.	Health officer.
La Fayette	Earl Van Reed, M. D.	Secretary, board of health.

City	Name of health officer	Official title
Indiana—Continued.		
La Porte	R. F. Wilcox, M. D.	Secretary board of health.
Logansport	*Fred G. Six	Health inspector.
Marion	F. A. Priest, M. D	Secretary, board of health.
Michigan City	Nelle C. Reed, M. D.	Health officer.
Mishawaka	B. J. Wyland, M. D	Secretary, board of health.
Muncie	Earl S. Green, M. D.	Do.
New Albany	H. B. Shackleff, M. D.	Do.
Newcastle	Clyde C. Bitler, M. D.	Do.
Peru		
Richmond	Richard Schillinger, M. D.	Do.
South Bend	J. B. Berteling, M. D.	Do.
Terre Haute	Paul M. Bronson, M. D.	Do.
Vincennes	R. G. Moore, M. D.	Do.
Wabash	P. G. Moore, M. D.	Do.
Whiting	E. L. Dewey, M. D.	Do.
Iowa:		
Boone	William Woodburn, M. D.	Health officer.
Burlington	George H. Steinle, M. D.	Do.
Cedar Rapids	V. H. Hasek, M. D.	Do.
Clinton	Frank A. Hohenschuh, M. D.	Health officer and city physician.
Council Bluffs		
Davenport	*Theodore J. Meyer	Health officer.
Des Moines	*Adolph J. Lieber, M. D.	Health commissioner.
Dubuque	Walter J. Connell, M. D., M. P. H.	Health director.
Fort Dodge	A. A. Schultz, M. D.	City physician.
Fort Madison	Harold F. Noble, M. D.	Do.
Iowa City	Francis L. Love, M. D.	Health officer.
Keokuk	W. Frank Brown, M. D.	Physician to board of health.
Marshalltown	M. U. Chesire, M. D.	Health officer.
Mason City	Channing E. Dakin, M. D.	Do.
Muscatine	R. M. Arey, M. D.	City health officer.
Ottumwa	Friedrich Alexander Hecker, M. D.	Do.
Sioux City	*Frank H. Collins, B. S., M. S.	Commissioner of public health and director of laboratories.
Waterloo	J. R. Thompson, M. D.	City health officer.
Kansas:		
Arkansas City	B. C. Geeslin, M. D.	Chairman board of health.
Atchison	Chas. W. Robinson, M. D.	City health officer.
Chanute		
Coffeyville	Adolph Boese, M. D.	City physician and health officer.
Eldorado	*Tom A. Jackson	Health officer and sanitary inspector.
Emporia	*J. S. Fulton, M. D.	Field agent, U. S. P. H. S.
Fort Scott	C. L. Mosley, M. D.	City health officer.
Hutchinson	G. R. Walker, M. D.	City physician.
Independence	C. O. Shepard, M. D.	Do.
Kansas City	*S. David Henry, M. D.	Director of health.
Lawrence	E. R. Keith, M. D.	City and county health officer.
Leavenworth	D. R. Sterett, M. D.	City health officer.
Newton	O. W. Roff, M. D.	County health officer.
Parsons	J. D. Pace, M. D.	City health officer.
Pittsburg	H. J. Veatch, M. D.	Do.
Salina	S. T. Blades, M. D.	Health officer.
Topeka	*Jos. H. Kinnaman, M. D.	City health officer.
Wichita	*J. E. Wolfe, M. D.	Director of public welfare.
Kentucky:		
Ashland		
Covington	J. P. Riffe, M. D.	City health officer.
Henderson	*F. C. Campbell, M. B.	Director, county health department.
Lexington	*Charles Howard Voorhies, M. D.	Health officer.
Louisville	C. H. Harris, M. D.	City health officer.
Newport	John Todd, M. D.	Health officer.
Owensboro	*Samuel E. Hainline, Ph. G., M. D	Director of health.
Paducah	H. P. Linn, M. D.	Health officer.
Louisiana:		
Alexandria	J. A. Packer, M. D.	President, board of health.
Baton Rouge	T. J. McHugh, M. D.	City health officer.
Lake Charles	John Greene Martin, M. D.	Health officer.
Monroe	D. I. Hirsch, M. D.	City health officer.
New Orleans	*W. H. Robin, M. D.	Superintendent of public health.
Shreveport	*Arthur G. Heath, M. D.	President, board of health.
Maine:		
Auburn	*L. J. Dumont, M. D.	Health officer.
Augusta	George A. Coombs, M. D.	Do.
Bangor	*Harry D. McNeil, M. D.	Do.
Bath	*Chester Sumner Kingsley	City sanitarian.
Biddeford	*John W. Mahoney	Health officer.
Lewiston	*L. J. Dumont, M. D.	Do.
Portland	*Thomas Tetreau, M. D.	Do.
Sanford	*William H. Kelly, M. D.	Local health officer.
South Portland	Reginald T. Lombard, M. D.	Do.
Waterville	*Arthur R. Daviau, M. D.	Health officer.
Westbrook	P. H. Welch	Do.

City	Name of health officer	Official title
Maryland:		
Annapolis	Joseph C. Joyce, M. D.	City physician.
Baltimore	*Charles Hampson Jones, M. D.	Commissioner of health.
Cumberland	*Harvey H. Weiss, B. S.	Health officer and registrar of vital statistics.
Frederick	*Elmer C. Kefauver, M. D.	City and county health officer.
Hagerstown	Perry F. Prather, M. D.	County health officer.
Massachusetts:		
Adams	*Leland French, M. D. (Pittsfield)	District health officer.
Amesbury	Clarence S. Morse	Agent, board of health.
Arlington	*William H. Bradley	Do.
Athol	Marion B. Sibley, M. D.	Secretary, board of health.
Attleboro	William O. Hewitt, M. D.	Health officer.
Belmont	*Henry Berger, jr., C. P. H.	Agent, board of health.
Beverly	*Alonzo O. Woodbury	Do.
Boston	*Francis X. Mahoney, M. D., M. D. V.	Health commissioner.
Braintree	Harry F. Vinton	Agent, board of health.
Brockton	Joseph H. Lawrence, M. D.	Health officer.
Brookline	Francis P. Denny, M. D.	Do.
Cambridge	Simon B. Kelleher, M. D.	Medical inspector.
Chelsea	*John F. Welch	Health officer.
Chicopee	*Gertrude M. DeWitt	Agent, board of health.
Clinton	*Frederick E. Murphy	Do.
Danvers	*Hugo Nappe, R. N.	Health officer and milk inspector.
Dedham	Edward Knobel, M. D. V.	Chairman, board of health.
Easthampton	Clemence C. Buckner	Agent, board of health.
Everett	*William F. Hogan	Do.
Fall River	*Ernest M. Morris, M. D.	Health commissioner.
Fitchburg	*Fred R. Brigham	Agent, board of health.
Framingham	*Everett B. Johnson, S. B.	Do.
Gardner	*W. P. O'Donnell	Do.
Gloucester	George Stevens Rust, M. D.	Physician to board of health.
Greenfield	*George P. Moore	Health agent and milk inspector.
Haverhill	*George T. Lennon	Agent, board of health.
Holyoke	*J. Sidney Wright	Do.
Lawrence	Peter L. McKallagat, M. D.	Chairman, board of health.
Leominster	*Hugh E. Crain	Agent, board of health.
Lowell	*Francis J. O'Hare	Do.
Lynn	William T. Hopkins, M. D.	Commissioner of public health.
Malden	*Frederick Walmsley	Health inspector.
Marlboro	*John J. Cassidy	Agent, board of health.
Medford	William N. Lanigan, M. D.	Medical inspector.
Melrose	Clarence P. Holden, M. D.	Chairman, board of health.
Methuen	Warren M. Pettingell, M. D.	Board of health physician.
Milford	Oscar C. Ayoth	Secretary, board of health.
Milton	Paul W. Kimball, M. D.	Agent, board of health.
Natick	T. F. Morris	Do.
New Bedford	*William G. Kirschbaum	Agent and executive officer.
Newburyport	*William Thurston	Agent, board of health.
Newton	*Francis Geo. Curtis, M. D.	Chairman, board of health.
North Adams	*Douglas W. Hyde, S. E.	Agent, board of health.
Northampton	George R. Turner	Do.
Northbridge	D. C. Duggan	Chairman, board of health.
Norwood	James J. Mulvehill, D. V. D.	Agent, board of health and milk inspector.
Palmer	J. P. Schneider, M. D.	Chairman, board of health.
Peabody	*Percy F. Murray	Health agent.
Pittsfield	*Wyllis M. Monroe, M. D.	City health officer.
Plymouth	Walter D. Shurtleff, M. D.	Health officer and agent.
Quincy	Edmund B. Fitzgerald, M. D.	Health commissioner.
Revere	Francis Licata, M. D.	Chairman, board of health.
Salem	*John J. McGrath	Agent, board of health.
Saugus	Chas. E. Light	Chairman, board of health.
Somerville	Frank L. Morse, M. D.	Medical inspector and bacteriologist.
Southbridge	*Albert R. Brown	Agent, board of health.
Springfield	*Jacob R. Sackett	Do.
Taunton	William H. Bennett, M. D.	Chairman, board of health.
Wakefield	*David Taggart	Health officer.
Waltham	C. B. Fuller, M. D.	Director, public welfare commission.
Watertown	*J. A. Boucher, M. D.	Agent, board of health.
Webster	Bernard L. Plouffe, M. D.	Sanitary inspector.
West Springfield	John J. Lysaght	Agent, board of health.
Westfield	R. M. Marr, M. D.	Chairman, board of health.
Weymouth	F. L. Doucett, M. D.	Clerk of board.
Winchester	*Maurice Dinneen	Agent, board of health.
Winthrop	*William D. Childress	Do.
Woburn	*Edward T. Gorman	Agent and secretary.
Worcester	*Thomas F. Kenney, M. D.	Director of health and school hygiene.
Michigan:		
Adrian	Emily S. Stark, M. D.	Health officer.
Alpena	Duncan A. Cameron, M. D.	Do.
Ann Arbor	John A. Wessinger, M. D.	Do.

City	Name of health officer	Official title
Michigan—Continued.		
Battle Creek	*A. A. Hoyt, M. D.	Health officer and registrar.
Bay City	G. W. Moore, M. D.	Health officer.
Benton Harbor	Carl A. Mitchell, M. D.	Director of public health.
Cadillac	*S. C. Moore, M. D.	County and city health officer.
Detroit	*Henry Frieze Vaughan, D. P. H.	Commissioner of health.
Escanaba	*Harry J. Defnet, M. D.	Health officer.
Flint	*C. V. Merritt, M. D.	Do.
Grand Rapids	*Clyde C. Slemons, M. D.	Do.
Hamtramck	Charles R. Sheridan, M. D.	Commissioner of health.
Highland Park	Wm. N. Braley, M. D.	Health officer.
Holland		
Ironwood	*Louis Dorpat, M. D.	Health officer.
Ishpeming	*George G. Barnett, M. D.	City health officer.
Jackson	*F. R. Town, M. D.	Health officer.
Kalamazoo	*Alvin H. Beckwell, M. D.	Do.
Lansing	*S. Rowland Hill, M. D.	Health director.
Marquette	*L. L. Youngquist, M. D.	Do.
Monroe	James A. Humphrey, M. D.	Do.
Mount Clemens	Edward G. Folsom M. D.	Health officer and registrar of vital statistics.
Muskegon	R. J. Harrington, M. D.	City physician.
Muskegon Heights	William S. Chapin, M. D.	Health officer.
Owosso	Reynolds C. Mahaney, M. D.	Do.
Pontiac	*C. A. Neafie, M. D., M. S. P. H.	Director of public health.
Port Huron	Leo B. Gaddis, M. D.	Health officer.
River Rouge	Harvey S. Broderson, M. D.	City physician and health officer.
Saginaw	*William H. Pickett, M. D.	Health officer.
Sault Ste. Marie	*John J. Griffin, M. D.	City health officer.
Traverse City	G. A. Holliday, D. D. S., M. D.	Health officer.
Wyandotte	Arthur P. Schulz, M. D.	Commissioner of health and sanitation.
Minnesota:		
Albert Lea	Donald S. Branham, M. D.	Health officer.
Austin	C. C. Allen, M. D.	Do.
Brainerd	R. A. Beise, M. D.	President board of health.
Duluth	Lincoln A. Sukeforth, M. D.	Director of public health.
Faribault	Fred U. Davis, M. D.	Health commissioner.
Hibbing	Theo. A. Estrem, M. D.	Health officer.
Mankato	E. L. Schield, M. D.	City health officer.
Minneapolis	*Francis E. Harrington, M. D., LL. D.	Commissioner of health.
Rochester	C. H. Mayo, M. D.[1]	Health officer.
St. Cloud	J. N. Libert, M. D.	City physician.
St. Paul	*Benj. F. Simon, M. D.	Health officer.
Virginia	Robert P. Pearsall, M. D.	Do.
Winona	William V. Lindsay, M. D.	Do.
Mississippi:		
Biloxi	G. F. Carroll, M. D.	City health officer.
Columbus		
Greenville	*Howard P. Rankin, M. D.	Director, Washington County.
Hattiesburg	*W. D. Beacham, M. D.	County health officer.
Jackson	*W. E. Noblin, M. D.	County director and field agent, U. S. P. H. S.
Laurel	*Hardie R. Hays, M. D., C. P. H.	County health officer.
Meridian	*J. T. Googe, M. D.	Director of health.
Natchez	W. H. Aikman, M. D.	City health officer.
Vicksburg		
Missouri:		
Cape Girardeau	*Robert Wilson	Health officer.
Carthage	Wallace E. Steele, M. D.	City physician.
Columbia	W. A. Norris, M. D.	City health commissioner.
Hannibal	*E. M. Lucke, M. D.	Field agent U. S. P. H. S.
Independence	F. L. Cook, M. D.	City physician.
Jefferson City	Hugh G. Dallas, M. D.	Do.
Joplin	*M. B. Harutun, M. D.	Commissioner of health and sanitation.
Kansas City	*Ernest W. Cavaness, M. D., B. L.	Director of health.
Moberly	C. H. Dixon, M. D.	Health commissioner.
St. Joseph	W. W. Gray, M. D.	Health officer.
St. Louis	*Max C. Starkloff, M. D.	Health commissioner.
Sedalia	W. F. Logan, M. D.	City physician.
Springfield	*Lon Sharp	Commissioner of health and sanitation.
Webster Grove	Arthur W. Westrup, M. D.	Health commissioner.
Montana:		
Anaconda	W. E. Long, M. D.	Health officer.
Billings	Albert E. Stripp, M. D.	City health officer.
Butte	Joseph J. Kane, M. D.	City physician.
Great Falls	*Thomas F. Walker, M. D.	City-county health officer, field agent, U. S. P. H. S.
Helena	*Arthur Jordan, M. D.	Do.
Missoula	*F. D. Pease, M. D.	Health officer.
Nebraska:		
Grand Island	J. G. Woodin, M. D.	City physician.
Lincoln	M. F. Arnholt, M. D.	Superintendent of health.
North Platte	Josiah Beckley Redfield, M. D.	City physician.
Omaha	A. S. Pinto, M. D.	Health commissioner.

[1] A full-time deputy health officer, D. C. Lockhead, M. D., D. P. H., is employed.

City	Name of health officer	Official title
Nevada:		
Reno	A. F. Adams, Ph. G., M. D	Secretary, board of health.
New Hampshire:		
Berlin	*E. A. Marcoux, B. S	Health officer and milk inspector.
Claremont	William P. Prescott	Health officer.
Concord	*Charles E. Palmer	Sanitary officer.
Dover	*William E. Whiteley	Executive officer.
Keene	*Fred C. Nims	Health officer.
Laconia	Richard W. Robinson, M. D	Secretary, board of health.
Manchester	*Howard A. Streeter, M. D	Health officer.
Nashua	*Eugene Hysette	Health inspector.
Portsmouth	John D. Carty, M. D	Bacteriologist and city inspector.
Rochester		
New Jersey:		
Asbury Park	*B. H. Obert	Health officer and registrar of vital statistics.
Atlantic City	Samuel L. Salasin, M. D	Health officer.
Bayonne	William W. Brooke, M. D	Do.
Belleville	*Eugene T. Berry	Do.
Bloomfield	*Joseph C. Saile, Ph. G., D. V. S., D. O.	Do.
Bridgeton	*Charles E. Bellows, Ph. G	Sanitary inspector.
Camden	*A. L. Stone, M. D	Director of public health.
Carteret		
Clifton	J. P. Quinlan	Health officer.
Collingswood	Ralph Wright, M. D	Medical, food, and drug inspector.
Dover	*John G. Taylor	Health officer.
East Orange	*F. J. Osborne, B. S	Health officer and secretary.
Elizabeth	*Louis J. Richards	Health officer.
Englewood	*John A. Manson	Sanitary inspector.
Garfield	Charles B. Bleasby, M. D	Health officer.
Gloucester	J. Alonzo Beek, M. D	Do.
Hackensack	*L. Van D. Chandler	Do.
Harrison	*John T. McClure	Do.
Hoboken	J. F. X. Stack, M. D	Commissioner of health.
Irvington	*Paul C. Schotte, Ph. D	Health officer.
Jersey City	*James J. Hagan	Do.
Kearny	*Amos Field, jr	Do.
Lodi	H. H. Brevoort, M. D	Health inspector.
Long Branch	*R. Clifford Errickson	Commissioner of health.
Millville	Francis Vernon Ware, M. D	Do.
Montclair	*Carl T. Pomeroy, C. P. H	Do.
Morristown	*John F. Kilkenny	Do.
New Brunswick	E. Irving Cronk, M. D	Do.
Newark	*Charles V. Craster, M. D., D. P. H.	Do.
Nutley	*Eugene H. Sullivan, R. N	Health officer and registrar.
Orange	*Lenore Y. Wylie, R. N	Health officer and registrar of vital statistics.
Passaic	John N. Ryan, M. D	Health officer.
Paterson	*Frederick P. Lee, M. D	Do.
Perth Amboy	*Chas. S. Thompson, D. V. S	Do.
Phillipsburg	Alma L. Williston, M. D	Town physician.
Plainfield	*N. J. Randolph Chandler	Health officer.
Rahway	*Fred M. Williams	Do.
Ridgefield Park	William F. Reynolds, D. V. M	Do.
Rutherford	*Marine Dunn	Sanitary inspector.
Summit	Henry Paul Dengler, M. D	Executive officer.
Trenton	*Alton S. Fell, M. D	Health officer.
Union City	George F. Mangone, M. D	Do.
Weehawken	J. M. Stein, M. D	City physician.
West New York	*Rudolph Kunze	Chief inspector.
West Orange	*D. E. Buckley	Health officer and registrar.
Westfield	*Andrew Carney	Executive officer.
New Mexico:		
Albuquerque	*James R. Scott, Ph. D., M. D	County health officer.
New York:		
Albany	James W. Wiltse, M. D	Health officer.
Amsterdam	Julius Schiller, M. D	Do.
Auburn	Thomas C. Sawyer, M. D	Do.
Batavia	Emery F. Will, M. D	Do.
Beacon		
Binghamton	Chalmer J. Longstreet, M. D	Do.
Buffalo	*Francis E. Fronczak, M. D., LL. B., Dr. Sc. P. H.	Commissioner of health.
Cohoes	E. M. Bell, M. D	Health officer.
Corning	Henry E. Elwood, jr., M. D	Do.
Cortland	A. C. Knapp, M. D	Do.
Dunkirk	Geo. E. Ellis, M. D., D. P. H	Do.
Elmira	Reeve B. Howland, M. D	Do.
Endicott	Dorr W. Hardy, M. D	Do.
Freeport	Wm. H. Runcie, M. D	Do.
Fulton	L. A. Simpson, M. D	Do.
Geneva	C. W. Grove, M. D	Do.
Glens Falls	*Virgil D. Selleck, M. D., C. P. H	Do.

City	Name of health officer	Official title
New York—Continued.		
Gloversville	Alex. L. Johnson, M. D	Health officer.
Herkimer	James W. Graves, M. D	Do.
Hornell	Geo. E. Taylor, M. D	Do.
Hudson	William D. Collins, M. D	Do.
Ilion	Frank B. Conterman, M. D	Do.
Ithaca	*Lewell T. Genung, M. D	Do.
Jamestown	William M. Sill, M. D	Superintendent of public health.
Johnson City	Rollin O. Crosier, M. D	Health officer.
Johnstown	Guy Vail Wilson, M. D	Do.
Kingston	E. H. Loughran, M. D	Do.
Lackawanna	A. S. Culkowski, M. D	Do.
Little Falls	George S. Eveleth, M. D	Do.
Lockport	T. Edwin O'Brien, M. D	Do.
Middletown	Hilton J. Shelley, M. D	Do.
Mount Vernon	Frank W. Shipman, M. D	Commissioner of health.
New Rochelle	*Edwin H. Codding, M. D	Health officer.
New York	*S. W. Wynne, M. D	Commissioner of health.
Newburgh	Thomas J. Burke, M. D	Health officer.
Niagara Falls	E. F. Gillick, M. D	Do.
North Tonawanda	H. C. Lapp, M. D	Do.
Ogdensburg	John W. Benton, M. D	Do.
Olean	W. E. McDuffie, M. D	Commissioner of health.
Oneida	Donald H. Conterman, M. D	Health officer.
Oneonta	George W. Augustin, M. D	Do.
Ossining	Robert R. Bloom, M. D	Do.
Oswego	Harvey S. Albertson, M. D	Do.
Peekskill	Fred A. Snowden, M. D	Do.
Port Chester	W. J. Sheehan, M. D	Do.
Port Jervis	G. Otto Pobe, M. D	Do.
Poughkeepsie	*William H. Conger, M. D	Do.
Rensselaer	James C. Sharkey, M. D	Do.
Rochester	*George Washington Goler, M. D	Do.
Rome	Lewis N. Eames, M. D	Do.
Salamanca	P. H. Bourne, M. D	Do.
Saratoga Springs	Charles B. Small, M. D	Do.
Schenectady	John H. Collins, M. D	Commissioner of health.
Syracuse	*George C. Ruhland, M. D	Do.
Tonawanda	John T. Harris, M. D	Health officer.
Troy	William J. Fleming, M. D	Health Commissioner.
Utica	Hugh H. Shaw, M. D	Health officer.
Watertown	George B. Van Doren, M. D	Do.
Watervliet	Charles A. Birmingham, M. D	Do.
White Plains	Edwin G. Ramsdell, M. D	Do.
Yonkers	Clarence W. Buckmaster, M. D., C. P. H.	Commissioner of health.
North Carolina:		
Asheville	*Daniel E. Sevier, M. B	Health officer.
Charlotte	*Wilbur Ashley McPhaul, M. D	City-county health officer.
Concord	*D. G. Caldwell, M. D	City and county health officer.
Durham	*Jesse H. Epperson, M. B	Superintendent of health.
Gastonia	Mc. G. Anders, M. D	City physician.
Goldsboro	*L. W. Corbett, M. D	Superintendent of health.
Greensboro	*C. Curtis Hudson, M. D	Health officer.
High Point	S. S. Coe, M. D	City physician.
Kinston	*Robert S. McGeachy, M. D	County health officer.
New Bern	*D. E. Ford, M. D	Do.
Raleigh	*A. C. Bulla, M. D	Health officer.
Rocky Mount	*H. Lee Large, M. D	Superintendent, department of health and public welfare.
Salisbury	*C. W. Armstrong, M. D	Health officer.
Wilmington	*John H. Hamilton, M. D	County health officer.
Wilson	*L. J. Smith, M. D	Health officer.
Winston-Salem	*R. L. Carlton, M. D	City health officer.
North Dakota:		
Fargo	*B. K. Kilbourne, M. D	Do.
Grand Forks	E. C. Haagensen, M. D	Health officer.
Minot		
Ohio:		
Akron	*Melville D. Ailes, M. D., LL. B	Director of health.
Alliance	Earl Mussleman, M. D., LL. B	Health commissioner.
Ashland	E. L. Clem, M. D	Director of public welfare.
Ashtabula	Azro J. Pardee, M. D	Health officer.
Barberton	W. A. Mansfield, M. D	Health commissioner.
Bellefontaine	A. J. McCracken, M. D	City health commissioner.
Bucyrus	W. G. Carlisle, M. D	Health commissioner.
Cambridge	C. L. Vorhies, M. D	Do.
Campbell	James S. Mariner M. D	Do.
Canton	Frank M. Sayre, M. D	Do.
Chillicothe	*R. E. Bower, Ph. B., M. D	Do.
Cincinnati	*Wm. H. Peters, M. D	Do.
Cleveland	*H. L. Rockwood, M. D	Do.
Cleveland Heights	*Robert Lockhart, M. D	Director of health.
Columbus	*James A. Beer, M. D	Health commissioner.
Conneaut	Inez Hyatt, M. D	Do.

City	Name of health officer	Official title
Ohio—Continued.		
Coshocton	*D. M. Criswell, M. D.	Health commissioner.
Cuyahoga Falls	*R. H. Markwith, M. D.	Do.
Dayton	*A. O. Peters, M. D.	Do.
East Cleveland	G. W. Stober, M. D.	Director of health.
East Liverpool	E. W. Miskall, M. D.	Health commissioner.
Elyria	G. E. French, M. D.	Do.
Findlay	*Edward W. Misamore, M. D.	Do.
Fostoria	*A. V. Parsell	Do.
Fremont	E. L. Vermilya, M. D.	Do.
Hamilton	*C. J. Baldridge, B. L., M. D.	Do.
Ironton		
Kenmore		
Lakewood	Wallace J. Benner, M. D.	Do.
Lancaster	Clifford B. Snider, M. D.	Health officer.
Lima	James B. Poling, M. D.	Health commissioner.
Lorain	Valloyd Adair, M. D.	Do.
Mansfield	*Theodore R. Meyer, M. D.	Do.
Marietta	J. B. McClure, M. D.	Do.
Marion	*C. M. Tobin	Do.
Martins Ferry	*John Donovan	Do.
Massillon	*John H. Williams	Do.
Middletown	*G. D. Lummis, M. D.	Do.
New Philadelphia	*Jos. Blickensderfer, M. D.	Do.
Newark	W. H. Knauss, M. D.	Do.
Niles	W. A. Werner, M. D.	Do.
Norwood	L. O. Saur, M. D.	Do.
Piqua	J. G. Freshour, M. D.	Do.
Portsmouth	O. D. Tatje, M. D.	Do.
Salem	Thomas Teasdale Church, M. D.	Do.
Sandusky	*F. M. Houghtaling, M. D.	Do.
Springfield	*Howard C. Lisle, P. H. C., M. D.	Director of public health.
Steubenville	*Julius A. Pizzoferrato	Health commissioner.
Tiffin	J. A. Gosling, M. D.	Do.
Toledo	*Paul F. Orr, M. D.	Do.
Warren	M. T. Knappenberger, M. D.	Do.
Youngstown	H. E. Welch, M. D.	Do.
Zanesville	David J. Evans, M. D.	Superintendent of health.
Oklahoma:		
Ardmore	A. Y. Easterwood, M. D.	City physician.
Bartlesville	E. W. Chamberlin, M. D.	Do.
Chickasha	A. W. Nunnery, M. D.	City superintendent of health.
Enid	R. C. Baker, M. D.	Do.
Guthrie	Wm. C. Miller, M. D.	County superintendent of health.
McAlester	*Charles Merritte Pearce, M. D.	Superintendent of health.
Muskogee	Ira C. Wolfe, M. D.	City health officer.
Oklahoma City	*Walter H. Miles, M. D.	Director of health.
Okmulgee	L. B. Torrance, M. D.	City physician.
Sapulpa	P. K. Lewis, M. D.	City health officer.
Shawnee	T. C. Sanders, M. D.	City superintendent of health.
Tulsa	A. V. Emerson, M. D.	Superintendent of health.
Oregon:		
Astoria	Nellie S. Vernon, M. D.	City and county health officer.
Eugene	Seth M. Kerron, M. D.	Do.
Portland	*John G. Abele, M. D.	City health officer.
Salem	*Vernon A. Douglas, M. D.	City and county health officer.
Pennsylvania:		
Aliquippa	*J. E. Tanner	Health officer.
Allentown	*J. Treichler Butz, D. D. S., M. D.	Do.
Altoona	*T. G. Herbert	Chief, bureau of health.
Ambridge	*Louis Herrmann	Health officer.
Beaver Falls	*Nelson W. Osmond	Health officer and plumbing inspector.
Berwick	*Charles E. Ross	Health officer.
Bethlehem	W. A. Conahan	City physician.
Braddock	*Jas. E. Wills	Health officer.
Bradford	*Carl L. Peterson	Do.
Bristol	John M. Wright	Do.
Butler	*J. Fred Leetch	Do.
Cannonsburg	*J. Mart Templeton	Do.
Carbondale	*P. J. Sheare	Do.
Carlisle	*John T. Glass	Do.
Carnegie	Jos. Lewis	Do.
Chambersburg	*Frank J. Croft	Do.
Charleroi	*W. M. Darby	Health inspector.
Chester	*Mark G. Murtaugh	Secretary of health.
Clairton	*W. F. Connelly	Health officer.
Coatesville	Charles V. Peace, V. M. D.	Do.
Columbia	George M. Rodenhauser	Do.
Connellsville	*John Irwin	Sanitary police.
Dickson City		
Donora	*John W. Harrington	Health officer.
Du Bois	J. I. Brockbank, M. D.	Do.
Dunmore	Anthony J. Earley	Do.
Duquesne	*Emil Elmgren	Do.
Easton	J. James Condran, M. D.	City health officer.

City	Name of health officer	Official title
Pennsylvania—Continued.		
Ellwood City	*Louis Young	Health officer.
Erie	James R. Smith, M. D	Do.
Farrell	*Wm. C. Heinze	Do.
Franklin		
Greensburg	*T. Ray Hunter	Do.
Harrisburg	John M. J. Rannick, M. D	Health officer and director.
Hazleton	*P. J. Bonner	Health officer.
Homestead	*M. D. Weis	Do.
Jeanette	*Charles E. Walter	Chief health officer.
Johnstown	L. W. Jones, M. D	Health officer.
Kingston	*J. F. Seward	Secretary, board of health.
Lancaster	*Benj. F. Charles	Health officer.
Lansford	Frank D. Richards	Do.
Latrobe	W. T. Osborne	Do.
Lebanon	John D. Boger, M. D	Do.
Lewistown	H. E. Fetterolf	Do.
McKees Rocks		
McKeesport	*Daniel F. Marsh	Do.
Mahanoy City	*Joseph B. Kliendienst	Do.
Meadville	*John L. Laley	Do.
Monessen	*Francis E. Gibson	Do.
Mount Carmel	W. F. Stine	Do.
Nanticoke	*H. Judd Abbott	Do.
New Castle	Wm. L. Steen, M. D	Do.
New Kensington		
Norristown	*Chas. E. White	Do.
North Braddock	*George A. Shephard	Do.
Oil City	*William J. Lewis	Do.
Old Forge		
Olyphant		
Philadelphia	*A. A. Cairns, M. D	Director of public health.
Phoenixville	Allen L. Bevan	Health officer.
Pittsburgh	*Richard G. Burns, M. D	Director, department of public health.
Pittston	*Michael A. McHale	Health officer.
Plymouth	H. G. Templeton, M. D	Secretary, board of health.
Pottstown	*A. John André	Health officer.
Pottsville	*David A. Thomas	Do.
Punxsutawney		
Reading	*Ira J. Hain, M. D	Health officer.
Scranton	R. R. Schultz, M. D	Director of public health.
Shamokin		
Sharon	*Louis C. Brainard	Sanitary officer.
Shenandoah	*Cyrus Geise	Health officer.
Steelton	*E. G. Butler	Do.
Sunbury	*Victor A. Koble	Do.
Swissvale	*Samuel L. Glasgow	Do.
Tamaqua	Lamont Perrine	Do.
Taylor	E. E. Edwards, M. D	Do.
Tyrone	John I. Patterson	Do.
Uniontown	*W. C. Hall	Do.
Vandergrift	S. E. Byers	Do.
Warren	*R. N. Brown	Do.
Washington	*J. G. Dinsmore	Do.
Waynesboro	*Percy H. Snowberger	Do.
West Chester	E. P. Hershey	Do.
Wilkes-Barre	Leo C. Mundy, M. D	City physician.
Wilkinsburg	*J. M. Snyder	Health officer.
Williamsburg	E. T. Clark	Do.
Williamsport	Robert F. Trainer, M. D	Do.
Windber	S. W. McMullen	Do.
York	J. Frank Small, M. D	Director of public health.
Rhode Island:		
Bristol		
Central Falls	Adolph R. V. Fenwick, M. D	Superintendent of health.
Cranston	Daniel S. Latham, M. D	Do.
Cumberland	Stephen A. Kenney, M. D	Health officer.
East Providence	W. H. T. Hamill, M. D	Do.
Newport	Edward V. Murphy, M. D	Commissioner of health.
Pawtucket	Florian A. Ruest, M. D	Superintendent of health.
Providence	*Charles V. Chapin, M. D., LL. D	Do.
Warwick		
West Warwick	Daniel S. Harrop, M. D	Health officer.
Westerly	Samuel C. Webster, Ph. G., M. D	Superintendent of health.
Woonsocket	Adelbert H. Monty, M. D	Health officer.
South Carolina:		
Anderson	*E. R. Van De Grift, D. V. M	Commissioner of health.
Charleston	*Leon Banov, M. D	Health officer.
Columbia	Robert Thomas Jennings, M. D	Do.
Florence	*P. H. Brigham, D. D. S., M. D	Health commissioner.
Greenville	*Irving S. Barksdale, M. D	Commissioner of health.
Spartanburg		
Sumter	*J. R. Sumter	Health officer.

City	Name of health officer	Official title
South Dakota:		
Aberdeen		Health officer.
Sioux Falls	W. E. Donahoe, M. D	Do.
Watertown	Harry T. Kenney, M. D	City health officer.
Tennessee:		
Chattanooga	*Fred C. McIsaac, M. D	Director of health.
Jackson	Hermon Hawkins, M. D	City physician.
Johnson City	J. T. McFaddin, M. D	Do.
Knoxville	*W. H. Enneis, M. D., M. P. H	Health officer.
Memphis	*L. M. Graves, M. D	Superintendent department of health.
Nashville	*John Overton, M. D	City health officer.
Texas:		
Abilene	Scott Wingo Hollis, M. D	City and county health officer.
Amarillo	*R. M. Walker, M. D	City health officer.
Austin	*Lee E. Edens, M. D	Director of public health and welfare.
Beaumont	Dru McMickin, M. D	City health officer.
Brownsville	W. E. Spivey, M. D	Do.
Cleburne	Jas. D. Osborn, M. D	Do.
Corpus Christi		
Corsicana		
Dallas	*M. M. Carrick, M. D	Director of public health.
Del Rio	B. F. Orr, M. D	City health officer.
Denison	Alex W. Acheson, M. D	Health officer.
Eastland	E. R. Townsend, M. D	City health officer.
El Paso	*Phau R. Outlaw, M. D	Do.
Fort Worth	*L. H. Martin, M. D	Director of public health and welfare.
Galveston	Walter Kleberg, M. D	City health officer.
Houston	*A. H. Flickwir, M. D., U. S. P. H. S.	Do.
Laredo		
Marshall		
Orange	A. G. Pearce, M. D	City health officer.
Palestine	J. M. Colley, M. D	Do.
Paris	Davis Scott Hammond, M. D	Do.
Port Arthur	Pat Reed, M. D	Do.
Ranger	*Wade Swift	Sanitary officer.
San Angelo	A. C. DeLong, M. D	City health officer.
San Antonio	*W. A. King, M. D	Health officer.
Sherman	A. L. Ridings, M. D	Do.
Temple	Jess G. Jenkins, M. D	City health officer.
Texarkana	Wm. Hibbitts, M. D	City physician.
Tyler	Albert Woldert, Ph. G., M. D	City health officer.
Waco	T. E. Tabb, M. D	Do.
Wichita Falls	*Hartson D. Fillmore, M. D	City physician.
Utah:		
Logan	William Walton	Sanitary inspector.
Ogden	N. H. Savage, M. D	Health commissioner.
Provo	Lloyd L. Cullimore, M. D	City physician.
Salt Lake City	Willard Christopherson, M. D	Health commissioner.
Vermont:		
Barre	M. D. Lamb, M. D	Health officer.
Bennington	*Joseph M. Ayres	Do.
Burlington	*J. W. Courtney, M. D	Do.
Rutland	Geo. Rustedt, M. D	Do.
Virginia:		
Alexandria	*W. Clyde West, M. D	Do.
Charlottesville	*G. B. Young, M. D	Do.
Danville	*R. W. Garnett, M. D	Do.
Lynchburg	*Mosby G. Perrow, Ph. D	Director of public welfare.
Newport News	*G. Colbert Tyler, M. D	Health officer.
Norfolk	*Powhatan S. Schenck, M. D	Health commissioner.
Petersburg	Robert A. Martin, M. D	Health officer.
Portsmouth	*Lonsdale J. Roper, M. D	Director of public welfare.
Richmond	*W. Brownley Foster, M. D	Do.
Roanoke	*Coleman Bernard Ransone, M.D	Health officer.
Staunton	J. F. Fulton, M. D	Do.
Suffolk	*Challis H. Dawson, M. D	Director of health department.
Washington:		
Aberdeen	B. O. Swinehart, M. D	City health officer.
Bellingham	Isaac W. Powell, M. D	Do.
Bremerton	Henry A. Barner, M. D	Commissioner of health.
Everett	Carl W. Stombert, M. D	City health officer.
Hoquiam	Harry P. Watkins, M. D	Do.
Seattle	*E. T. Hanley, M. D	Commissioner of health.
Spokane	*Ralph Hendricks, M. D	Commissioner of public affairs and health officer.
Tacoma	*Herman S. Judd, M. D	Director of health.
Vancouver	Ralph L. Lieser, Ph. C., M. D	City health officer.
Walla Walla	*Geo. H. T. Sparling, M. D	County-city health officer.
Yakima	*H. Storgaard, M. D	County and city health officer.

City	Name of health officer	Official title
West Virginia:		
Bluefield	*David B. Lepper, M. D., C. P. H.	Health director.
Charleston	Hugh B. Robins, M. D.	Health commissioner.
Clarksburg	*Robert Linn Osborn, M. D.	City physician.
Fairmont	*J. A. Jamison, M. D.	City health officer.
Huntington	J. E. Rader, M. D.	Health and sanitary officer.
Martinsburg	*W. Ross Cameron, M. D.	City and county health commissioner.
Morgantown	*Harry H. Pierce, M. D.	City health officer.
Moundsville	*C. E. Hutchinson, M. D.	City and county health officer.
Parkersburg	*Arthur D. Knott, M. D., D. P. H.	Do.
Wheeling	*William Hay McLain, M. D.	City-county health commissioner.
Wisconsin:		
Appleton	Frank P. Doheerty, M. D.	Health officer.
Ashland	C. O. Hertzman, M. D.	Health commissioner.
Beloit	*C. W. Andrews, M. D.	Health officer.
Eau Claire	J. F. Farr, M. D.	Do.
Fond du Lac	A. C. Dana, M. D.	City physician and health officer.
Green Bay	*Otis W. Saunders, M. D.	City health commissioner.
Janesville	Fred B. Welch, M. D.	Health officer.
Kenosha	*G. Windesheim, M. D.	Director of health.
La Crosse	*Anthony M. Murphy	Health officer.
Madison	*F. F. Bowman, B. L., M. D.	Do.
Manitowoc	Max Staehle, M. D.	Commissioner of health.
Marinette	J. Wm. Boren, M. D.	Health commissioner.
Milwaukee	*John P. Koehler, M. D.	Commissioner of health.
Oshkosh	*Edward J. Campbell, M. D.	Health commissioner.
Racine	*W. W. Bauer, M. D.	Health officer.
Sheboygan	*O. B. Bock, P. H. G., M. D.	Commissioner of public health.
Stevens Point	F. R. Krembs, M. D.	Health officer.
Superior	P. G. McGill, M. D.	Health commissioner.
Waukesha	Frank M. Scheele, M. D.	Do.
Wausau	*L. F. Bugbee	Health officer.
West Allis	*Samuel C. McCorkle, M. D.	Health commissioner.
Wyoming:		
Casper	*H. Garst, M. D.	Director of health.
Cheyenne	N. C. Nelson, M. D.	County health officer.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Brighouse Refuse Disposal Costs. Anon. *The Surveyor*, vol. 73, No. 1901, June 29, 1928, p. 703. (Abstract by H. R. Crohurst.)

The plant is capable of dealing with a normal collection of 75 tons of domestic and trade refuse per day. On the present basis of operation 30 tons of refuse are disposed of during an 8-hour day. Of the refuse collected, averaging about 86 tons per week, one-third is incinerated and 35 cwts. per day of cinders are separated and sold at 5s. per ton. Glass is sold at 15s. per ton, while broken jars, crockery, and carthenware go to the mortar mill. About 20 tons of dust per week are separated and used for manure, fill, and for block and path making.

The force for collection and disposal consists of 14 men (1 foreman, 1 stoker, 5 mixing and sorting men, 2 load drivers, and 5 loaders) working 48 hours per week. The cost of collection and disposal is summarized as follows:

			Per ton s.	Per ton d.
Refuse collection (4,311 tons per annum)			7	2.2
Refuse disposal			7	0.8
			14	3.0
Income:	s.	d.		
Collection	0	1.2		
Disposal	3	6.0		
			3	7.2
			10	7.8
Plus loan charges			3	2.9
Total net cost			13	10.7

Observations on the Trapping, Poisoning, and Gassing of Rats. J. S. Humphrey. Tanganyika Territory Ann. Med. Rep. for year ending 31st December, 1925. 115–17. (Abstract by M. E. Delafield in *Bulletin of Hygiene*, vol. 3, No. 6, June, 1928, p. 501.)

"The total number of rats caught was 23,154. Of these 23,037 were *Rattus rattus alexandrinus* and the remainder *Rattus rattus narvegicus*. The average cost per rat killed was 4.83 cents. The Nipper trap was the one mostly used and the best bait procurable for these traps was Cassava root. Various poisons were tried. Baits mixed with a proportion of ground glass were tried, but were not satisfactory, as they were eaten only when the rats were on the verge of starvation and then only reluctantly. Barium carbonate and maize meal was the bait usually used, and 4,000 baits were laid and 1,125 eaten. Assuming that this means the death of 800 rats, the cost of killing this number is 40 cents, not including the cost of the barium carbonate. Reports on the results of poisoning were usually satisfactory. Gassing with sulphur dioxide was not successful.

"Blood smears from one in ten of the rats were tested. The fleas found were in a few cases examined and all were found to be the *Xenopsylla cheopis*.

"A plea is put forward for the rat-proofing of future native huts."

Studies on the Use of Deratization Gas for Ships. Akira Motomura. *Journal of the Public Health Association of Japan*, vol. 4, No. 7, July, 1928, pp. 1–9. (Abstract by P. S. Fox.)

The writer outlines a series of tests which he made to determine the germicidal power of sulphur dioxide gas. *B. coli* was the organism used. Twelve silk threads were sterilized by dry heat, some were cultured as controls, and the remainder were exposed to the sulphur dioxide gas. Both moist and dry threads were exposed at the same time. Two pounds of sulphur burned per 1,000 cubic feet did not affect *B. coli*. Five pounds of sulphur thoroughly sterilized the moist threads, but did not affect the dry ones.

The writer concludes that sulphuric-acid gas should be used only for the destruction of rats and insects on board ship, and that the destruction of bacteria should be done by other means, since 5 pounds of sulphur per 1,000 cubic feet is injurious to cargoes and the metal parts of ships.

A summary of six years of sulphur fumigation practice is given at the end of the article.

Are the Desmids Troubling You? P. D. Strausbaugh. *Water Works Engineering*, vol. 81, No. 15, July 18, 1928, pp. 1039–40 and 1067. (Abstract by Arthur P. Miller.)

This article is a general discussion and description of the fresh-water algae. Although there are about 100 genera of plants distributed in the three groups of fresh-water algae which are found in the usual drinking water supply sources, probably not more than a dozen are troublesome to the waterworks man. After the descriptive matter, the author touches on algae as the cause of odors and tastes and then leads into a brief review of the elimination of these plants, closing with the observation that the best method to accomplish this is filtration and aeration.

The Manganese Removal Problem at Barberton. R. D. Scott. Seventh Annual Report of Ohio Conference on Water Purification, October, 1927, pp. 66–67. (Abstract by J. K. Hoskins.)

Data of the occurrence and removal of manganese from the Barberton supply, as compared with several other supplies in the State, are presented in tabular form. At Barberton, manganese is present in the supply to the extent of 0.90 p. p. m. An examination of the filter sand incrustation disclosed that incrustants amounted to 4.81 per cent, of which manganese dioxide constituted 22.22

per cent. Experiments indicate that at least a part of the manganese is present in colloidal form.

Removal of manganese by zeolite treatment was tried experimentally with indifferent results. The author concludes that the presence of nitrites probably explains the apparent nonremoval of residual manganese from the Barberton water when passed through a manganese zeolite filter.

A Small Filter for Water Softening. E. Quitmann. Gesundh. Ing. 51, 340–2 (1928). (Abstract by Wayne L. Denman in *Chemical Abstracts*, vol. 22, No. 14, July 20, 1928, p. 2629.)

"Zeolite filtration is probably the simplest process for small plants. A small zeolite softener using a material known as 'Natrolith' as the active softening agent is described. The water softened by this process has zero hardness, whereas the 'Soda lime' process yields a water which has a hardness of 2°–3°. 'Natrolith' is able to remove Fe, Mn, Pb, and NH_4 compounds to a certain extent, also many colored substances such as methylene blue combined quantitatively with it, whereas other solutions such as methyl orange filter through unchanged. In order to obtain a satisfactory effluent it is necessary to use an unobjectionable feed water low in Fe and Mn, to use a good grade of salt in regenerating the 'Natrolith,' and to keep the softener well cleaned in order to prevent the growth of noxious organisms."

Water Sterilization by Chlorine. F. Dienert. Tech. Sanit. munic. 23, 50–8 (1928). (Abstract by C. R. Fellers in *Chemical Abstracts*, vol. 22, No. 14, July 20, 1928, p. 2629.)

"The lethal dosage of Cl for the cholera bacillus in water was 0.2 mg. per l. The dysentery bacillus required approximately twice the dosage of Cl necessary to destroy *B. coli*. The Flexner dysentery bacillus required a dose of 0.18 mg. per 1; the Shiga bacillus 0.15, while *B. paratyphosus* required 0.2 mg. Similar results were obtained with both liquid Cl and NaOCl in H_2O treatment. The Cl in ClO_2 was fully as efficient as the Cl in NaOCl or in liquid Cl. Various theories of microbial destruction by Cl are discussed. The Cl treatment of H_2O must be conditioned on the amount of organic matter present, the nature of the bacteria, and the clearness of the water."

Atmospheric Smoke Pollution and Its Relation to Public Health. J. J. Bloomfield. *Journal of the Outdoor Life*, vol. 25, No. 8, August, 1928, pp. 457–462. (Abstract by Leonard Greenburg.)

Smoke has two effects upon health—the direct effect produced by the inhalation of this material into the lungs of the exposed persons, and the indirect effect—namely, the obliteration of sunshine and its health-giving rays. The author points out that city air is polluted by soot from burning coal, by gases, and by dust from the ordinary occupations taking place in the city. The two most important gases present in city atmosphere are carbon monoxide and sulphur dioxide, and it is fair to say that under ordinary circumstances both of these are present in such small concentrations that they may be considered harmless so far as the average city dweller is concerned.

The present paper contains one of the most rational discussions of the effect of soot on the health of city dwellers with which the reviewer is familiar. To one versed in the methods of scientific inquiry it must be apparent that the proof of a question of this type is exceedingly difficult. Mr. Bloomfield's paper shows that the data and statistics so far brought forward do not permit one to arrive at a definite conclusion on this point. There is no doubt that soot is annoying, discomforting, and inaesthetic, but the proof that it is actually harmful still remains to be forthcoming.

The indirect effects of smoke are really of enormous importance; but here, once again, the proof is wanting, and for the time being, while we all are cognizant

of the fact that smoke shuts off a certain proportion of sunshine and ultra-violet light, it still remains to be proved that this effect is sufficient to be called injurious to health.

The solution of the problem of smoke pollution depends on the cooperation of the mechanical engineer, the fuel engineer, and the public, according to this paper.

Intoxication with Commercial Methyl Chloride. H. N. Baker. *Journal of the American Medical Association*, vol. 88, No. 15, April 9, 1927, pp. 1137–1138. (Abstract by Leonard Greenburg.)

The introduction of household refrigeration machines in which methyl chloride is used as a refrigerant has served to bring about a number of cases of poisoning with this substance in manufacturing plants engaged in making these refrigerants. Doctor Baker found that the gas is absorbed in amounts sufficient to produce intoxication unless precautions are exercised against this. The symptoms range from vertigo, staggering gait, and sleepiness, to nausea, anorexia, and loss of weight. The detection of methyl chloride in the urine as ammonium formate prior to the development of symptoms of intoxication is suggested as a possible method for the control of the industrial disease.

Ventilation of Vehicular Tunnels. A. C. Fieldner, Yandell Henderson, J. W. Paul, R. R. Sayers, and others. Reprinted from *Journal of American Society of Heating and Ventilating Engineers*, January–December, 1926, New York; February, 1927. (Abstract by Leonard Greenburg.)

This is a series of papers reprinted from the *Journal of the American Society of Heating and Ventilating Engineers* from January to December, 1926, now gathered together for the first time by the United States Bureau of Mines, Department of Commerce. To one who is interested in the problems of carbon monoxide poisoning and ventilation, this reprinting by the Bureau of Mines is most welcome, for here is gathered together for the first time one of the most extensive studies made in this country on carbon monoxide and its removal by forced ventilation.

Smoke Abatement Recommendations of the Department of Public Utilities Submitted to the 1928 Session of the General Court. Anon. *New England Journal of Medicine*, vol. 198, No. 2, March 1, 1928, pp. 104–106. (Abstract by Leonard Greenburg.)

The Department of Public Utilities of the Commonwealth of Massachusetts has presented a report on smoke abatement which will be considered in the 1928 session of the general court. This report suggests changes which are to be made in the present smoke abatement law applicable to Boston, Brookline, Cambridge, Chelsea, Summerville, and Everett.

In the new law it is proposed to eliminate the grading of the permissible density of smoke by sizes of the smoke stack. For all stationary and marine stacks a density of 40 per cent, No. 2 on the Ringelmann chart, is permitted only during six minutes in any one hour. During this period of six minutes a density equal to No. 3 may be discharged for only two minutes. It is proposed to increase the area to which the new law would be applicable to include Metropolitan Boston. The penalty under the present law is from $10 to $100. Under the new law it is proposed to increase this to a maximum of $500 and to add a proviso of three months' imprisonment. It is proposed also to allow individuals owning property located within one-half mile of the source of smoke to institute court proceedings in order to have the violation restrained, provided that they show that personal or property damage has been occasioned.

At the present time there is also a general law on smoke abatement applying to other cities of the Commonwealth of Massachusetts. Certain minor changes are proposed in these regulations.

Throughout the new proposals no alterations are suggested in the laws relating to locomotives.

Air Pollution. H. B. Meller. *Public Health News*, New Jersey State Department of Health, vol. 13, No. 7, June, 1928, pp. 147–151. (Abstract by Leonard Greenburg.)

In this brief contribution Doctor Meller reviews the progress of air pollution work in Pittsburgh, Pa. He points out that the Pittsburgh survey made in 1912–13 by workers of the Mellon Institute disclosed the fact that the average soot fall for the city was in the neighborhood of 1,000 tons per square mile per year, of which 0.99 per cent was tar, 30.7 per cent combustible matter other than tar, 68.3 per cent ash. Following this survey an ordinance was passed regulating the production and emission of smoke. So far as ordinary buildings are concerned, the essence of this regulation is that the emission of smoke of 60 per cent density (No. 3 on the Ringelmann chart) is prohibited for intervals aggregating 2 minutes or more during any 15-minute period. One of the sections of these regulations provided a fine, not exceeding $100, with a 30-day imprisonment penalty for each day's violation of the ordinance.

After 10 years of operation of the ordinance the Mellon Institute conducted a second survey, which showed a reduction of approximately 70 per cent in the tar fall, but an increase of nearly 40 per cent in the total solids deposited. Doctor Meller feels that smoke abatement in Pittsburgh, as well as in many other cities, has been a success, but points out that since, in his opinion, "the greatest effects of air pollution are believed to be the suppression of the ultra-violet rays and the irritation of the mucous membrane by sharp particles of solid matter, the regulation of black smoke without controlling the other harmful constituents of furnace gases is only a partial solution of the problem." He adds that it is necessary to consider the elimination of all solid matter and gases from products of combustion.

The Chlorination of Raw Sewage for Odor Control. James L. Brown and R. E. Lawrence. Bulletin of the University of Kansas, *Engineering Bulletin* No. 16, vol. 29, No. 3, February 1, 1928, pp. 1–28. (Abstract by L. M. Fisher.)

The many different odors coming from sewers and sewage disposal plants are caused by various gases of bacteriological origin and by oils and gases from industrial wastes. The most serious of these from the standpoint of odor nuisance is hydrogen sulphide. Nuisances are greatest at night when the gases becoming cooler are closer to the ground and are rolled along for considerable distances. Enslow has pointed out that where odor productions are found, the following four conditions seemingly must exist simultaneously: (1) Sulphates must be present in the carrying water; (2) hydrogen-sulphide-producing bacteria must be present; (3) a temperature sufficiently high to permit bacterial growth must prevail; (4) sufficient time must elapse for the production of hydrogen sulphide.

In sewage treatment plants the sprinkling filters usually release the hydrogen sulphide gas, thus causing odors. Important factors in the reduction of sulphates to hydrogen sulphide are (1) conditions of flow previous to the sprinkling operation, permitting bacterial growth; (2) the septicization of fluid and accumulation of dissolved gases.

The most practical means of preventing odors is to prevent the growth of hydrogen sulphide organisms. Chlorine does this and also combines with any hydrogen sulphide that may be present. The quantity of chlorine needed in various experiments was greatly reduced by making changes in the tanks which kept the sewage moving and avoided dead spaces. Taking advantage of weather conditions permitted savings in chlorine to be made on days when the wind carried the odors away from the city or during rainy weather when the sewage became diluted.

It was found that excellent results could be obtained when residual chlorine was present in the tank influent although none was present in the effluent. The usual quantity added to the influent for dry weather flow was 10 p. p. m. Taking advantage of weather conditions, it was found that odors could be controlled by the addition of 27.7 pounds p. m. g. With chlorine costing $12 per 100 pounds, this gives a cost of $3.32 p. m. g. of sewage treated. In one experiment the construction of suitable baffles made the addition of chlorine unnecessary to control odors.

Isolation of B. typhosus from Sewage and Shellfish. W. James Wilson. *British Medical Journal*, No. 3520, June 23, 1928, pp. 1061–1062. (Abstract by L. M. Fisher.)

By the use of a new technique, the presence of one typhoid bacillus in each cubic centimeter of Belfast sewage, is demonstrated. The medium used was glucose-sulphite-iron-bismuth-brilliant green of Wilson and Blair. Its efficacy depends on two factors: (1) *B. typhosus* in the presence of a fermentable carbohydrate is able to reduce a sulphite to a sulphide, and so to form a black colony in the presence of an iron salt; (2) bismuth sulphite in the presence of a certain excess of sodium sulphite suppresses the growth of most coliform bacilli; in the presence of brilliant green, the selective action is intensified.

The procedure is to pour 0.5 to 1 c. c. of sewage over the surface of a plate of the medium and allow it to dry, incubating for 24 hours at 37° C. Black colonies with a metallic halo are developed, and also light green colonies. *B. typhosus* is to be sought among the black colonies. The green ones are *B. proteus*. The use of saccharose in a modified Endo medium enabled the author to distinguish rapidly between *B. typhosus* and an organism simulating it. This organism is said to be present in most specimens of sewage but not in feces. The author names it *B. effluviei* and describes its characteristics.

The examination of a total of 30 c. c. of sewage collected on four different days, resulted in the isolation of 21 strains of *B. typhosus*. *B. typhosus* was also isolated from cockles, the liquor for which was collected on a sterile petri dish and then transferred to nine plates of the special bismuth medium. Nine black colonies were studied, seven were saccharose fermenters and two were nonsaccharose fermenters. One of the latter proved to be *B. typhosus*. The bacilli were agglutinated to full titer by four different antityphoid serums and were not agglutinated by normal serums in dilutions of 1 to 20.

The author states the isolation of *B. typhosus* from enteric stools to be one of the easiest procedures in applied bacteriology. B. A. Adams isolated the same bacilli from excreta of sea gulls.

Treatment of the Sewage from Paris. W. J. Muller. Gesundh. Ing. 51,342–3 (1928). Abstract by W. L. Denman in *Chemical Abstracts*, vol. 22, No. 14, July 20, 1928, p. 2631.

"In past years much of the sewage from Paris was disposed of by irrigation on to fields. In recent years such methods no longer sufficed and other biological processes were employed. Partial treatment is obtained by settling basins which remove the readily removable solids and the suspended material is removed by irrigation on to fields. The fields take care of 40,000 cu. m. of sewage per hectare per year. Further treatment is obtained at some stations by filter basins. Treatment with three processes using activated sludge was tried. The 'Simplex process' was the most economical. Satisfactory disposal of sludge was obtained by burning after drying on sludge beds followed by a drier. The burning of the combustible matter furnishes enough heat to operate the drier. Other methods of sludge disposal under consideration are biological decomposition and drying by centrifugal force."

DEATHS DURING WEEK ENDED NOVEMBER 3, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended November 3, 1928, and corresponding week of 1927. (From the Weekly Health Index, November 7, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week ended Nov. 3, 1928	Corresponding week, 1927
Policies in force	72, 146, 556	69, 281, 854
Number of death claims	12, 116	11, 895
Death claims per 1,000 policies in force, annual rate	8. 8	9. 0

Deaths from all causes in certain large cities of the United States during the week ended November 3, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, November 7, 1928, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Nov. 3, 1928		Annual death rate per 1,000 corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended Nov. 3, 1928 [2]
	Total deaths	Death rate [1]		Week ended Nov. 3, 1928	Corresponding week, 1927	
Total (67 cities)	6,752	11.7	11.9	693	669	56
Akron	34			5	5	54
Albany [3]	37	16.1	14.0	4	0	62
Atlanta	74	15.2	15.9	12	11	
White	35		12.2	4	5	
Colored	39	(4)	24.7	8	6	
Baltimore [3]	179	11.3	14.5	14	25	44
White	136		13.2	9	17	36
Colored	43	(4)	22.1	5	8	78
Birmingham	58	13.6	16.1	9	9	77
White	28		13.7	7	4	97
Colored	30	(4)	19.7	2	5	45
Boston	196	12.8	12.7	24	30	66
Bridgeport	30			3	1	55
Buffalo	153	14.4	11.9	11	18	47
Cambridge	29	12.1	9.7	4	4	71
Camden	22	8.5	13.3	2	6	32
Canton	19	8.5	8.7	5	2	119
Chicago [3]	678	11.2	10.5	62	43	53
Cincinnati	124	15.7	18.6	10	9	60
Cleveland	184	9.5	10.3	17	16	46
Columbus	71	12.5	10.7	7	11	65
Dallas	41	9.9	11.8	11	9	
White	32		10.8	8	8	
Colored	9	(4)	19.0	3	1	
Dayton	30	8.5	13.0	6	5	99
Denver	76	13.5	13.7	8	8	
Des Moines	25	8.6	11.2	0	2	0
Detroit	293	11.1	10.2	51	32	79
Duluth	13	5.8	12.3	0	3	0
El Paso	37	16.4	15.2	8	5	
Erie	28			4	3	82
Fall River [3]	25	9.7	11.0	2	3	34
Fort Worth	24	7.5	7.3	2	2	
White	18		5.8	2	2	
Colored	6	(4)	18.6	0	0	
Grand Rapids	35	11.1	11.0	3	2	45
Houston	61			2	9	
White	43			1	7	
Colored	18	(4)		1	2	
Indianapolis	87	11.9	12.8	12	11	91
White	72		11.6	6	7	52
Colored	15	(4)	22.1	6	4	364
Jersey City	61	9.8	9.4	6	7	45
Kansas City, Kans	23	10.2	10.2	1	1	21
White	17		9.2	1	1	25
Colored	6	(4)	14.8	0	0	0
Kansas City, Mo	91	12.2	15.1	6	11	42
Knoxville	26	12.9	15.3	3	3	65
White	25		9.9	3	2	73
Colored	1	(4)	55.6	0	0	1

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended November 3, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, November 7, 1928, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Nov. 3, 1928		Annual death rate per 1,000 corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended Nov. 3, 1928 [2]
	Total deaths	Death rate [1]		Week ended Nov. 3, 1928	Corresponding week, 1927	
Los Angeles	213			13	14	37
Louisville	87	13.8	10.4	13	8	109
White	70		10.2	9	7	86
Colored	17	(4)	11.7	4	1	276
Lowell	24	11.4	12.3	5	2	105
Lynn	20	9.9	8.0	3	0	76
Memphis	56	15.4	16.3	3	6	35
White	28		13.1	2	5	37
Colored	28	(4)	22.2	1	1	31
Milwaukee	106	10.2	11.5	16	12	71
Minneapolis	83	9.5	10.4	5	3	30
Nashville	50	18.9	15.9	10	3	157
White	31		13.7	5	3	107
Colored	19	(4)	21.4	5	0	300
New Bedford	29	12.7	10.9	1	5	22
New Haven	43	12.0	11.0	2	4	28
New Orleans	157	19.1	16.6	31	12	150
White	77		14.4	15	8	109
Colored	80	(4)	22.7	16	4	232
New York	1,304	11.3	11.5	125	129	50
Bronx Borough	164	9.0	8.7	12	12	36
Brooklyn Borough	443	10.0	10.0	53	52	53
Manhattan Borough	532	15.9	16.6	48	52	57
Queens Borough	128	7.8	7.5	12	10	48
Richmond Borough	37	12.8	11.7	0	3	0
Newark, N. J	81	8.9	10.1	8	10	41
Oakland	50	9.5	12.1	4	10	43
Oklahoma City	27			3	4	
Omaha	54	12.7	13.1	7	2	81
Paterson	25	9.0	16.3	0	2	0
Philadelphia	416	10.5	11.7	36	38	48
Pittsburgh	168	13.1	14.2	16	23	52
Portland, Oreg	59			2	2	21
Providence	57	10.4	12.1	4	6	35
Richmond	56	15.1	15.2	6	10	78
White	32		12.3	2	6	41
Colored	24	(4)	22.5	4	4	147
Rochester	59	9.4	12.7	5	9	41
St. Louis	211	13.0	11.3	16	11	53
St. Paul	44	9.1	9.6	1	0	10
Salt Lake City [3]	33	12.5	10.4	1	13	16
San Antonio	59	14.1	12.3	8	8	
San Diego	28	12.2	16.3	1	5	19
San Francisco	165	14.7	15.4	9	6	57
Schenectady	16	9.0	9.5	1	1	31
Somerville	9	4.6	7.2	0	2	0
Spokane	30	14.4	11.5	0	3	0
Springfield, Mass	43	15.0	11.0	5	2	79
Syracuse	53	13.9	9.8	4	3	49
Toledo	80	13.4	10.1	13	3	125
Trenton	28	10.5	11.4	0	3	0
Utica	28	14.0	10.1	2	1	45
Washington, D. C	143	13.5	11.9	14	14	80
White	87		9.3	5	5	41
Colored	56	(4)	19.5	9	9	166
Waterbury	21			4	0	116
Wilmington, Del	38	15.5	14.9	3	4	79
Worcester	55	14.6	11.7	7	5	85
Yonkers	18	7.8	8.8	2	2	46
Youngstown	35	10.5	9.5	6	1	80

[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] Deaths for week ended Friday, Nov. 2, 1928.
[4] 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 November 3, 1928, and November 5, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 3, 1928, and November 5, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927
New England States:								
Maine	5	2	1	-------	137	147	0	0
New Hampshire	-------	-------	21	-------	37	-------	0	-------
Vermont	4	-------	-------	-------	2	-------	0	-------
Massachusetts	94	101	5	13	307	167	1	2
Rhode Island	-------	16	-------	4	-------	-------	-------	0
Connecticut	28	21	3	-------	42	9	0	0
Middle Atlantic States:								
New York	164	337	[1] 15	[1] 9	330	140	20	0
New Jersey	98	159	3	11	68	25	3	1
Pennsylvania	198	307	-------	-------	451	379	0	3
East North Central States:								
Ohio	-------	-------	-------	-------	-------	-------	-------	-------
Indiana	62	69	7	6	6	11	0	0
Illinois	270	182	17	29	141	32	4	8
Michigan	99	133	10	3	60	33	5	3
Wisconsin	25	38	22	20	81	37	7	9
West North Central States:								
Minnesota	44	88	1	2	28	5	1	0
Iowa	22	26	-------	-------	-------	2	1	1
Missouri	43	113	9	12	8	-------	3	0
North Dakota	4	4	2	-------	-------	-------	0	0
South Dakota	-------	8	5	2	-------	7	0	0
Nebraska	18	19	2	-------	11	8	1	0
Kansas	25	46	5	-------	5	37	0	0
South Atlantic States:								
Delaware	-------	3	-------	-------	-------	12	0	0
Maryland [2]	34	33	8	20	17	28	0	0
District of Columbia	75	20	1	1	2	-------	0	0
Virginia	-------	-------	-------	-------	-------	-------	-------	-------
West Virginia	39	19	8	3	35	17	0	0
North Carolina	230	225	-------	-------	51	499	0	0
South Carolina	80	89	[1] 858	430	-------	187	0	0
Georgia	50	53	[1] 103	57	26	8	0	0
Florida	12	36	-------	4	6	-------	0	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 November 3, 1928, and November 5, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927
East South Central States:								
Kentucky	13						1	
Tennessee	48	57	41	38		42	0	1
Alabama	156	114	62	38	6	8	1	1
Mississippi	32	84					0	1
West South Central States:								
Arkansas	21	42	56	42	1	8	0	0
Louisiana	33	71	10		8	11	1	0
Oklahoma [2]	121	134	33	47	2	11	0	2
Texas	57	68	34	62	2	4	0	1
Mountain States:								
Montana	4	8			10	2	3	0
Idaho	3		1		1	1	1	4
Wyoming	11	6		8	1	17	0	0
Colorado	22	36	4		5	8	4	5
New Mexico	13	12	1		9	26	0	0
Arizona	7	9	1			1	0	0
Utah [1]	7	13	4	3	2	1	2	0
Pacific States:								
Washington	6	30		1	33	88	2	2
Oregon	16	32	19	11	20	21	2	1
California	103	123	2,389	18	15	49	3	6

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927
New England States:								
Maine	2	5	31	34	0	0	3	3
New Hampshire	0		13		0		0	
Vermont	1		2		0		0	
Massachusetts	6	56	139	213	0	0	5	8
Rhode Island		3		15		0		0
Connecticut	0	7	25	45	0	0	0	6
Middle Atlantic States:								
New York	17	23	182	256	2	7	54	55
New Jersey	0	9	66	106	0	0	8	10
Pennsylvania	9	18	250	342	0	0	78	42
East North Central States:								
Ohio		54						
Indiana	4	11	76	128	8	38	3	10
Illinois	2	14	269	203	15	13	26	38
Michigan	3	14	144	187	15	18	5	13
Wisconsin	1	8	111	121	14	28	3	7
West North Central States:								
Minnesota	2	3	79	128	3	1	10	6
Iowa	1	3	64	59	22	41	1	3
Missouri	1	7	63	84	3	82	19	26
North Dakota	1	1	39	35	0	3	3	1
South Dakota	0	7	24	37	3	3	0	8
Nebraska	1	10	50	34	1	11	0	4
Kansas	1	4	81	102	7	27	3	3
South Atlantic States:								
Delaware	0	1	2	3	0	0	1	2
Maryland [1]	1	1	35	39	0	0	23	22
District of Columbia	2	0	12	24	0	1	2	2
Virginia								
West Virginia	2	12	59	103	6	8	15	50
North Carolina	0	2	125	173	7	15	17	24
South Carolina	1	4	40	32	0	16	32	31
Georgia	2	0	38	33	0	0	14	25
Florida	0	1	4	14	0	0	3	3

[1] Week ended Friday.
[2] Figures for 1928, are exclusive of Oklahoma City and Tulsa and for 1927 are exclusive of Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 3, 1928, and November 5, 1927—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927	Week ended Nov. 3, 1928	Week ended Nov. 5, 1927
East South Central States:								
Kentucky	2	-------	56	-------	2	-------	5	-------
Tennessee	0	4	39	45	1	5	25	48
Alabama	2	0	49	43	2	8	15	26
Mississippi	0	3	24	30	0	12	10	8
West South Central States:								
Arkansas	0	1	28	23	0	0	10	20
Louisiana	0	0	21	17	0	5	12	18
Oklahoma [3]	1	3	32	45	12	22	70	54
Texas	0	11	36	79	3	5	9	10
Mountain States:								
Montana	0	1	17	19	22	30	3	3
Idaho	2	8	21	8	2	3	1	0
Wyoming	0	0	23	17	7	0	1	5
Colorado	2	7	19	93	6	4	7	5
New Mexico	0	2	9	20	0	0	12	13
Arizona	0	0	4	5	1	0	5	2
Utah [2]	0	2	10	3	1	47	0	3
Pacific States:								
Washington	6	26	27	68	61	17	6	5
Oregon	4	20	19	36	40	18	4	8
California	4	35	179	134	6	7	11	9

[2] Week ended Friday.
[3] Figures for 1928 are exclusive of Oklahoma City and Tulsa, and for 1927 are exclusive of Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
September, 1928										
Georgia	2	105	453	1,104	8	39	1	60	4	215
Indiana	2	101	54	-------	32	-------	3	133	22	84
Kansas	7	54	9	6	17	2	12	231	20	64
October, 1928										
Arizona	0	16	9	-------	7	-------	1	3	2	19
Connecticut	4	103	21	1	118	-------	18	87	0	9
Porto Rico	-------	77	2,731	2,405	67	-------	2	-------	-------	232

September, 1928

	Cases
Chicken pox:	
Georgia	5
Indiana	18
Kansas	65
Conjunctivitis:	
Georgia	1
Dengue:	
Georgia	22
Dysentery:	
Georgia	39
Kansas	5
German measles:	
Kansas	2
Hookworm disease:	
Georgia	38
Lead poisoning:	
Kansas	1
Mumps:	
Georgia	14
Indiana	8
Kansas	50
Ophthalmia neonatorum:	
Kansas	1
Paratyphoid fever:	
Georgia	12
Kansas	9
Rabies in man:	
Georgia	1
Septic sore throat:	
Georgia	39
Tetanus:	
Kansas	1
Tularaemia:	
Georgia	1
Typhus fever:	
Georgia	7
Undulant fever:	
Georgia	3
Kansas	1
Vincent's angina:	
Kansas	4
Whooping cough:	
Georgia	95
Indiana	98
Kansas	118

October, 1928

	Cases
Botulism:	
Connecticut	16
Chicken pox:	
Arizona	9
Connecticut	161
Conjunctivitis:	
Connecticut	1
Dengue:	
Porto Rico	10
Dysentery:	
Connecticut (bacillary)	1
Porto Rico	186
Filariasis:	
Porto Rico	19
Lead poisoning:	
Connecticut	5
Lethargic encephalitis:	
Connecticut	2
Mumps:	
Arizona	3
Connecticut	51
Porto Rico	82
Ophthalmia neonatorum:	
Connecticut	1
Porto Rico	3
Paratyphoid fever:	
Connecticut	1
Puerperal fever:	
Porto Rico	15
Rabies in animals:	
Connecticut	1
Septic sore throat:	
Connecticut	7
Tetanus:	
Connecticut	1
Porto Rico	55
Trachoma:	
Arizona	36
Porto Rico	2
Trichinosis:	
Connecticut	1
Whooping cough:	
Arizona	10
Connecticut	154
Porto Rico	181

ADMISSIONS TO HOSPITALS FOR THE INSANE, MAY, 1928

Reports for the month of May, 1928, showing new admissions to hospitals for the care and treatment of the insane, have been received by the Public Health Service from 108 institutions located in 36 States, the District of Columbia, and the Territory of Hawaii. Twenty-two of these institutions are private. These hospitals reported a total of 162,505 patients on May 31, 1928, including those on parole.

The following table shows the numbers of new admissions for the month of May, 1928, by psychoses:

First admissions to 108 hospitals for the insane, May, 1928

Psychoses	Number of first admissions		
	Male	Female	Total
Traumatic psychoses	28	7	35
Senile psychoses	142	137	279
Psychoses with cerebral arteriosclerosis	176	73	249
General paralysis	242	57	299
Psychoses with cerebral syphilis	32	22	54
Psychoses with Huntington's chorea	2	2	4
Psychoses with brain tumor	0	0	0
Psychoses with other brain or nervous disease	24	10	34
Alcoholic psychoses	126	20	146
Psychoses due to drugs and other exogenous toxins	13	12	25
Psychoses with pellagra	18	18	36
Psychoses with other somatic diseases	40	35	75
Manic-depressive psychoses	226	253	479
Involution melancholia	13	27	40
Dementia præcox (schizophrenia)	320	263	583
Paranoia and paranoid conditions	34	36	70
Epileptic psychoses	49	34	83
Psychoneuroses and neuroses	15	41	56
Psychoses with psychopathic personality	25	5	30
Psychoses with mental deficiency	65	55	120
Undiagnosed psychoses	147	120	267
Without psychosis	159	38	197
Total	1,896	1,265	3,161

Sixty per cent of the new admissions were males and 40 per cent were females, giving a ratio of 150 males per 100 females. The 108 institutions on May 31, 1928, had 86,296 males and 76,209 female patients, the ratio being 113 males per 100 females.

Dementia præcox constituted 18.4 per cent of the first admissions; manic-depressive psychoses, 15.2 per cent; general paralysis, 9.5 per cent; senile psychoses, 8.8 per cent; undiagnosed psychoses, 8.4 per cent; psychoses with cerebral arteriosclerosis, 7.9 per cent; and 6.2 per cent were recorded as without psychosis.

PLAGUE-INFECTED GROUND SQUIRRELS IN CALIFORNIA

The director of the State Department of Public Health of California reports under date of October 30, 1928, that plague infection had been proved by animal inoculation in a ground squirrel from a ranch 1 mile east of Edna, San Luis Obispo County, and in a lot of two ground squirrels from a ranch one-half mile east of Edna, San Luis Obispo County, Calif.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 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 31,650,000. The estimated population of the 95 cities reporting deaths is more than 30,960,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended October 27, 1928, and October 29, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	2,359	2,647	----
101 cities	792	1,160	1,190
Measles:			
42 States	1,410	1,509	----
101 cities	314	418	----
Poliomyelitis:			
44 States	137	460	----
Scarlet fever:			
43 States	2,170	2,785	----
101 cities	690	865	829
Smallpox:			
43 States	222	304	----
101 cities	14	42	24
Typhoid fever:			
43 States	613	713	----
101 cities	112	100	113
Deaths reported			
Influenza and pneumonia:			
95 cities	572	573	----
Smallpox:			
95 cities	0	1	----
Salt Lake City, Utah	0	1	----

City reports for week ended October 27, 1928

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

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

Division, State, and city	Population July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	76,400	0	2	1	0	0	13	2	3
New Hampshire:									
Concord	[1] 22,546	0	1	0	0	0	0	0	0
Manchester	84,000	0	3	0	0	0	0	0	1
Vermont:									
Barre	[1] 10,008	0	0	0	0	0	0	3	1
Massachusetts:									
Boston	787,000	34	45	18	4	1	6	7	16
Fall River	131,000	1	4	8	0	0	51	1	1
Springfield	145,000	10	3	22	0	0	18	0	0
Worcester	193,000	11	7	3	0	0	4	0	1
Rhode Island:									
Pawtucket	71,000	0	1	0	0	0	1	1	0
Providence	275,000	0	8	12	0	1	10	0	5
Connecticut:									
Bridgeport	[2]	1	7	2	0	0	2	0	1
Hartford	164,000	0	7	1	0	0	1	0	3
New Haven	182,000	5	2	1	2	0	0	0	1

[1] Estimated July 1, 1925.

[2] No estimate made.

City reports for week ended October 27, 1928—Continued

Division, State, and city	Population July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC									
New York:									
Buffalo	544,000	17	15	20	-------	0	0	2	10
New York	5,924,000	114	142	101	11	11	33	20	119
Rochester	321,000	11	10	3	-------	0	3	4	3
Syracuse	185,000	9	7	2	-------	0	0	1	4
New Jersey:									
Camden	131,000	3	9	1	0	0	0	1	3
Newark	459,000	33	12	28	1	0	2	10	8
Trenton	134,000	0	3	0	0	0	1	0	1
Pennsylvania:									
Philadelphia	2,008,000	42	67	41	0	5	6	1	23
Pittsburgh	637,000	46	35	5	0	1	3	5	16
Reading	114,000	12	4	1	0	0	3	0	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	411,000	2	15	8	0	0	0	0	9
Cleveland	960,000	61	62	19	2	1	31	2	14
Columbus	285,000	11	12	0	1	1	0	1	3
Toledo	295,000	54	14	5	0	0	2	0	2
Indiana:									
Fort Wayne	99,900	4	5	3	0	0	0	0	0
Indianapolis	367,000	42	15	14	0	0	0	0	9
South Bend	81,700	5	3	1	0	0	0	0	0
Terre Haute	71,900	0	3	0	0	0	0	0	1
Illinois:									
Chicago	3,048,000	108	85	124	5	1	14	2	47
Springfield	64,700	1	3	0	0	0	1	0	1
Michigan:									
Detroit	[3] 1,242,044	96	74	57	3	4	5	10	19
Flint	136,000	16	11	0	0	0	0	0	4
Grand Rapids	156,000	21	6	0	0	0	1	4	3
Wisconsin:									
Kenosha	52,700	9	2	0	0	0	0	0	1
Milwaukee	517,000	120	29	8	1	0	8	2	6
Racine	69,400	21	3	0	0	0	3	0	1
Superior	[1] 39,671	0	0	2	0	0	0	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth	113,000	17	3	0	0	0	1	3	0
Minneapolis	434,000	127	33	13	0	1	15	6	3
St. Paul	248,000	38	19	2	0	2	0	3	9
Iowa:									
Davenport	[1] 52,469	5	2	0	0	-------	0	0	-------
Des Moines	146,000	0	7	3	0	-------	0	0	-------
Sioux City	78,000	10	3	0	0	-------	0	9	-------
Waterloo	36,900	2	0	1	0	-------	0	15	-------
Missouri:									
Kansas City	375,000	9	11	10	1	0	5	2	4
St. Joseph	78,400	2	3	1	0	0	0	0	1
St. Louis	830,000	16	49	33	0	0	2	1	-------
North Dakota:									
Fargo	[1] 26,403	4	0	0	0	0	0	0	0
Grand Forks	[1] 14,811	1	0	0	0	-------	0	0	-------
South Dakota:									
Aberdeen	[1] 15,036	0	0	0	0	-------	0	0	-------
Sioux Falls	[1] 30,127	0	1	0	0	-------	0	0	-------
Nebraska:									
Lincoln	62,000	3	2	0	0	0	2	1	0
Omaha	216,000	5	11	20	0	0	0	1	2
Kansas:									
Topeka	56,500	16	3	1	1	1	2	1	1
Wichita	92,500	2	6	0	0	0	0	1	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	124,000	0	4	0	0	0	14	0	0
Maryland:									
Baltimore	808,000	36	33	9	6	0	0	15	19
Cumberland	[1] 33,741	1	1	0	0	0	12	0	0
Frederick	[1] 12,035	0	0	0	0	0	0	0	0

[1] Estimated, July 1, 1925. [3] Special census.

City reports for week ended October 27, 1928—Continued

Division, State, and city	Population July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.									
District of Columbia:									
Washington	528,000	6	19	31	1	1	0	0	7
Virginia:									
Lynchburg	[3] 38,493	1	3	3	0	0	0	2	0
Norfolk	174,000	1	5	2	0	0	0	0	2
Richmond	189,000	0	25	18	0	0	0	1	5
Roanoke	61,900	0	7	11	0	0	0	0	0
West Virginia:									
Charleston	50,700	3	3	1	0	0	0	0	1
Wheeling	[1] 56,208	3	3	1	0	0	8	22	3
North Carolina:									
Raleigh	[1] 30,371	0	3	3	0	0	0	0	0
Wilmington	37,700	0	1	4	0	2	0	0	4
Winston-Salem	71,800	0	6	6	0	0	0	0	4
South Carolina:									
Charleston	74,160	0	2	0	10	0	0	0	2
Columbia	41,800	0	2	4	0	0	0	1	3
Greenville	[1] 27,311	0	2	3	0	1	0	0	0
Georgia:									
Atlanta	[2]	1	12	4	10	2	2	0	9
Brunswick	[1] 16,809	0	1	0	0	0	0	0	0
Savannah	94,900	1	4	1	2	0	0	0	4
Florida:									
Miami	[3] 131,286	1	2	0	0	0	0	0	0
St. Petersburg	[3] 47,629	-------	0	-------	-------	0	-------	-------	2
Tampa	102,000	0	2	1	0	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,500	0	2	1	0	0	0	0	4
Louisville	311,000	4	10	7	0	0	0	0	8
Tennessee:									
Memphis	177,000	3	12	5	0	0	0	0	5
Nashville	137,000	0	6	3	0	0	0	0	2
Alabama:									6
Birmingham	211,000	0	9	3	4	0	0	1	0
Mobile	66,800	0	2	3	2	1	0	0	
Montgomery	47,000	0	3	9	0	-------	0	0	-------
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	[1] 31,643	0	2	1	0	-------	0	0	-------
Little Rock	75,900	1	3	1	0	0	0	0	1
Louisiana:									
New Orleans	419,000	0	11	7	2	1	1	0	8
Shreveport	59,500	0	2	0	0	0	0	0	0
Oklahoma:									
Oklahoma City	[2]	2	5	10	0	0	0	0	1
Tulsa	133,000	0	5	15	0	-------	0	0	-------
Texas:									
Dallas	203,000	0	16	17	1	1	1	0	3
Fort Worth	159,000	0	4	14	0	0	0	0	4
Galveston	49,100	0	1	2	0	0	0	0	0
Houston	[1] 164,954	0	6	13	0	1	0	0	5
San Antonio	205,000	0	3	2	15	0	0	1	3
MOUNTAIN									
Montana:									
Billings	[1] 17,971	3	0	0	0	0	0	0	0
Great Falls	[1] 29,883	26	0	0	0	0	10	1	0
Helena	[1] 12,037	0	0	0	0	0	0	0	1
Missoula	[1] 12,668	0	1	0	0	0	0	0	1
Idaho:									
Boise	[1] 23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver	285,000	17	16	3	-------	3	3	18	6
Pueblo	43,900	1	4	0	0	0	0	0	1
New Mexico:									
Albuquerque	[1] 21,000	0	1	0	0	0	0	0	0

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

City reports for week ended October 27, 1928—Continued

Division, State, and city	Population July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
MOUNTAIN—continued									
Utah:									
Salt Lake City	133,000	53	4	0	0	2	1	5	5
Nevada:									
Reno	[1] 12,665	0	0	0	1	0	0	0	0
PACIFIC									
Washington:									
Seattle	([2])	19	8	1	0	----	1	2	----
Spokane	109,000	1	4	3	0	----	8	0	----
Tacoma	106,000	1	4	0	0	0	0	17	1
Oregon:									
Portland	[1] 282,383	28	12	15	1	1	7	2	5
California:									
Los Angeles	([2])	11	44	12	34	6	7	17	18
Sacramento	73,400	2	2	3	1	0	0	10	4
San Francisco	567,000	24	17	7	1,209	10	1	5	6

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	1	6	0	1	0	1	1	0	0	1	23
New Hampshire:											
Concord	1	0	0	0	0	0	0	0	0	0	10
Manchester	1	2	0	0	0	1	0	0	0	0	13
Vermont:											
Barre	0	1	0	0	0	1	0	0	0	0	4
Massachusetts:											
Boston	36	25	0	0	0	4	3	2	0	20	188
Fall River	2	1	0	0	0	1	0	3	0	9	16
Springfield	5	4	0	0	0	0	0	0	0	2	31
Worcester	9	3	0	0	0	1	0	0	0	2	42
Rhode Island:											
Pawtucket	0	1	0	0	0	0	0	0	0	1	8
Providence	4	6	0	0	0	3	1	2	0	8	56
Connecticut:											
Bridgeport	5	1	0	0	0	1	0	0	0	0	22
Hartford	4	1	0	0	0	2	0	0	0	1	29
New Haven	5	2	0	0	0	1	1	0	0	6	27
MIDDLE ATLANTIC											
New York:											
Buffalo	16	11	0	0	0	0	1	0	2	21	136
New York	74	54	0	0	0	76	21	28	3	61	1,270
Rochester	5	2	0	0	0	4	1	1	0	14	60
Syracuse	7	2	0	0	0	0	1	0	0	14	38
New Jersey:											
Camden	3	2	0	0	0	1	1	1	0	5	19
Newark	10	3	0	0	0	8	2	0	0	26	78
Trenton	1	1	0	0	0	4	0	0	0	0	34
Pennsylvania:											
Philadelphia	52	17	0	0	0	27	8	5	0	70	448
Pittsburgh	35	24	0	0	0	13	2	1	1	28	169
Reading	1	1	0	0	0	0	0	0	0	21	26

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended October 27, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	11	13	0	0	0	7	1	0	0	4	109
Cleveland	24	19	0	0	0	16	2	1	0	62	159
Columbus	9	10	1	0	0	3	1	0	0	0	63
Toledo	10	6	1	0	0	5	1	1	0	31	70
Indiana:											
Fort Wayne	2	0	0	0	0	0	1	0	1	0	32
Indianapolis	10	16	2	0	0	3	0	4	1	6	78
South Bend	3	0	0	0	0	1	0	0	0	1	12
Terre Haute	3	0	0	0	0	1	1	0	0	0	12
Illinois:											
Chicago	80	57	0	1	0	48	7	5	0	44	629
Springfield	2	5	0	0	0	0	0	0	0	0	22
Michigan:											
Detroit	62	61	1	2	0	15	4	3	1	80	268
Flint	11	5	0	1	0	0	0	0	0	0	23
Grand Rapids	8	3	0	0	0	2	0	1	0	11	39
Wisconsin:											
Kenosha	2	2	0	0	0	0	1	0	0	5	5
Milwaukee	19	36	1	0	0	1	1	1	1	48	101
Racine	3	2	0	0	0	0	0	0	0	7	6
Superior	3	2	0	0	0	0	0	0	0	0	14
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	2	1	0	0	2	0	1	0	7	15
Minneapolis	40	9	0	0	0	1	1	0	0	30	83
St. Paul	18	12	4	0	0	1	1	0	0	12	41
Iowa:											
Davenport	0	2	0	0	----	----	0	0	----	1	----
Des Moines	10	12	0	0	----	----	0	0	----	0	24
Sioux City	3	3	0	0	----	----	0	0	----	2	----
Waterloo	3	18	0	0	----	----	0	0	----	7	----
Missouri:											
Kansas City	12	6	0	0	0	5	1	0	0	5	91
St. Joseph	4	3	0	1	0	3	0	2	1	1	28
St. Louis	31	29	0	0	0	14	4	3	1	10	202
North Dakota:											
Fargo	2	9	0	0	0	0	0	0	0	0	----
Grand Forks	1	4	0	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	1	0	0	0	----	----	0	0	----	0	----
Sioux Falls	2	1	0	0	----	----	0	1	----	0	3
Nebraska:											
Lincoln	1	0	0	0	0	0	0	0	0	2	----
Omaha	4	4	1	0	0	0	0	0	0	1	41
Kansas:											
Topeka	4	11	0	0	0	0	0	1	0	3	22
Wichita	5	4	1	0	0	2	0	0	0	1	31
SOUTH ATLANTIC											
Delaware:											
Wilmington	5	0	0	0	0	1	0	1	0	2	20
Maryland:											
Baltimore	13	11	0	0	0	14	6	7	0	73	180
Cumberland	0	1	0	0	0	1	1	0	0	0	10
Frederick	1	0	0	0	0	0	0	0	0	0	2
District of Col.:											
Washington	15	14	0	0	0	8	2	0	1	11	129
Virginia:											
Lynchburg	2	1	0	0	0	1	0	4	1	0	9
Norfolk	2	2	0	0	0	0	1	0	0	0	----
Richmond	9	7	0	0	0	6	1	2	0	0	58
Roanoke	3	7	0	0	0	1	1	0	0	0	11
West Virginia:											
Charleston	2	2	0	0	0	1	1	0	0	0	12
Wheeling	3	0	0	0	0	0	0	0	0	1	20
North Carolina:											
Raleigh	2	1	0	0	0	1	0	0	0	1	10
Wilmington	1	0	0	0	0	0	0	0	0	0	16
Winston-Salem	3	2	1	0	0	2	0	1	0	1	20

City reports for week ended October 27, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC—continued											
South Carolina:											
Charleston	1	0	0	0	0	3	1	1	1	0	23
Columbia	1	0	0	0	0	0	0	0	0	0	15
Greenville	0	0	0	0	0	2	0	0	1	3	10
Georgia:											
Atlanta	7	12	1	0	0	0	1	4	0	0	59
Brunswick	0	0	0	0	0	0	0	0	0	0	4
Savannah	0	1	0	0	0	1	1	3	1	6	42
Florida:											
Miami	1	1	0	0	0	1	1	1	0	0	15
St. Petersburg	0	----	0	----	0	0	0	----	0	----	15
Tampa	0	0	1	0	0	0	0	0	0	0	----
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	3	0	0	0	2	0	0	0	0	24
Louisville	5	6	0	1	0	3	2	1	0	2	81
Tennessee:											
Memphis	6	5	0	0	0	4	3	5	0	0	52
Nashville	4	1	0	0	0	3	3	4	0	2	31
Alabama:											
Birmingham	4	5	1	0	0	7	1	0	0	4	53
Mobile	1	2	0	0	0	0	0	0	0	0	15
Montgomery	1	2	0	0	----	----	0	0	----	0	----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	1	0	0	----	----	0	1	----	0	----
Little Rock	2	6	0	0	0	4	1	0	0	0	----
Louisiana:											
New Orleans	4	2	0	0	0	9	3	2	0	1	120
Shreveport	1	0	0	0	0	1	1	0	0	0	21
Oklahoma:											
Oklahoma City	1	4	1	0	0	1	0	2	0	0	29
Tulsa	1	7	0	0	----	----	0	0	----	3	----
Texas:											
Dallas	5	9	0	0	0	1	1	3	0	1	41
Fort Worth	1	10	0	1	0	3	0	0	0	0	38
Galveston	0	0	0	0	0	1	1	0	0	0	12
Houston	2	1	1	0	0	4	0	0	0	0	66
San Antonio	0	0	0	1	0	6	1	0	0	0	55
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	1	0	0	0	0	7
Great Falls	1	1	1	0	0	0	0	0	0	11	6
Helena	0	0	0	0	0	0	0	0	0	0	6
Missoula	0	0	0	0	0	0	0	0	0	0	4
Idaho:											
Boise	0	1	1	0	0	0	0	0	0	0	3
Colorado:											
Denver	8	3	0	0	0	4	1	0	0	2	82
Pueblo	2	0	0	0	0	1	1	1	1	0	12
New Mexico:											
Albuquerque	2	0	0	0	0	2	0	0	0	2	4
Utah:											
Salt Lake City	2	2	0	0	0	0	2	2	0	0	35
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	8	1	1	0	----	----	0	2	----	3	----
Spokane	7	11	1	0	----	----	1	0	----	0	----
Tacoma	4	2	1	5	0	0	0	1	0	3	22
Oregon:											
Portland	9	5	3	22	0	2	0	0	0	0	55
California:											
Los Angeles	17	14	3	0	0	21	3	0	0	32	249
Sacramento	2	31	0	0	0	2	1	2	0	2	27
San Francisco	8	11	0	1	0	12	2	0	0	16	151

City reports for week ended October 27, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	2	0	2	3	0
MIDDLE ATLANTIC									
New York:									
Buffalo	0	0	0	0	0	0	0	0	1
New York City	27	11	4	1	0	0	12	12	4
Syracuse	0	0	0	0	0	0	0	1	0
New Jersey:									
Newark	0	0	1	0	0	0	0	0	0
Trenton	0	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	0	1	0	0	0	0	2	0	0
Pittsburgh	0	0	1	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	0	0	0	0	0	0	0	0
Cleveland	2	0	0	0	0	0	2	2	0
Toledo	2	1	0	0	0	0	1	0	0
Illinois:									
Chicago	3	2	0	0	2	2	3	4	0
Michigan:									
Detroit	5	0	0	0	0	0	1	1	0
Wisconsin:									
Milwaukee	2	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	1	1	0
St. Paul	0	0	0	0	0	0	0	1	1
Iowa:									
Davenport	0	0	1	0	0	0	0	0	0
Missouri:									
St. Louis	2	0	0	0	0	0	1	0	0
SOUTH ATLANTIC[1]									
Maryland:									
Baltimore	0	0	0	1	0	0	2	2	0
District of Columbia:									
Washington	0	0	0	0	0	0	1	1	0
Virginia:									
Richmond	0	0	0	0	1	0	1	0	0
North Carolina:									
Winston-Salem	0	0	0	0	0	2	0	0	0
South Carolina:									
Columbia	0	0	0	0	0	2	0	0	0
Georgia:									
Savannah[1,2]	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	1	0	0	0	0	0	0	0
Nashville	0	0	0	0	1	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	2	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
Shreveport	0	0	0	0	0	3	0	0	0

[1] Typhus fever: 2 cases; 1 case at Savannah, Ga., and 1 case at Tampa, Fla.
[2] Dengue: 1 case at Savannah, Ga.

City reports for week ended October 27, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MOUNTAIN									
Montana:									
Missoula	0	0	0	0	0	0	0	1	0
Colorado:									
Denver	0	0	0	1	0	0	0	1	0
Pueblo	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	0	0	0	0	0	0	1	10	0
Oregon:									
Portland	0	0	0	0	0	0	1	1	1
California:									
Los Angeles	2	0	0	0	0	0	1	3	0

The following table gives the rates per 100,000 population for 101 cities for the 5-week period ended October 27, 1928, compared with those for a like period ended October 29, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1928 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,657,000 in 1928 and 31,050,000 in 1927. The 95 cities reporting deaths had nearly 30,961,000 estimated population in 1928 and nearly 30,370,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, September 23 to October 27, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Sept. 29, 1928	Oct. 1, 1927	Oct. 6, 1928	Oct. 8, 1927	Oct. 13, 1928	Oct. 15, 1927	Oct. 20, 1928	Oct. 22, 1927	Oct. 27, 1928	Oct. 29, 1927
101 cities	89	129	99	143	116	144	[2] 125	170	131	195
New England	62	109	103	133	124	128	145	123	156	135
Middle Atlantic	72	123	83	129	83	123	84	142	98	190
East North Central	97	129	92	157	111	138	[3] 133	199	154	232
West North Central	76	123	127	144	136	119	127	129	158	139
South Atlantic	135	164	135	170	198	202	[4] 232	193	179	191
East South Central	155	66	130	152	190	157	[5] 190	167	155	259
West South Central	108	194	172	194	208	252	196	265	172	294
Mountain	106	188	106	126	44	197	62	152	27	99
Pacific	72	120	64	99	79	154	72	219	66	151

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

Summary of weekly reports from cities, September 23 to October 27, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

MEASLES CASE RATES

	Week ended—									
	Sept. 29, 1928	Oct. 1, 1927	Oct. 6, 1928	Oct. 8, 1927	Oct. 13, 1928	Oct. 15, 1927	Oct. 20, 1928	Oct. 22, 1927	Oct. 27, 1928	Oct. 29, 1927
101 cities	18	25	27	40	32	50	[2] 40	54	52	70
New England	55	53	85	119	69	133	179	186	244	191
Middle Atlantic	10	33	18	56	27	53	19	64	25	72
East North Central	22	13	23	11	31	17	[3] 24	21	41	18
West North Central	14	6	43	12	49	14	76	22	49	34
South Atlantic	14	29	21	31	37	69	[4] 32	45	63	106
East South Central	0	20	5	56	10	127	[5] 11	51	0	203
West South Central	8	4	4	8	0	54	0	37	8	21
Mountain	9	0	44	27	53	18	71	72	124	63
Pacific	41	47	41	44	18	57	41	50	43	91

SCARLET FEVER CASE RATES

101 cities	76	83	99	103	115	96	[2] 111	117	114	145
New England	83	102	90	140	138	130	152	151	117	212
Middle Atlantic	38	59	42	100	57	63	69	73	57	97
East North Central	100	101	132	102	153	108	[3] 137	127	151	166
West North Central	115	79	181	107	140	174	138	137	214	247
South Atlantic	74	106	112	123	135	90	[4] 115	161	107	168
East South Central	150	117	150	66	234	84	[5] 149	147	120	137
West South Central	84	103	148	66	96	87	72	79	76	124
Mountain	62	36	18	126	80	108	88	278	62	143
Pacific	87	76	112	76	97	97	151	136	179	97

SMALLPOX CASE RATES

101 cities	2	4	3	5	1	6	[2] 3	7	2	7
New England	0	0	0	0	0	0	0	0	2	9
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	1	1	5	1	2	5	[3] 3	0	3	0
West North Central	2	12	2	14	0	26	2	42	2	51
South Atlantic	0	4	0	4	0	2	[4] 0	7	0	0
East South Central	5	0	0	0	0	0	[5] 0	5	5	5
West South Central	4	8	0	4	4	4	0	0	4	0
Mountain	9	54	9	54	9	72	62	72	0	45
Pacific	15	24	18	31	5	16	10	21	15	16

TYPHOID FEVER CASE RATES

101 cities	22	19	25	25	22	19	[2] 18	20	18	17
New England	9	12	16	23	16	16	7	16	16	19
Middle Atlantic	26	18	25	21	20	16	23	15	18	12
East North Central	14	8	13	17	11	18	[3] 7	16	10	13
West North Central	27	20	12	28	16	22	10	22	14	16
South Atlantic	25	20	30	47	35	27	[4] 41	32	40	22
East South Central	55	117	50	20	55	30	[5] 29	30	50	46
West South Central	40	17	52	70	28	29	8	29	24	37
Mountain	18	36	124	54	88	63	53	81	27	27
Pacific	13	18	28	8	26	8	13	16	13	16

[2] South Bend, Ind., Greenville, S. C., and Nashville, Tenn., not included.
[3] South Bend, Ind., not included.
[4] Greenville, S. C., not included.
[5] Nashville, Tenn., not included.

Summary of weekly reports from cities, September 23 to October 27, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Sept. 29, 1928	Oct. 1, 1927	Oct. 6, 1928	Oct. 8, 1927	Oct. 13, 1928	Oct. 15, 1927	Oct. 20, 1928	Oct. 22, 1927	Oct. 27, 1928	Oct. 29, 1927
95 cities	6	6	7	5	7	6	[2] 10	9	10	8
New England	5	0	7	5	9	2	2	5	5	0
Middle Atlantic	2	4	7	6	4	8	7	7	8	4
East North Central	3	5	5	1	7	3	[3] 7	5	5	5
West North Central	2	8	2	4	2	2	8	12	8	6
South Atlantic	7	4	9	4	4	7	[4] 5	11	11	13
East South Central	5	27	16	11	10	11	[5] 30	27	5	43
West South Central	29	21	8	8	29	13	21	13	12	17
Mountain	9	27	18	45	9	9	62	18	44	27
Pacific	24	7	7	3	17	3	27	14	54	10

PNEUMONIA DEATH RATES

95 cities	66	56	84	65	79	71	[2] 101	77	86	91
New England	60	58	51	81	64	95	126	86	74	65
Middle Atlantic	75	62	106	71	94	72	124	75	92	92
East North Central	51	41	76	58	67	49	[3] 87	66	79	82
West North Central	41	33	59	41	43	60	51	64	41	68
South Atlantic	77	65	91	56	91	106	[4] 110	70	110	87
East South Central	120	90	94	85	105	48	[5] 73	133	131	117
West South Central	98	93	98	68	78	68	74	85	82	187
Mountain	35	81	62	72	115	117	62	143	124	143
Pacific	64	45	47	69	54	83	98	100	98	97

[2] South Bend, Ind., Greenville, S. C., and Nashville, Tenn., not included.
[3] South Bend, Ind., not included.
[4] Greenville, S. C., not included.
[5] Nashville, Tenn., not included.

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

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

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended October 20, 1928.—The following report for the week ended October 20, 1928, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva.

Plague, cholera, or smallpox was reported at the following ports:

PLAGUE

India.—Bombay.
Dutch East Indies.—Makassar.
Kenya.—Mombasa.

CHOLERA

India.—Calcutta, Madras, Rangoon, Tuticorin.
China.—Shanghai.

SMALLPOX

India.—Bombay, Calcutta, Karachi, Madras, Negapatam, Rangoon.
French India.—Pondicherry.
Dutch East Indies.—Batavia, Belawan Deli, Surabaya.
China.—Hong Kong, Shanghai.
Indo-China.—Paompenh, Saigon.

ARGENTINA

Canadahonda, Cordoba Province—Plague—November 10, 1928.—Under date of November 10, 1928, 15 cases of plague were reported at Canadahonda, Cordoba Province, Argentina. The report was based on clinical diagnosis only. Canadahonda is distant from the seashore and has no connection by rail.

Buenos Aires—Plague-infected rats.—Since July 1, 1928, 11 plague-infected rats have been found in Buenos Aires, Argentina. The last infected rat was reported October 25, 1928.

CANADA

Provinces—Communicable diseases—Week ended October 27, 1928.—The Department of Pensions and National Health reports cases of certain communicable diseases from seven provinces of Canada for the week ended October 27, 1928, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	13							13
Poliomyelitis			2	6	8	2	1	19
Smallpox			20	5		6	1	32
Typhoid fever	2	11	16	15			4	48

Ontario—Communicable diseases—October, 1928—Comparative.—During the months of October, 1928, and October, 1927, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	October, 1928		October, 1927	
	Cases	Deaths	Cases	Deaths
Actinomycosis	0	0	2	2
Cerebrospinal meningitis	2	2	3	2
Chancroid	0	0	5	0
Chicken pox	411	0	571	0
Conjunctivitis, acute infectious	0	0	1	0
Diphtheria	287	14	346	20
Dysentery	2	0	1	9
German measles	8	0	13	0
Goiter	2	1	1	0
Measles	185	0	383	0
Mumps	196	0	448	0
Pneumonia		69		95
Poliomyelitis	23	1	21	4
Puerperal septicemia	0	0	0	2
Rabies	0	0	1	0
Scarlet fever	194	1	411	1
Septic sore throat	0	0	7	0
Smallpox	23	0	160	0
Syphilis	86	0	147	0
Tetanus	0	1	0	1
Tuberculosis	102	44	125	0
Typhoid fever	89	3	128	4
Whooping cough	250	5	275	4

Quebec—Communicable diseases—Week ended October 27, 1928.—The Provincial Bureau of Health reports cases of certain communicable diseases for the week ended October 27, 1928, as follows:

Disease	Cases	Disease	Cases
Chicken pox	33	Scarlet fever	91
Diphtheria	48	Smallpox	20
Influenza	1	Tuberculosis	75
Measles	27	Typhoid fever	16
Mumps	43	Whooping cough	11
Poliomyelitis	2		

DENMARK

Communicable diseases — May, June, July, 1928. — During the months of May, June, and July, 1928, communicable diseases were reported in the Kingdom of Denmark as follows:

Disease	Cases		
	May	June	July
Anthrax			2
Cerebrospinal meningitis	11	11	9
Chicken pox	37	39	15
Diphtheria	347	282	211
Erysipelas	252	207	139
Influenza	24,643	13,466	4,675
Lethargic encephalitis	11	8	10
Measles	4,010	2,085	1,249
Mumps	680	447	253
Paradysentery	124	29	8
Paratyphoid fever		6	8
Pneumonia	750	390	317
Scabies	613	502	662
Scarlet fever	163	114	107
Tetanus	6	1	3
Tuberculosis, pulmonary	284	233	202
Typhoid fever	5	9	17
Undulant fever	35	46	37
Whooping cough	1,628	1,309	1,402

Population of Denmark: 3,492,800.

TRINIDAD

Health conditions, 1927.—According to the annual report of the Surgeon General on the Medical Service of Trinidad, the year 1927 was marked by a generally diminished prevalence of disease. It is thought that this may be attributed in part to the chlorination of the water supplies in urban districts, which removes one potent source of infection. The infant mortality rate was the lowest ever recorded, slightly over 120 per 1,000 births.

The following table shows the deaths from certain diseases for the year 1927, as compared with 1926:

Deaths, 1927 and 1926

Disease	1927	1926	Disease	1927	1926
Bronchitis and bronchial pneumonia	544		Malaria	661	749
Diarrhea and enteritis	422	659	Pneumonia	144	
Dysentery	185	463	Tuberculosis	556	
			Typhoid fever	295	759

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

From medical officers of the Public Health Service, American consuls, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given:

CHOLERA

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended— September, 1928 1	8	15	22	29	October, 1928 6	13	20	27	Nov. 3, 1928
Ceylon: Colombo	C					1											
	D					1											
China:																	
Canton	C	2		1	2	8	4		1							1	
	D	2		1	2	8	2		1								
Kwantung—Dairen	C										3						
	D										1						
Shanghai	C						3	1	1								
	D									3			1	1			
Swatow	C				3	7											
Dutch East Indies: Java—Batavia	C						1										
India	C	21,279	32,564	30,177	31,346	44,240	52,786	9,449	9,032								
	D	11,877	20,432	20,162	20,114	23,216	20,967	5,046	4,895								
Bassein	D	51	41	40	8												
Bombay	C	3		1		6	9	3	2	1							
	D	3				11	5	2	2			2	3	2			
Calcutta	C	664	446	552	462	206	93	17	16	17	18						
	D	442	428	410	323	133	51	7	10	13		12	9	6			
Madras	C	10	22	27	29	72	555	65	49	25	10	57					
	D	4	18	16	21	31	271	34	33	15	6	27	25	12			
Madras Presidency	C	1,483		1,314	878												
	D	812		675	460												
Moulmein	D			1													
Negapatam	C										1						
	D		2		13		3		1	5	1	1					
Rangoon	C	22	23	7	14	1	13			1							
	D	16	15	5	9	1	8			1							
Tuticorin	C	10	110				1				1						
	D	9	71														
Vizagapatam	D					7	31	5									

India (French):																		
Chandernagor	C	7				2	7		2	1								
	D	6				1	3		1	1								
Karikal	C		1				30	14	13	11	3	4	4					
	D		1				21	8	9	7	2	3	4					
Pondicherry Province	C	1	8			3	114	49	20	35	28	18	3					
	D	1	8			3	60	23	17	18	14	10	1					
Indo-China (see also table below):																		
Pnompenh	C					5	2	1			2							
	D					5	2	1			1							
Saigon	C	96	116	15	6	2			2									
	D	59	76	9	1	1			1									
Tourane	C				1													
	D				1													
Japan: Osaka	C												1					
Kwangchow-Wan (see table below).																		
Persian Gulf:																		
Island of Henjam	C					1												
Jask	C					1												
Philippine Islands:																		
Bulacan Province—																		
Malolos	C					1												
Paombong	C						1											
Cagayan Province	C					1												
	D						1											
Ballesteros	C					1	2											
	D					1												
Pamplona	C				1													
	D				1													
Sanchez-Mira	C				4													
	D				2													
Cebu (port)	C					1												
Ilocos Norte Province	C					1												
	D					1												
Manila	C					4	1											
Pangasinan Province—Bayambang	C					1												
	D					1												
Surigao Province—Surigao	C					1	3											
	D					1	2											
Siam	C	291	349	202	203	163	40	2	1	11								9
	D	218	234	127	144	123	18			9								5
Ayudhaya	C				2		29			1				3				
	D				1		26			1				2	1			1
Bangkok	C	60	74	50	7	9	4	1	1		3		2		1			
	D	33	35	26	4	3					1							
Dhannapuri	C									3								
	D									3								
Trad	C				1													
Straits Settlements: Singapore	C	2	1															
	D	2	1															

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

CHOLERA—Continued

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended—									
								September, 1928					October, 1928				Nov. 3, 1928
								1	8	15	22	29	6	13	20	27	
On vessel:																	
S. S. Glenapp, at Yokohama, from Shanghai	C										P						
S. S. Hawaii Maru at Singapore from Saigon, French Indo-China	C	11															
	D	7															
S. S. Kambangan at Batavia from Jeddah via Sabang and Palembang	C						1										
S. S. Tairea at Penang from Madras via Nagapatam	C						P										

Place		January–March, 1928	April–June, 1928	July, 1928			August, 1928			September, 1928			October, 1928
				1–10	11–20	21–31	1–10	11–20	21–31	1–10	11–20	21–30	1–10
Indo-China (French) (see also table above):													
Annam	C	389	128	8	5	3		4	7	2	2		4
Cambodia	C	312	418	92	25	38		19	19	15		1	6
Cochin-China	C	1,407	1,666	65	55	33		13	15	15	9	4	6
Laos	C												
Tonkin	C	1	43	5	1	1		2					
Kwangchow-Wan	C		16		1				1				

PLAGUE

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended— September, 1928 1	8	15	22	29	October, 1928 6	13	20	27	Nov. 3, 1928
Algeria (see also table below):																	
Algiers	C		1														2
Oran	C			1	2									1			
Philippeville	C													1			
Arabia: Aden	C	651	224	7	1												
	D	529	191	9	1												
Argentina:																	
Avellaneda	C			1													
	D			1													
Buenos Aires [1]	C			6	1												
	D			3	2												
Cordoba Province [2]	C		5														
Entre Rios	C				5												
Loreto	C			3													
Rosario	C			1		1											
Santa Fe	C				9	1											
Santiago del Estero	C				10	1						7					
Suardi	C			2													
Azores: St. Michaels Island	C	3	5	1	1												
	D	2	2	1	1												
Belgian Congo: Djugu	C															2	
Bolivia: Valle Grande	C						P										
Brazil:																	
Bahia	C	28	6	3													m
	D	21	6	3													
Rio de Janeiro	C	3															
	D	3															
British East Africa (see also table below):																	
Mombasa	C									1			1		1		
	D									1							
Tanganyika	C					6	1	4		4							
	D		10			29	1	4		4							
Uganda	C			84	105			13	61	28							
	D			70	85			13	37	24							

[1] Eleven plague-infected rats were reported at Buenos Aires, Argentina, from July 1 to Oct. 25, 1928.
[2] 15 cases of plague were reported Nov. 10, 1928, at Canadahonda, Cordoba Province, Argentina. The report was based on clinical diagnosis only.

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

PLAGUE—Continued

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended— September, 1928 1	8	15	22	29	October, 1928 6	13	20	27	Nov. 3, 1928
Canary Islands:																	
Arrecife	C			1													
	D			1													
Lanzarote Village	C			1													
Las Palmas	C	4									2			1	1		
	D										1				1		
Palma Island	C						7										
	D						3										
Teneriffe	C								5						2	1	
	D								3						1	1	
Ceylon:																	
Colombo	C	7	1	4	2			1	1	1							
	D	5	1	2	2			1	1	1							
Jaffna	C														2		
	D														2		
China:																	
Amoy	C			5		P											
Hong Kong	C		2		1	1											
	D				1												
Mongolia—																	
Chien Chia Tien	C							P	P	P	P	P					
Tungliao	C								30	130	60	57	53	70	13		
Urga	C									P							
Dutch East Indies:																	
Celebes—Makassar	C														1		
	D														1		
Java:																	
Batavia and West Java	C	80	47	65	61	32	46	2	17	15							
	D	80	47	65	61	32	46	2	17	15							
Plague-infected rats		3	7	9	4	2	2										
East Java and Madura	C	4	4			1	2										
	D	4	4			1	2										
Kedoe Residency	C		4			P											
Surabaya Residency	C	1	1									1					
	D	1	1									1					

Ecuador (see also table below):																		
Alausi	C			1														
Egypt:																		
Alexandria	C			1		2	1	1	1									
	D			2					1									
Amrieh District	C						26	4	1	1	5	1						
	D							2	2		1		P	1				
Assiout Province	C					2	2	1					P	1				1
	D					1		1						1				1
Beheira	C						2		3		2			1				
	D								1		1			1				
Beni-Suef	C		12	79	25	25	6	5	6	5								
	D		3	27	9	5	2	1	4									
Cairo	D						1											
Dierout	C																	7
	D																	7
Girga	C							1	3	1								
	D							1	3									
Maghagha District	C		1															
	D		1															
Menufia	C			11													1	1
	D			2														
Minieh Province	C		48	76	76	13												
	D		9	17	24	3												
Port Said	C					1	5											
	D							1										
Sidi Barani	C					12	10											
	D					8	1											
Suez	C	14	5	3			2											
	D		13	1														
Plague-infected rats		2																
Tanta	C			1		2	2										5	
	D			1														
Greece:																		
Athens and Piræus	C										2	2	2	1				
Corfu	C				15		1	1										
	D				3													
Patras	C					1	1		1									
	D					1												
Hawaii Territory: Hawaii:																		
Hamakua District—																		
Hamakua—																		
Plague-infected rats				1			1											
Honokaa	D									1	1							
Plague-infected rats				1						1	3							
Kukuihaele	D						1											
Plague-infected rats						1												
Kukaiau—Plague-infected rats							3											
Paauilo	D					1	1											

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

PLAGUE—Continued

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended— September, 1928 1	8	15	22	29	October, 1928 6	13	20	27	Nov. 3, 1928
India	C	26,079	18,518	3,272	367	587	1,936	593	694	887							
	D	20,907	17,074	3,183	345	340	1,037	292	299	457							
Bassein	D	22	13	8	14	3		1									
Bombay	C	69	43	39	14	1	8			6	1	1			4		
	D	61	69	38	8	1	6		1	5		1					
Plague-infected rats							7		7	13					13		
Calcutta	D	2					2		1								
Madras Presidency	C	62	21	12	54	123	217	79	162								
	D	48	12	6	25	51	105	36	75								
Rangoon	C	30	16	14	31	43	28	4	7	2	4						
	D	26	14	15	28	39	26	3	7	1	4		1	4			
Visagapatam	D				1												
Indo-China (see also table below):																	
Paompenh	C					4	1	1	3	2				1			
	D					4	1	1	2	1				1			
Saigon	C				5		1										
	D				1		1										
Plague-infected rats					2												
Iraq:																	
Baghdad	C	5	11	13	9	1				1	3					1	
	D	5	6	3	4						2						
Plague-infected rats			4	3													
Dujaim Liwa	C		1														
Kwangchow-Wan (see table below).																	
Madagascar (see also table below):																	
Tamatave	C			1	20	3	8	1	2	3	3	7	3	1			
	D				8	7			1	2	1	6	3	1			
Nigeria (see also table below):																	
Lagos	C	7	17	28	43	53	51	14	9	14	23	28	20	23			
	D	6	18	28	42	52	52	14	9	14	22	28	20	23			
Plague-infected rats			8	55	57	23											
Paraguay: Asuncion	C				5										3		
	D				2	2											

Peru (see table below).																		
Portugal: Lisbon	C				1													
Senegal (see also table below):																		
Thies and vicinity	C	8		72	52													
	D	4		40	40													
Siam	C	33	27	15	6	10												
	D	30	13	11	7	8												
Ayudhaya	C				2	2												
	D				1	2												
Bangkok	C	1	4															
	D	1	2															
Nagara	C			1	2													
Straits Settlements:																		
Ipoh	C										2							
	D										2							
Singapore	C	1																
	D	1																
Syria (see table below).																		
Tunisia: Bengardane region	C	8																
	D	6																
Turkey:																		
Adalia	C					1								1				
Constantinople	C														1			
Union of South Africa: Orange Free State	C	5				P	P											
	D	5																
Union of Socialist Soviet Republics:																		
Astrakhan—																		
Axary District	C				3													
	D				2													
Kirghiz District	D										54							
Krasnoiarsk District	D							1										
Chita District	C								1									
Ural Government	C																	7
	D																	7
On vessel:																		
S. S. Tymeric, at Barbados, from New Orleans	C			1														
S. S. Automedon, at Penang, Straits Settlements	C														P			

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

PLAGUE—Continued

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

Place		January-March, 1928	April-June, 1928	July, 1928	August, 1928	September, 1928	October, 1928
Algeria (see also table above):							
Algiers	C		1				
British East Africa (see also table above):							
Kenya	C	65	86	97	144	15	
	D		5		34		
Uganda	C			176	152		
	D			151	141		
Ecuador: Guayaquil	C	20	6			1	
	D	8	2				
Plague-infected rats		75	5	7		10	
Indo-China (see also table above)	C	12	36	7	2	5	2
Kwangchow-Wan	C	18	27				
Madgascar (see also table above)	C	940	199	45	65		
	D	864	184	33	61		
Amboitra Province	C	202	68	4	3		
	D	191	35	4	3		
Antisirabe Province	C	281	68	11			
	D	279	67	11			
Itasy Province	C	55	1				
	D	49	1				
Majunga	C				2		
	D				2		
Moramanga Province	C	56	4	2	3		
	D	55	4	2	3		
Tamatave	C		23	10	9		
	D		14	9	5		
Tananarive Province	C	348	78	24	27		
	D	292	82	23	27		
Nigeria (see also table above)	C	41	91	53			
	D	41	89	53			
Peru	C	93	25	5			
	D	23	6	2			
Lima	C	6	4				
	D		2				
Senegal (see also table above)	C	30	448	318	43	136	
	D	17	246	164	32	83	
Baol	C		13	17	68	73	5
	D		7	10	38	40	5
Cayor	C			40	46	20	17
	D			25	15	8	6
Fatick	C						25
	D						15
Rufisque	C		46	18	2	1	11
	D		31	7		1	2
Thies	C		345	103	151	106	
	D		237	64	119	78	
Tivaouane	C		325	84	9		
	D		175	70			
Syria: Beirut	C		1	4			1

PLAGUE RATS ON VESSELS

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

SMALLPOX

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended— September, 1928 1	8	15	22	29	October, 1928 6	13	20	27
Algeria	C	3	12													
Algiers	C	5	4	5	15	3	8			2						
Oran	C	12	17	5	4	8	5									
Angola (see table below).																
Arabia: Aden	C				11		1	1								
	D						1									
Brazil (see also table below):																
Pernambuco (Recife)	D			1												
Rio de Janeiro	C	1				1										
	D	1														
British East Africa:																
Kenya—Mombasa	C	2	1									1				
British South Africa:																
Northern Rhodesia	C	67	628	195	15	48	310	150	122	71	39					
	D	9	51	17	1	5	23	7	7	7	1					
Southern Rhodesia	C	7	24	13	36	22	17			2	3					
	D		10		4	4										
Canada:																
Alberta	C	47	12	44	9	3	25	6							4	1
Calgary	C	1														
Edmonton	C	7	3			4										
British Columbia—Vancouver	C	17	24	11	4	11			1	2	2	8	5	3		
Manitoba	C		7	4	10	4									1	
New Brunswick	C			1	7		5									
Ontario	C	83	50	41	33	11	5	1	2					10	5	5
Kingston	C		3			2	1				1					
Ottawa	C	26	4	6	1		1	1	5						2	2
Sarnia	C															1
Toronto	C	9	11	12	3	1										
Quebec	C	112	83	78	81	62	27	9	7	9	3	14	11	19	31	20
Montreal	C	9	9	3	11	5	2	6	2	4					4	7
Quebec	C	10	23	47	52	44	12	3	2	5	3	2	3	4		
Sherbrooke	C	3			4											
Saskatchewan	C	33	52	28	16		6		3					1		6
Moose Jaw	C	7	3	1		1					2					
Regina	C	3	8	1	1						1					

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

SMALLPOX—Continued

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended— September, 1928: 1	8	15	22	29	October, 1928: 6	13	20	27
Ceylon: Colombo	C	1														
	D	1														
China:																
Amoy	C	6	9	3					P							
Antung	C		3													
Canton	C	7	2	2												
Chefoo	C	P		P	P	P	P	P								
Foochow	C	P	P		P	P	P		P		P					
Hong Kong	C	32	25	30	14	11	19	2	3	2	2		6	1	6	
	D	19	26	23	19	5	16	1	1	5			3	4	1	
Manchuria—																
Changchun	C		4	6		1										
Fushun	C				6	1	2			1						
	D					1										
Harbin	C	7	10	27	31	11				1						
Kwantung—																
Dairen	C	15	16	35	48	21	3				1		1			
	D	8			20	12	3									
Port Arthur	C					1	1									
	D						1									
Mukden	C	1	4	3	6					2				1		
	D				1											
Pensihu	C				1											
	D				1											
South Manchuria Railway Zone	C				5											
Shanghai—																
Foreigners only	C	7	3	11	7	2	2	1	1							
Including natives	D	9	9	19	11	10	2							1	2	
Tientsin	C	13	17	9	14	1										
Chosen (see table below).																
Curacao (alastrim)	C					2										
Dominican Republic: Santo Domingo	C	2	1													

Dutch East Indies:																
Balikpapan	C					7										
	D					2										
Belawan Deli	C				11	4	9		5	5			8		1	
	D				3	1	3			2			3			
Borneo—																
Pontianak	C						5	1	1	1	1	1		1		
	D						2					1				
Samarinda	C											3				
Java—																
Batavia and West Java	C	5	1	2		2	6				1			1	1	
East Java and Madura	C		2		2	3	6				1					
	D		2			3	1									
Surabaya	C						6			3	1		1		1	
	D						1									
Sumatra—																
Medan	C	7	2	10	4	5	9	2	5							
	D	5	3	5		2	3									
Palembang	C					1										
Ecuador (see table below).																
Egypt	C	52	12	1												
	D	33	7	1												
Behera Province	C					1										
France (see table below).																
Gold Coast (see table below).																
Great Britain:																
England and Wales	C	1,341	1,344	1,199	1,146	681	492	102	123	92	113	94	130	162		
Birmingham	C	1	1		2	1					1					
Bradford	C	19	14	17	10	2			1							
Bristol	C	12	17	10	2		2									
Cardiff	C	5	3	2												
Castleford	C	36	69	24	18	14	10	1	2	1	1	4	1	1		
Hull	C				1	24	15	6	3	1	3	2	3	1	1	
Leeds	C	14	1		8	1	1	4	1		1					
London	C	17	42	25	96	19	9		2	3	3	4	5			
Manchester	C	14	8	5	1				3			1				
Newcastle-on-Tyne	C	9	4	12	6	28	2						1			
Nottingham	C	13	17	20	3	6	10	1	6	2	6	1	1	2		
Plymouth	C						6	1		1	1	2				
Sheffield	C	1	14	4	2	2	1			1	3					
Stoke-on-Trent	C	12	32	24	14	5	8									
Weymouth	C					1										
Scotland—																
Arbroath	C						4		2	1						
Dundee	C							1							3	
Greece (see table below).																
Hedjaz	C			6	14	18	1									
	D			2	1	6	1									

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

SMALLPOX—Continued

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended—								
								September, 1928					October, 1928			
								1	8	15	22	29	6	13	20	27
India	C	28,034	30,436	21,489	13,497	9,981	6,218	1,233	975	1,226						
	D	5,540	6,672	5,046	3,700	2,758	1,733	293	252	303						
Bassein	C		1													
Bombay	C	218	200	136	71	67	28	4	3	4	3	7	2	12	3	
	D	120	118	78	46	33	21	3	3	2	3	7		4	1	
Calcutta	C	134	171	130	61	52	22	4	5	3	1		4		3	
	D	104	130	101	50	35	17	3	4	3	1		3		1	
Karachi	C	1	2	3		3									1	
	D		1	1		2										
Madras	C	183	169	59	85	39	43	19	23	29	19	13	21	18	25	
	D	29	38	18	10	18	10	5	7		9	6	5	7	5	
Moulmein	C				1	9	9	4						2		
	D				1	6	4	1								
Negapatam	C		7	8	19	26	35	7	9	15	15	19	2	7	23	
	D		3	1	7	4	9	3	1	3	3	4	1	1	5	
Rangoon	C	320	167	36	30	7	2									
	D	102	79	13	6	4	1									
Tuticorin	C			3								1		2		
Vizagapatam	C	3	2	3	8	3	1		9	5						
	D			1	3	3	1			3				1		
India (French):																
Chandernagor	C	5	5			1	2	4	5							
	D	1	1			1	1		2							
Pondicherry Province	C	18	36	32	13	12	62	24	18	32	18	23	26			
	D	18	36	23	13	12	45	31	14	28	14	17	18			
Indo-China (see also table below):																
Pnompenh	C						2	4	8	3	4	4	8	6	10	
	D						2	3	5	3	4	1	5	2	2	
Saigon	C										1	1	1		1	
Iraq:																
Baghdad	C	5	5	16	16	24	7	5	7	10	12	1	9	8	12	10
	D	4	3	6	10	15	2	2	5	3	7	1	3	3	5	8
Basra	C	5	4	3	2	6	4		1			6	1	9	7	3
	D	2	2	3	2	2	2		1			2			7	4

Italy	C			1	6												
Leghorn	C	1															
Palermo	C	5	10	6	10	4	6										
Ivory Coast (see table below).																	
Jamaica (outside Kingston) (alastrim)	C	13	4	2	3	1	1	1	1	1		2					
Japan:																	
Kobe	C			11													
Nagoya	C		6	2		1											
Osaka	C				4												
Tokyo City	C	15	8	2													
	D	1	1														
Tokyo Prefecture (outside city)	C	24	1	1													
	D	1	2														
Yokohama	C		2	3													
	D			1													
Latvia (see table below).																	
Malta: Valetta	C											1					
Mexico (see also table below):																	
Acapulco	C			2													
	D			2													
Jalisco (State)	C	P	P		21												
Guadalajara	D	2	12	13	10	9	7	1		2							
Manzanillo	D	1															
Mazatlan	D			3	2		3										
Mexico City and surrounding territory	C		1	2		3	2				1		1				
	D				1		1	1									
Reynosa	C					1											
Saltillo	D			2	2												1
San Luis Potosi	D										1		2				
Torreon	D												1				
Morocco (see table below).																	
Nigeria (see also table below):																	
Lagos	C	1			1												
Southern Provinces	C	93			51												
	D	35			12												
Persia (see table below).																	
Poland	C	1	9	1	3	2											
	D		1														
Portugal (see also table below):																	
Lisbon	C	5	6	7	7	8	1										
	D					1	1										
Oporto	C		1														
Senegal (see also table below): Dakar	C	29	16	29	8												
	D	20	8	7													
Siam	C	28	10	8	3	1	3	1								3	
	D	4	3	1	1		2										
Bangkok	C		1														
	D			1													
Spain: Valencia	C	2															
Straits Settlements: Singapore	C	1	3		1												
Sudan (Anglo-Egyptian)	C	332	160	168	206	144	252	56	35	10	51	30	19	38	2		
	D	100	32	20	37	35	34	7	6	3	18	6	6	7			

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

SMALLPOX—Continued

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	July 29–Aug. 25, 1928	Week ended—								
								September, 1928					October, 1928			
								1	8	15	22	29	6	13	20	27
Sudan (French) (see table below).																
Syria (see table below).																
Taiwan: Keelung	C				1											
Tunisia: Tunis	C	4	6	3	2	8	5			1						
Union of South Africa:																
Cape Province	C						P			P						
Natal	C	P			1											
Orange Free State	C	P		P	P	P										
Transvaal	C		P	P	P		P	P		P	P					
Union of Socialist Soviet Republics (see table below).																
Upper Volta	C	2	9				50		P					10		
	D						8									
Venezuela: Maracaibo	D						1									
On vessel:																
S. S. Arendskerk at Singapore, from Amoy, China	C	P														
S. S. Kashgar at Kobe, from Shanghai	C		P													
S. S. Ronna at Penang, from Negapatam	C			P												
S. S. Theseus, from Jeddah to Penang	C					1										
S. S. Tjileboct at Hong Kong, from Shanghai	C		P													
S. S. Yarmouth at Kingston, Jamaica, from Habana, Cuba	C	1														
S. S. Victoria at Nome, Alaska	C				8											

Place		January-March, 1928	April-June, 1928	July, 1928			August, 1928			September, 1928			October, 1928
				1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-30	1-10
Indo-China (see also table above)	C	426	197	8	3	15	44	21	6	27	29	17	38
Ivory Coast	C		7		4	5				2			
	D					2							
Senegal (see also table above)	C		110							4			2
	D		16										
Dakar	C		43										
	D		15										
Sudan (French)	C	15	54		17				55			P	P
	D		6						33				
Syria:													
Aleppo	C	1	3					4					
Beirut	C	75	26	4	1								
	D	2											
Damascus	C	14											

Place		January-March, 1928	April, 1928	May, 1928	June, 1928	July, 1928	August, 1928	September, 1928
Angola	C	47	7	1				
Congo	C	36						
Cuanza-Norte	C	1						
Cuanza-Sul	C	10						
Brazil (see also table above):								
Porto Alegre	C	1					2	1
Chosen	C	48	20	152	49			
	D	16	6	38	21			
Seoul	C	1						
Ecuador: Guayaquil	C	35	19	31	11	35	38	13
	D	1						
France	C	34	6	15	10	10	6	
Gold coast	C	4						
Greece	C	36	1	22	31	9	3	6
	D	4		1	2	1		

Place		January-March, 1928	April, 1928	May, 1928	June, 1928	July, 1928	August, 1928	September, 1928
Latvia	C	1			1	1		
Mexico (see also table above)	D	1,064	336	622				
Morocco	C	132	19	25	10	55	1	4
Nigeria (see also table above)	C	592	173	194	372	1,059		
	D	84	46	53	57	159		
Persia	D	7						
Portugal (see also table above)	C	258		98	74	82		
	D	30		9	3	10		
Union of Socialist Soviet Republics:								
Railways, etc	C	59						
Other territories in Europe	C	1,717						
Transcaucasus, Siberia, and Central Asia	C	25						
Ukraine	C	27						

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

TYPHUS FEVER

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

Place		Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–31, 1928	Week ended— August, 1928 4	11	18	25	September, 1928 1	8	15	22	29	October, 1928 6	13	20	27
Algeria:																			
Algiers	C	9	4	13	32	3	1	4	3	2	1	1							
	D		2		6														
Oran	C	4	11	4	7	16	1	1	1	1				2					
	D		1		1														
Bulgaria	C		26		16	P	P		3	5	2	2	2		5	1	1		
	D				2				2										
Sofia	C	20	1	20	14	1						3							
	D				6														
Chile:																			
Iquique	C					1													
	D					1													
Talcahuano	D	1																	
Valparaiso	C				3	2													
	D				1														
China:																			
Manchuria—																			
Harbin	C		2	16	23														
Kwantung	C		17	293	539	431	60					1		2	2				
South Manchuria Railway Zone	C				10	6													
Tientsin	C			2	2					1									
Chosen (see table below).																			
Czechoslovakia (see table below).																			
Egypt	C	2	3	11	7														
	D	1	1	2	3														
Alexandria	C					1	1				1		1						
	D										1								
Assiout Province	C				2	2			2							1			
Assouan Province	C				2				1										
	D								1										
Behera Province	C	29	32	43	7	2													
	D		7	7	2														
Cairo	C	2	4			1		1											
	D	1	4			1		1											
Dakalieh	C				1	1													

Gharbieh Province	C	23	14	5	4	1													
	D		5		3														
Keneh Province	C	5	38		1														
	D		7		1														
Menoufieh Province	C		28	9	5									1					
	D		3	3	2									1					
Port Said	C					2		4	3	1			1		1				1
Suez	C			1		4	1	1	1	1		1		5	1	3			
	D			1															
Great Britain: London County	C				2														
Greece: Piræus	C				1														
Hungary: Budapest	D				2	2													
Ireland:																			
Belfast	C			2	1														
	D				1														
Irish Free State	C		1	4															
Cork County	C		1																
Dublin	C											3	1	1					
Galway County—Oughterard	C					10													
Kerry County—																			
Cahirciveen	C						1												
Tralee	C													1	7				
Japan (see also table below):																			
Hiogo	C				1														
Yamagata	C			2	2	2													
Latvia (see table below).																			
Lithuania (see table below).																			
Mexico (see also table below):																			
Durango	D					1													
Guadalajara	D			1		4													
Mexico City, including municipalities in Federal District	C	12	8	19	14	10	4	2		4	7	1	1	6	2	3	2	2	
	D	3	1	2		3	2			1	1						1		
Monterey	D	1																	
Morocco	C	748	591	280	214	153	39	2	2	1				3		1			
Palestine	C	7	6	4	8	9	5	3	3	3	2	2	3	3	4	5	1	1	2
Peru (see table below).																			
Poland	C	382	144	226	134	96	7	19	11	18	17	19	10	19	12	8			
	D	25	12	17	6	5									2	2			
Portugal: Oporto	C					1						1							
Rumania	C	141	142	99	80	33	8	1		7	5	3	3	1	2				
	D	11	12	8	11	1	1				1	1	1						
Syria: Aleppo	C				2				1										
Tunisia	C	18	19	7	7				1		7								
Sfax	C														11				
Union of South Africa:																			
Cape Province	C		P	P	P	P	P	P	P	P	P		P	P					
Natal	C		P	3	P	P							P	1					
Orange Free State	C		P	P	P	P													
Transvaal	C			1		P	P	P											
Union of Socialist Soviet Republics (see table below).																			
Yugoslavia (see table below).																			

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

TYPHUS FEVER—Continued

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

Place		January-March, 1928	April-June, 1928	July, 1928	August, 1928	September, 1928	October, 1928
Chosen	C	896	633	5	.....	.....	.....
	D	88	75	2	.....	.....	.....
Chemulpo	C	2	2	.....	.....	.....	.....
Gensan	C	1	.....	.....	.....	.....	.....
	D	1	.....	.....	.....	.....	.....
Seoul	C	10	46	5	.....	.....	.....
	D	1	6	2	.....	.....	.....
Czechoslovakia	C	25	.....	.....	.....	.....	.....
Greece: Athens	C	4	33	6	.....	.....	1
	D	.....	5	1	.....	.....	.....
Japan	C	.....	21	.....	.....	.....	.....
Latvia	C	27	7	.....	.....	.....	.....
Lithuania	C	223	162	12	15	.....	.....
	D	22	7	4	2	.....	.....
Mexico (see also table above)	D	46	.....	.....	.....	.....	.....
Peru:							
Arequipa	D	2	1	1	.....	.....	.....
La Oroya	C	P	.....	.....	.....	.....	.....
Turkey	C	17	15	6	4	6	.....
	D	1	2	.....	2	.....	.....
Union of Socialist Soviet Republics:							
Railways, etc	C	199	.....	.....	.....	.....	.....
Transcaucasus, Siberia, and Central Asia	C	17	.....	.....	.....	.....	.....
Ukraine	C	1,476	.....	.....	.....	.....	.....
Other territories in Europe	C	5,167	.....	.....	.....	.....	.....
Yugoslavia	C	34	55	12	.....	6	.....
	D	3	5	3	.....	.....	.....

Place		Feb. 12–Mar. 10, 1928	Mar. 11–Apr. 7, 1928	Apr. 8–May 5, 1928	May 6–June 2, 1928	June 3–30, 1928	July 1–28, 1928	Week ended— August, 1928 4	11	18	25	September, 1928 1	8	15	22	29	October, 1928 6	13
Belgian Congo: Matadi	C	1		2	2													
Brazil:																		
Aracaju	D				2													
Bahia [1]	C					4						1						
	D	1								1		1		1				
Estancia	C	1																
Pernambuco (Recife)	C					1												
Rio de Janeiro	C				2	48	40	6	4	4			4	4	1	3		
	D				2	15	21			2								
Sao Felix	C					P												
Dahomey: Grand Popo	C					3												
	D					2												
Gold Coast	C				2													
Ivory Coast	C					1												
	D					1												
Abidjan	C					1												
Ferkes-Sedougou	D						1	1										
On vessel: S. S. Bernini, at Santos, Brazil	C																	4
	D																	1

[1] A case of yellow fever was reported at Bahia, Brazil, Oct. 23, 1928.

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