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### **PUBLIC HEALTH REPORTS**

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#### MAY 4, 1928

#### NO. 18

#### THE CAUSES OF ILLNESS AT DIFFERENT AGES<sup>1</sup>

#### Hagerstown Morbidity Studies No. VII<sup>2</sup>

By EDGAR SYDENSTRICKER, Statistician, United States Public Health Service

In this paper the general results of the Hagerstown morbidity study which relate to the causes of illness at different ages are summarized briefly. The tables and graphs, it is believed, present the principal findings with respect to this phase of the inquiry, but a word or two of explanation may assist the reader who is not conversant with the previous reports in this series.

The record of illness was obtained from a responsible informant (usually the housewife) in each household canvassed by a trained field assistant and was supplemented by diagnoses from attending physicians in practically all cases where medical care was given, and by records of school attendance and of clinics. Forty-six per cent of the illnesses were attended by physicians; if we omit "colds" and minor digestive illnesses, 65 per cent were so attended and were diagnosed by medical practitioners. Two-thirds of the population studied were observed at intervals of 6 to 8 weeks for at least 24 of the 28 months, which was the duration of the study. Less than 1 per cent of the illnesses had to be classified as "ill-defined and unknown." For further details as to the scope and method of the study, definition of illness, etc., reference is made to the first paper of this series.

In those cases in which more than one cause was recorded, recourse was had to the practice followed in the classification of the causes of death, namely, to assign only one cause to each illness. This arbitrary procedure does not, however, affect a very large proportion

<sup>&</sup>lt;sup>1</sup> From the office of statistical investigations, U. S. Public Health Service.

<sup>&</sup>lt;sup>2</sup> Other Hagerstown morbidity studies published are-

I. A Study of Illness in a General Population Group: Method of Study and General Results. Pub. Health Rep., vol. 41, No. 39, Sept. 24, 1926. Reprint No. 1113.

II. The Reporting of Notifiable Diseases in a Typical Small City. Pub. Health Rep., vol. 41, No. 41, Oct. 8, 1926. Reprint No. 1116.

III. The Extent of Medical and Hospital Service in a Typical Small City. Pub. Health Rep., vol. 42, No. 2, Jan. 14, 1927. Reprint No. 1134.

IV. The Age Curve of Illness. Pub. Health Rep., vol. 42, No. 23, June 10, 1927. Reprint No. 1163. V. A Comparison of the Incidence of Illness and Death. Pub. Health Rep., vol. 42, No. 24, June 24, 1927. Reprint No. 1167.

VI. The Illness Rate Among Males and Females. Pub. Health Rep., vol. 42, No. 30, Jul y 29, 1927. Reprint No. 1172.

of the cases. Of the 17,847 illnesses observed, only 3.7 per cent had more than one cause or condition recorded. The procedure in classifying these cases according to a "primary" cause was as follows:

(1) The *first* cause in order of occurrence, applied largely to acute conditions with common complications, such as influenza and pneumonia, or measles and otitis media.

(2) Acute conditions ordinarily were given preference over an attack of some chronic condition. Thus, in case of grippe and chronic rheumatism, the grippe was considered primary.

(3) The condition or disease most specifically associated with the period of sickness was preferred over a minor condition which preceded or accompanied it. For example, in tooth abscess and rheumatism, the latter was made primary. When it was difficult to determine the factual basis, the more serious condition was chosen.

(4) The more specific cause was given preference over a statement of a symptom.

(5) When none of the above rules could be applied, and the history of the individual gave no basis for decision, the condition mentioned first by the informant was made primary. The number of such cases was very small.

The size of the experience in the different age groups employed is shown in the following table:

 

 TABLE 1.—Number of white persons observed for the incidence of illness in Hagerstown, Md., December 1, 1921-March 31, 1924, expressed in terms of "years of life observed," and classified by age

Age in years	Number of years of life observed	Age in years	Number of years of life observed
All ages <sup>i</sup>	16, 517	15-24	2, 526
0-4	1, 777	25-44	4, 643
5-9	2, 105	45-64	2, 575
10-14	1, 713	65 and over	810

<sup>1</sup> Includes 368 years of life observed in persons whose ages were not exactly enough known for classification according to the groupings used.

With respect to the term "years of life observed," it should be stated that of necessity certain individuals and families were observed for less than the entire period of the study. In order, therefore, to state the morbidity results in terms of annual incidence rates it was necessary to resort to the familiar device of expressing the population as the number of "year-persons," or the number of "years of exposure," or, to state it more precisely, perhaps, the number of "years of life observed" within each age category. No age group includes less than 810 such years of observation.

Since our immediate purpose is to indicate the general nature of illness, rather than the incidence of specific diseases, at different ages, the illnesses have been grouped into only 18 classes, with the exception of tonsillectomies, adenoidectomies, and other operations on the throat or nasal fossae which are shown separately. The scheme of classification used was the International List of Causes of Death, 1920 revision. This list, unsuitable as it is for any scientific classification, because of its illogical combination of anatomical, etiological, pathological, epidemiological, and other bases, is resorted to because it is the only classification generally used. Some departures, dictated by considerations which we believe will be apparent to anyone more interested in the causes of illness than in a mere scheme of classification, were made from it; but in the tables presented, the International List numbers are carried for definitive purposes.

The data so classified are presented in Table 2, together with the "years of life observed" within each age group. In Table 3 are given the annual rates, based upon the figures in Table 2.

**TABLE 2.**—Number of illnesses, by age groups, in which a specified disease or condition was the sole or primary cause in a group of white persons observed in Hagerstown, Md., December 1, 1921–March 31, 1924

							i
Number of illnesses in which the specified disease or con							
All	Age group						
ages 1	0-4	5-9	10-14	15-24	25-44	45-64	63+
16, 517	1, 777	2, 105	1, 713	2, 526	4, 643	2, 575	810
17, 847	2, 822	3, 270	2, 034	1, 871	4, 162	2, 553	875
1, 448 359	626 6	615 13	86 14	36 20	49 97	25 142	7 59
728 123 180 303	10 13 51 17	45 30 56 16	85 25 37 27	64 10 14 21	247 24 16 60	201 14 3 80	59 5 2 72
10, 844 120	1, 623 13	1, 901 66	1, 329 17	1, <b>244</b> 13	2, 618 10	1, 500 1	474
8 124	2	18	30	4 19	2 41	1 13	·····i
1, 594 182	271 15	298 11	213 6	148 10	316 44	255 64	76 30
183 395	2	1	13 1	39 108	86 273	34 3	5 
291	60	79	53	24	46	17	10
111	2	5	5	5	47	33	12
19 14	13	2	3				14
653 168	51 47	96 18	75 15	81 11	150 36	141 26	38 11
	Num All ages 1 16, 517 17, 847 1, 448 359 728 123 180 303 10, 844 120 8 124 1, 594 183 395 291 111 19 14 653 168	Number of i dit           All ages 1         -4           16,517         1,777           17,847         2,822           1,448         626           359         6           728         10           123         13           303         17           10,844         1,623           124         2           1,594         15           183         2           395         291           60         111           2         19           13         51           168         47	Number of illnesses * dition was           All ages 1	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$

Including unknown ages.

<sup>2</sup> Includes rash, hives, and "sores on body."

## **TABLE 3.**—Illness rates, by age groups, from specified diseases or conditions which were the sole or primary cause in a group of white persons observed in Hagerstown, Md., December 1, 1921–March 31, 1924

	Annual rate per 1,000							
Disease or condition (numbers in paren- theses refer to those given in the Inter- national List of Causes of Death, 1920)	All	Age group						
•	ages1	0-4	5-9	10-14	15-24	25-44	45-64	65+
Total illnesses	1, 080. 5	1, 588. 2	1, 553. 8	1, 187. 4	740.8	896.4	991.3	1, 079. 8
Epidemic, endemic, and infectious dis- eases (1-42, except 11 and 31)	87. 7 21. 7	352. 3 3. 4	292. 2 6. 2	50. 2 8. 2	14.3 7.9	10. 6 20. 9	9.7 55.1	8.6 72.8
part of 205) Diseases of the eyes and annexa (85) Diseases of ears and mastoid process (86) Diseases of the circulatory system (87-96).	44. 1 7. 4 10. 9 18. 3	5.6 7.3 28.7 9.6	21.4 14.3 26.6 7.6	49.6 14.6 2.6 15.8	25.3 4.0 5.5 8.3	53.2 5.2 3.4 12.9	78.0 5.4 1.2 31.0	72.8 6.2 2.5 88.9
Total respiratory (excluding operations) (11, 31, 97-107, 109). Tonsillectomy and (or) adenoidec- tomy. Other operations on threat and posed	<b>656.</b> 5 7. 3	913. 4 7. 3	903. 3 31. 4	775. 8 9. 9	<b>492.</b> 5 5. 1	563. 9 2. 2	582. 4 . 4	585.0
forse Diseases of teeth and gums (part of 108) Diseases and disorders of the digestive	.5 7.5	1. 1	8.6	17.5	1.6 7.5	.4 8.8	.4 5.0	1.2
system (110-127, part of 108 and 205) Diseases of kidney and annexa (128-134) Diseases of genito-urinary system (non-	96.5 11.0	152. 5 8. 4	141.6 5.2	124.3 3.5	58.6 4.0	68.1 9.5	99. 0 24. 9	93.8 37.0
venereal) (135-142) Puerperal state (143-150) Diseases of skin and cellular tissue (151-	11. 1 46. <b>4</b>	1.1	.5	7.6 1.2	15. 4 81. 5	18.5 110.2	13. 2 2. 3	6.2
154, part of 205)	17.6	33. 8	37.5	30. 9	9.5	9. 9	6.6	12.3
(155-158, part of 205) Congenital malformations and infancy	6.7	1.1	2.4	2.9	2.0	10. 1	12.8	14.8
(159–163) Senility (164) External causes(165–203)	1.2 .8 39.5	7.3 28.7	1.0 45.6	1.8 43.8	32.1	32.3	54.7	17.3 46.9
Ill-defined and unknown	10. 2	26.5	8.6	8.8	4.4	7.8	10. 1	13.6

<sup>1</sup> Including unknown ages.

 
 TABLE 4.—Relative importance of the various causes of illness at different ages, based on the Hagerstown study

Disease or condition		Per cent of total illnesses caused by specified causes and conditions at each age					
	0-4	5-9	10-14	15-24	25-44	45-64	65+
Total	100. 00	100.00	100.00	100.00	100.00	100.00	100.00
Epidemic, endemic, and infectious diseases	22, 18	18.81	4.23	1.92	1. 18	0.98	0.80
General diseases	. 21	. 40	. 69	1.07	2.33	5.56	6.74
Diseases of the nervous system	. 35	1.38	4.18	3.42	5, 94	7.87	6.74
Diseases of eye and annexa	. 46	. 92	1.23	. 53	. 58	. 55	. 57
Diseases of ear and mastoid process	1.81	1.71	1.82	. 75	. 38	. 12	.23
Diseases of circulatory system	.60	.49	1.33	1.12	1.44	3, 13	8.23
Diseases of respiratory system excluding oper-							
ations	57.51	58.13	65.34	66.49	62,90	58.75	54.17
Tonsillectomy and (or) adenoidectomy	. 46	2.02	. 84	. 70	. 24	.04	
Other operations on throat and nasal fosse				. 21	. 05	.04	
Diseases of teeth and gums	. 07	. 55	1.48	1.02	. 99	. 51	. 11
Diseases and disorders of the digestive system	9.60	9,11	10.47	7.91	7.59	9 99	8 69
Diseases of kidney and annexa	. 53	. 34	30	53	1 06	2 51	3 43
Diseases of genito-urinary system	. 07	.03	. 64	2.08	2.07	1 33	. 57
Puerperal state			.05	5 77	6 56	12	
Diseases of skin and cellular tissue	2.13	2.42	2 61	1 28	1 11	67	1 14
Diseases of bones and organs of locomotion	. 07	. 15	. 25	.27	1 13	1 29	1 37
Congenital malformations and infancy	.46	06	15		1. 10	1. 20	1.01
Senility	• ••						1 60
External causes	1.81	2.94	3 69	4 33	3 60	5 52	1 24
Ill-defined and unknown	1 67	51	74	50	87	1 11	1 26
	01	•••					1.20

The relative importance of the general groups of kinds of causes in different age periods is shown in the percentages given in Table 4. The predominance of respiratory causes, which account for over half of the illnesses in every age period, is the most striking feature of our findings. The relative importance of other groups of causes varies considerably from age to age, so that, comparing one age period with



FIG. 1.—The relative importance of the major groups of diseases as causes of illness in different periods of life in a white population group in Hagerstown, Md., Dec. 1, 1921-Mar. 31, 1924. In the diagram the total illness rate at any age is 100 per cent

another, there is a marked difference in the kinds and causes of sickness. In Fig. 1 an attempt has been made to depict these contrasts.

Each period of life is characterized by its own distribution of the causes of illness. In childhood, illness other than respiratory is caused chiefly by communicable diseases, diseases and conditions of the skin, ears, eyes, and teeth, and nervous and digestive disorders; in old age

illness other than respiratory is caused by the organic group of diseases and conditions—those of the circulatory system, nervous system, and kidneys. Illnesses resulting from all of these causes are at their lowest level in adolescence and young adult ages. The only *major* cause which results in a higher rate of disability in young adult life than at any other age is the puerperal condition, and this, of course,



FIG. 2.—Causes of illness at different eges in a white population group in Hagerstown, Md., Dec. 1, 1921-Mar. 31, 1924. Under "infectious" diseases are included the "epidemic, endemic, and infectious diseases," and under "organic" the following: Diseases of the eyes, ears, circulatory system, teeth and gums, kidney, and genito-urinary system

relates to females only. Certain specific causes of illness do have their highest incidence in the young adult period of life, such as venereal diseases, typhoid fever, and pulmonary tuberculosis except under conditions of special strain or hazard. But, by and large, this is the age most free from illness from the great majority of causes.

Since the diagram we have been discussing (fig. 1) exhibits only the relative importance of the causes of illness at different ages, we have plotted graphs in Figures 2 and 3 to show the actual variations in the illness rates from the major groups of causes. The importance of respiratory diseases and conditions as causes of illness is again emphasized; but their great height in childhood, their lowest level in adolescent and young adult periods (15-24 years), and their gradual rise with the advance of age are quite striking. They characterize illness in both extremes of life more than any other general disease group; although, with the exception of infectious diseases, circulatory





diseases, and diseases of the bones and of "organs of locomotion" which so clumsily describes diseases that affect certain muscles nearly all of the major groups of causes of illness tend to appear among the very young and among the old.

In contrast to the organic troubles which so definitely begin to be manifested in middle life and which characterize old age, are the infections and the diseases and conditions affecting the skin, teeth, eyes, and ears (fig. 4) that occur with greatest frequency in childhood. With this general view of the causes of illness at different ages, it is purposed to present in more detail in the next paper the age variations in the incidence of a number of specific diseases and conditions in so far as they were manifested in illness in the Hagerstown group.

#### ACKNOWLEDGMENTS

The continuous field observations upon which the foregoing report is based were made by the following assistants: F. Ruth Phillips,





Mrs. Mary King Phillips, Louise Simmons, Mrs. Clara Bell Ledford, Clarice Buhrman, and Mrs. Alcesta Owen, under the immediate supervision of Passed Asst. Surg. R. B. Norment, jr., Acting Asst. Surg. A. S. Gray, and later, Surg. C. V. Akin.

In the analysis of the data I am especially indebted to Miss Phillips and to Associate Statistician S. D. Collins and Assistant Statistician Dorothy G. Wiehl, and other members of the statistical staff, as well as to several officers of the Public Health Service for constant advice on medical points.

#### WHOLE-TIME COUNTY HEALTH OFFICERS, 1928

The following directory has been compiled from data furnished as of January 1, 1928, by State health officers. Similar directories for the years 1922 to 1927, inclusive, have been published in the PUBLIC HEALTH REPORTS. The directory for 1927 was issued as Reprint No. 1164.

In the questionnaire sent for the purpose of obtaining the necessary information, a "whole-time" county health officer was 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."

Directories of State health departments have been published annually by the Public Health Service for the years 1912 to 1927, inclusive. The directory for 1927 was issued as Reprint No. 1188 from the PUBLIC HEALTH REPORTS.

Directories of city health officers have been published annually for the years 1916 to 1927, inclusive, the directory for 1927 being Reprint No. 1177.

Directories of State and city health officers for 1928 will be published later.

State and county	Name of health officer	Post-office address	Official title
Alabama:			
Baldwin	G. C. Marlette, M. D	Bay Minette	County health officer.
Barbour	E. M. Moore, M. D	Clayton	Do.
Calhoun	G. A. Cryer, M. D	Anniston	Do.
Chambers	C. W. McDonald, M. D.	Lafayette	Do.
Coffee	H. P. Rankin, M. D	Elba	Do.
Colbert	W. T. Burkett, M. D	Tuscumbia	Do.
Covington	R. B. Archibald, M. D	Andalusia	Do.
Cullman	V. P. Hughes, M. D	Cullman	Do.
Dale	W. S. Gilchrist, M. D	Ozark	Do.
Dallas	L. T. Lee, M. D	Selma	Do.
Elmore	A. H. Graham, M. D	Wetumpka	Do.
Escambia	V. P. Roberts, M. D	Brewton	Do.
Etowah	W. H. Harper, M. D	Gadsden	Do.
Franklin	L. J. Graves, M. D	Russellville	Do.
Houston	L. R. Poole, M. D	Dothan	Do.
Jefferson	J. D. Dowling, M. D.	Birmingham	Do.
Lauderdale	W. D. Hubbard, M. D	Florence	Do.
Lawrence	R. E. Harper, M. D	Moulton	Do.
Lee	C. M. Moore, M. D	Opelika	Do.
Limestone	L. R. Murphree, M. D	Athens	Do.
Madison	W. C. Hatchett, M. D	Huntsville	Do.
Marengo	J. R. Long, M. D	Linden	Do.
Marshall	D. C. Jordan, M. D	Guntersville	Do.
Mobile	C. A. Mohr, M. D	Mobile	Do.
Monroe	T. E. Tucker, M. D	Monroeville	Do.
Montgomery	J. L. Bowman, M. D.	Montgomery	Do.
Morgan	H. C. McRee, M. D	Decatur	Do.
Pike	W. H. Abernethy, M. D.	Troy.	Do.
Sumter	J. S. Hough, M. D.	Livingston	Do.
Talladega	J. H. Hill, M. D.	Talladega	Do.
Tallapoosa	W. E. Wilson, M. D	Dadeville	Do.
Tuscaloosa	A. A. Kirk, M. D	Tuscaloosa	Do.
Walker	A. M. Waldrop, M. D	Jasper	Do.
Arizona:		-	•
Cochise	R. B. Durfee, M. D	Bisbee	City and county health officer.
Coconino	G. F. Manning, ir., M. D.	Flagstaff	Do.
Yuma	Harry A. Reese, M. D.	Yuma	Do.
Arkansas:			
Ashley	M. F. Houston, M. D.	Hamburg	Medical director.
Chicot	W. D. Easterling, M. D.	Lake Village	Do.
Conway	W. H. Bruce, M. D	Morrilton	Do.
Crittenden	J. T. Irby, M. D.	Marion	Do.
Cross	J. D. McKie, M. D	Wynne	D <b>o</b> .

State and county	Name of health officer	Post-office address	Official title
Arkansas-Continued.			
Desha	J. C. Miller, M. D	McGehee	Medical director.
Drew	G. W. Jones, M. D.	Hot Springe	. Do.
Gariand	W P Mooro M D	Newport	. D0
Jackson	A Have M D	Pine Bluff	. Do.
Little River	F A Norwood M D	Ashdown	Do.
Mississinni	A. M. Washburn, M. D.	Blytheville	Do.
Monroe	A. J. Dunklin, M. D.	Clarendon	Do
Phillips	W. B. Bruce, M. D	Helena	Do.
Pope	A. B. Tate, M. D	Russellville	Do.
Pulaski	V. T. Webb, M. D	Little Rock	Do.
Saline	T. F. Ballard, M. D.	Benton	Do.
Union	Gordon Hastings, M. D	El Dorado	Do.
Woodruff	J. F. Hays, M. D	McCrory	Do.
	T. J. P001, M. D	018	D0.
California:	I L Pomerov M D	Los Angeles	County health officer
Montorov	R C Main M D	Salinas	Do Do
Orange	K H Sutherland, M. D	Santa Ana	Do.
Riverside	W. B. Wells, M. D.	Riverside	Do
San Diego	Alex M. Lesem, M. D	San Diego	Do.
San Joaquin	J. J. Sippy, M. D	Stockton	District health officer.
San Luis Obispo	Allen F. Gillihan, M. D.	San Luis Obispo	County health officer.
Santa Barbara	F. G. Crandall, M. D	Santa Barbara	Do.
Yolo			
Colorado: Otero	Guy A. Ashbaugh, M. D.	Rocky Ford	Do.
Connecticut: Fairfield	Lawrence E. Poole, M. D.	Fairfield	Health officer and
Florida:			school physician.
Polk	W. M. Bevis, M. D	Bartow	County health officer.
Manatee	J. R. Scully, M. D	Sarasota	Do.
Sarasota	do	do	Do.
Georgia:	C A Anderson M D	Milledgewille	
Baldwin	D H Manroe M D	Contensville	Commissioner of nealth,
Barlow Bibb	I D Applewhite M D	Macon	D0.
Brooks	R E McClure M D	Quitman	Do.
Chatham	V. H. Bassett, M. D.	Savannah	Do
Clarke	B. B. Bagby, M. D	Athens	Do.
Cobb	J. E. Lester, M. D	Marietta	Do.
Coffee	T. H. Johnston, M. D	Douglas	Do.
Colquitt	T. B. Harper, M. D	Moultrie	Do.
Crisp	P. H. Smith, M. D	Cordele	Do.
Decatur	M. A. Fort, M. D.	Bainbridge	Do.
De Kalb	J. R. Evans, Ph. G., M. D.	Decatur	Do.
Dougnerty	M. D.	Aloany	D0.
Floyd	B. V. Elmore, M. D.	Rome	Do.
Glynn	H. L. Akridge, M. D	Brunswick	Do.
Hall	C. J. weilborn, M. D	Gainesville	D0.
Laurens	O. H. Cheek, M. D.	Dublin	100. De
Lownges	C O Poiney M D	Comillo	D0.
Richmond	Victor Boule M D	A ngusta	Do.
Snalding	W C Humphries M D	Griffin	Do
Sumter	W. H. Houston, M. D.	A mericus	Do.
Thomas	J. W. Wallace, M. D.	Thomasville	Do.
Troup	S. C. Rutland, M. D.	La Grange	Do.
Walker	J. H. Hammond, M. D	La Fayette	Do.
Ware	G. E. Atwood, M. D	Waycross	Do.
Washington			
Illinois: Cook	Herbert L. Wright, Ph. G.,	Chicago, 737 South	Director of health.
Du Du u	M. D., Dr. P. H.	Lincoln.	The lab a fact
Morgan	W. K. Murray, M. D W. H. Newcomb, M. D	Jacksonville	Do.
Nailsas: Butlor	P. I. Cabeen M. D.	Fldorado	County health officer
Charokee	C C Fuller M D	Columbus	Do
Filie	F C Cave M D	Have	Do.
Geory	R B Stafford M D	Junction City	Do.
Greenwood	C. L. Miller, M. D.	Eureka	Do.
Jefferson	G. D. M. Lambdin, M. D.	Oskaloosa	Do.
Lyon	J. S. Fulton, M. D.	Emporia	Do.
Marion	J. H. Saylor, M. D.	Marion	Do.
Ottawa	C. R. Hepler, M. D.	Minneapolis	Do.
Shawnee	F. E. McCord, M. D	Topeka	Do.
Kentucky: Ballard	G. L. Thompson, M. D	Wickliffe	Director, county health
Dovid	D D Uigging M D	Achland	department.
Breathitt	Luther Bach M D	Jackson	Do.
Dicatilite	manuel Dacis M. D	• at ROUL	<b>1</b> /0,

State and county	Name of health officer	Post-office address	Official title
Kentucky—Continued. Carlisle	R. K. Galloway, M. D	Bardwell	Director, county health
Conton	G E Cool M D	Greveon	department.
Daviess	R. M. Hathaway, M. D.	Owensboro	Do.
Elliott	P. L. Hawk, M. D	Sandy Hook	Do.
Estill	J. W. Miller, M. D.	Irvine	Do.
Fayette	F. P. Allen, M. D.	Prostonsburg	D0.
Fulton	Hugh E. Prather. M. D.	Hickman	Do.
Henderson	F. C. Campbell, M. D	Henderson	Do.
Hickman	Charles Hunt, M. D	Clinton	Do.
Hopkins	M. E. Loitus, M. D.	Madisonville	D0.
Knott	J. W. Duke, M. D	Hindman	Do.
Lawrence	W. L. Orr, M. D	Louisa	Do.
Lee	Edwin Cameron, M. D	Beattyville	Do.
Leslie	Daniel V. Sublett, M. D.	Hyden	Do.
Magoffin	T. F. Long, M. D	Salversville	Do.
Martin	Wm. N. Keith, M. D.	Inez	Do.
Mason	J. H. Hutchings, M. D	Maysville	Do.
McLean	J. S. Fitzhugh, M. D	Calhoun	Do.
Morgan	W H Wheeler M D	West Liberty	Do.
Owsley	O. M. Goodlee, M. D	Boonville	Do.
Perry	J. W. Davis, M. D	Hazard	Do.
Pike	A Stamont M D	Georgetore	Da
Webster	Roy Orsburn M D	Diron	Do. Do
Wolfe	J. L. Cox. M. D.	Campton	Do.
Louisiana: 1			
Assumption Avoyelles	T. G. Scott, M. D. C. W. Strowger, M. D.,	Marksville	Director of health. Do.
Caddo	W I Sandidge M D	Shrevenort	Do
Caldwell	W. R. King, M. D.	Columbia	Do.
Catahoula	J. R. Carter, M. D.	Harrisonburg	Do.
Claiborne	R. C. Farrier, M. D.	Homer.	Do.
De Soto	R. H. Allen, M. D.	Mansfield	Do. Do
East Carroll	10. II. I hat p, M. D.	Lake Providence	Do.
Franklin	N. C. Berry, M. D	Winnsboro	Do.
Iberia	R. M. Primer, M. D	New Iberia	Do.
Lalayette	D. C. Johnson, M. D	Thibodaux	Do.
La Salle	J. M. Kittrell, M. D	Jena	Do.
Madison	L. R. Craig, M. D	Tallulah	Do.
Morehouse	J. W. Williams, M. D.	Bastrop	Do.
Natchitocnes	W. W. Knipmeyer, M. D.	Monroe	Do.
Plaquemines	B. C. Buwards, M. D.	Womoe	20.
Rapides	E. Klamke, M. D	Alexandria	Do.
Richland	L. Treadway	Rayville	Do.
St. Martin	R. J. Gillespie, M. D.	St. Martinsville	Do.
Tanginahoa	B. L. Stinson, M. D	Amite	D6.
Tensas	N. P. Liles, M. D.	St. Joseph	Do.
Washington	John Schreiber, M. D	Franklinton	Do.
Webster	E. B. Godfrey, M. D.	Minden	D0. D0
Maine 2	C. H. Fennet, M. D.	Oak Glove	<b>D</b> 0.
Motboy Union	H. L. Jackson, M. D.	Old Town	
Rumford	Thos. S. Burr, M. D.	Rumford	
Sanford	W. H. Kelly, M. D.	Sanford	
Vassaiboro Morvland:	A. R. Davian, M. D.	vassarboro	
Allegany	C. C. McCulloch, M. D	Cumberland	Deputy State health offi- cer.
Baltimore	J. S. Bowen, M. D	Towson	Do.
Calvert	I. N. King, M. D.	Prince Frederick	Do.
Krederick	F C Kefauver M D	Frederick	Do.
Montgomerv	W. T. Pratt, M. D.	Rockville	Do.
Prince Georges.	W. S. Keister, M. D.	Upper Marlboro	Do.
Talbot	C. A. Kane, M. D	Easton	Do.
Massachusetts: Barnstable	A. P. Goff, M. D	Hyannis	County health officer.
St. Louis	Gideon J. Ferreira, B. Sc., M. D.	Duluth	Do.
	Parishes.	<sup>2</sup> Towns.	

#### May 4, 1928

State and county	Name of health officer	Post-office address	Official title
Mississinni			
Bolivar	R. D. Dedwylder, M. D	Cleveland	Director of health.
Clarke	J. T. Googe, M. D.	Quitman	Do.
Coanoma	W D Beacham M D	Hattiesburg	. D0. D0.
Hancock	C. M. Shipp, M. D.	Bay St. Louis	Do.
Harrison	D. J. Williams, M. D	Gulfport	Do.
Hinds	W. E. Noblin, M. D	Jackson	Do.
Holmes	B. D. Blackweider, M. D	Belzoni	D0.
Issaguena	D. S. Johnson, M. D.	Mayersville	Do.
Jackson	R. G. Lander, M. D	Pascagoula	Do.
Jones	W. B. Harrison, M. D.	Laurel	Do.
Lamar	C. St. C. Guild, M. D	Tunelo	Do.
Leflore	C. P. Coogle, M. D.	Greenwood	Do.
Pearl River	John W. Shackelford, M. D.	Poplarville	Do.
Perry	B. T. RODINSON, M. D.	Rolling Fork	Do.
Sunflower	M. C. Balfour, M. D	Indianola	Do.
Tishomingo	T. Paul Henry, jr., M. D	Iuka	Do.
Union	C. M. Roberts, M. D. (Acting).	New Albany	Do.
Warren	F. M. Smith, M. D	Vicksburg	Do.
Washington	W W Neshit M D	Veron City	Do. Do
Missouri:	W. W. Nesolt, M. D	1 2200 City	<b>D</b> 0.
Boone	Finis Suggett, M. D	Columbia	County health officer.
Dunklin	E. L. Spence, M. D.	Springfield	Do.
Holt	J. W. Williams, Jr., M. D.	opringheiu	D0.
Jackson	J. T. Brennan, M. D	Independence	Health Commissioner.
Marion	E. M. Lucke, M. D	Hannibal	County health officer.
New Madrid	Wm, N, O'Bannon, M, D.	New Madrid	Do.
Nodaway	C. P. Fryer, M. D.,	Maryville	Do.
Pemiscot	D. P. H. W. S. Petty, M. D	Caruthersville	Do.
Petlis	U P How M D	Benton	De
St. Francois	W. W. Johnston, M. D	Flat River	Do.
St. Louis	A. E. Walters, M. D	Clayton	Health Commissioner.
Montana: Cascada	Thos F Walker M D	Great Falls	County health officer
Lewis and Clark	Arthur Jordan, M. D	Helena	Do.
Missoula	F. D. Pease, M. D	Missoula	Do.
Bernalillo	J. S. Scott. M. D.	Albuquerque	Do.
Chaves		Roswell	Do.
Dona Ana	C. W. Gerber, M. D.	Las Cruces	Do.
Santa Ke	H P Mara M D	Carisbau Sente Fe	Do. Do
Union	C. H. Douthirt, M. D.	Clayton	Do.
Valencia	P. H. McNellis, M. D	Los Lunas	Do.
New York: Cattaraugus	R. M. Atwater, M. D.,	Olean	Acting County health
North Carolina:			
Beaulort	Jonn W. Williams, M. D.	Washington	County health officer.
Bladen	R. S. Cromartie, M. D.	Elizabethtown	D0.
Brunswick	R. E. Broadway, M. D	Southport	Do.
Buncombe	G. A. Morgan, M. D.	Asheville	Do.
Caparius	T C Britt M D	Concord	Do. Do
Columbus	Floyd Johnson, M. D	Whiteville	Do.
Craven	D. E. Ford, M. D.	New Bern	Do.
Cumberland	J. W. McNeill, M. D.	Fayetteville	Do. Do
Durham	J. H. Epperson, M. D.	Durham	D0.
Edgecombe	A. C. Norfleet, M. D.	Tarboro	Do.
Forsyth	J. K. Hege, M. D.	Winston-Salem	Do.
Guilford.	R. M. Buie, M. D.	Greensboro	Do.
Halifax	Z. P. Mitchell, M. D.	Weldon	Do.
Henderson	J. H. Woodcock, M. D.	Hendersonville	Do.
Jonnston	B. S. McGeachy M. D.	Suntainela	100. Do
Mecklenburg	W. A. McPhaul, M. D	Charlotte	Do.
Nash	G. F. Reeves, M. D.	Nashville	Do.
New Hanover	M H Seawell M D	wiimington	100. Do
Pamlico	D. A. Dees, M. D	Bayboro	Do.

State and county	Name of health officer	Post-office address	Official title
North Carolina-Contd.		<b>a</b>	Country hashing my
Pitt	W.E. Futrell, M. D.	Greenville	County health officer.
Richmond	A. B. McCreary, M. D.	Rockingham	Do.
Robeson	C W Armstrong M D	Saliehury	Do
Rutherford	J. C. Twitty, M. D	Rutherfordton	Do.
Sampson	John D. Kerr, M. D	Clinton	Do.
Surry	G. H. Sumner, M. D	Mount Airy	Do.
Vance	F. R. Harris, M. D.	Henderson	Do.
Wake	I. W. Corbett M. D.	Goldeboro	
Wilkes	J. W. White, M. D.	Wilkesboro	Do.
Wilson	L. J. Smith, M. D	Wilson	Do.
Ohio: Allen	J. J. Sutter, M. D	Lima	District health commis-
Ashtabula	W. S. Weiss, M. D	Jefferson	Do.
Belmont	F. R. Dew, M. D	St. Clairsville	Do.
Clammont	F A Ireton M D	Refevie	Do.
Clinton	W. K. Ruble, M. D.	Wilmington	City and county health
Cimon			officer.
Columbiana	T. T. Church, M. D	Lisbon	Do.
Coshocton	D. M. Chswell, M. D	Ruovens	District health commis-
	G. 1. Wasson, M. D	Ducylus	sioner.
Cuyahoga	Robert Lockhart, M. D	Cleveland	City and county health officer.
Darke Delaware	B. B. Barber, M. D.	Ashlev	Do. District health commis-
Erie	F. M. Houghtaling, M. D.	Sandusky	sioner. City and county health
Favette	James F. Wilson, M. D.	Washington Court	officer. Do.
Franklin	P. B. Wiltberger, M. D	House. Columbus	District health commis-
0	Walter Corer M. D.	Chandon	sioner.
Hamilton	C A Neel M D	Cincinneti	Do.
Hancock	S. F. Whisler, M. D.	Findlay	Do.
Hocking	E. R. Hiatt, M. D	Logan	City and county health
Huron	B. C. Pilkey, M. D	Norwalk	officer. District health commis- sioner
Jefferson	J. P. Young, M. D	Steubenville	Do.
Lake	Walter Corey, M. D	Painesville	Do,
Lorain	C. D. Barrett, M. D	Oberlin	Do.
Lucas	F. F. Devore, M. D.	Toledo	Do.
Marion	N. Sifritt, M. D	Marion	Do.
Meigs	Jane Nye Gilliford, M. D.	Pomeroy	Do.
Mercer	F. E. Ayers, M. D	Celina	Do.
Miami	P. J. Crawford, M. D	Troy	City and county nealth
Montgomery	H. H. Pansing, M. D	Dayton	District health commis- sioner.
Morrow	R. L. Pierce, M. D	Mount Gilead	Do.
Muskingum	J. M. O'Neal, M. D	Zanesville	Do.
Perry	F. J. Crosble, M. D.	New Lexington	Do.
Richland	Charles L. Shaver, M. D.	Mansfield	City and county health officer.
Ross Sandusky	R. E. Bower, M. D O. H. Thomas, M. D	Chillicothe Fremont	Do. District health commis-
Scioto	R. W. DeCrow, M. D.	Wheelersburg	Do.
Seneca	J. J. Heaton, M. D	Tiffin	Do.
Shelby	B. S. Stephenson, M. D	Sidney	City and county health
Stark	Chester M. Peters, M. D.	Canton	District health commis-
Summit	R. H. Markwith, M. D	Akron	City and county health
Trumbull	L. A. Connell, M. D	Warren	District health commis-
Tuscarawas	J. Blickensderfer, M. D	New Philadelphia	City and county health
Washington	Alfred G. Sturgiss, M. D .	Marietta	omcer. District health commis-
Wayne	W. G. Rhoten, M. D	Wooster	City and county health
Wood	H. J. Powell, M. D	Bowling Green	Do.
		-	

#### May 4, 1928

State and county	Name of health officer	Post-office address	Official title
Oklahoma: Carter	John L. Dorough, M. D	Ardmore	County superintendent
Kow.	David M. Coweill M. D	Nowkirk	of health.
Leflore	W. F. Lunsford. M. D.	Poteau	
McCurtain	R. D. Williams, M. D	Idabel	Do.
Muskogee	C. P. H.	., MUSKOgee	D0.
Okmulgee	J. O. Wails, M. D	Okmulgee	. Do.
Ottawa Bitteburg	Fred P. Helm, M. D	Miami Mo Alester	<u>Do</u> .
Seminole	George Hunter, M. D	Wewoka	D0.
Oregon:		0	
Clackamas	P. M. Drake, M. D	Coonille	County health officer
Douglas	T. W. Laraway, M. D.	Roseburg	Do.
Jackson	L. D. Inskeep, M. D.	Medford	Do.
Marion	Vernon Douglas, M. D	Salem	- D0. D0
Multnomah		Portland	. Do.
South Carolina:	W C Podia M D	A 20-00	D
Anderson	E. E. Epting, M. D.	Anderson	- D0. D0
Beaufort	H. B. Senn, M. D.	Beaufort.	. Do.
Charleston	Leon Banov, M. D.	Charleston	- Do.
Darlington	A. B. Hooton, M. D	Darlington	- D0. D0
Dillon	C. C. Freed, M. D.	Dillon	. Do.
Fairfield	H. T. Kennedy, M. D	Minnsboro	- Do.
Greenville	Bayliss Earle, M. D.	Greenville	D0.
Greenwood	Robert D. Hill, M. D	. Greenwood	Do.
Horry	G. S. T. Peeples, M. D.	Conway	. Do.
Newberry.	H. G. Callison. M. D.	Newberry	- Do. Do.
Orangeburg	G. C. Bolin, M. D	Orangeburg	Do.
Spartanburg	L. L. Williams, M. D	Spartanburg	. Do.
Pennington	A. N. Crain, M. D	Rapid City	Do.
Tennessee:	TA Demont M. D	3.5	
Bradley	H. M. Roberson, M. D	Cleveland	Director of health.
Davidson	J. J. Lentz, M. D.	Nashville	Do.
Dyer Gibson	Uwen F. Agee, M. D.	Dyersburg	Do.
Hamilton	J. C. Eldridge. M. D.	Chattanooga	Do.
Lake.	James P. Moon, M. D.	Tiptonville	Director of health.
Lauderdale	John E. Cunning, M. D.	Ripley.	County health officer.
Obion	C. B. A. Turner, M. D.	Union City	Do.
Roane	J. C. Fly, M. D.	Kingston	Do.
Sevier	C. S. Kinzer, M. D	Sevierville	Do. Director of health
Shelby	L. M. Graves, M. D.	Memphis.	County health officer.
Washington	S. S. Moody, M. D.	Jonesboro	Director of health.
Williamson	W. C. Williams, M. D	Franklin	Do
Texas:			20.
Hidalgo	I R Mahone M D	San Benito	Do.
McLennan	R. McCormick, M. D.	Waco	Do.
Tarrant	F. P. Smith, M. D	Fort Worth	Do.
Box Elder	R. H. Wilson, M. D.	Brigham City	Da
Davis	Sumner Gleason, M. D.	Kaysville	Do.
Summit	R. O. Johnson, M. D	Park City	District health officer.
Wasatch	R. O. Johnson, M. D	Provo	District health officer
'irginia:			District nearth onicer.
Accomac	F. J. Wampler, M. D.	Accomac.	County health officer.
Arlington	P. M. Chichester, M. D.	Clarendon	Do. Do
Augusta	H. M. Wallace, M. D	Staunton	Do.
Halifax	E. L. McQuade, M. D	Laurenceville	Do.
Henrico	W. H. Pott, M. D.	Richmond	D0. D0.
Isle of Wight	J. B. Woods, M. D	Smithfield	Do.
Norfolk	L C Riggin M D	Suffolk	Do.
Northampton	F. J. Wampler, M. D.	Accomac	Do. Do.
Princess Anne	I. C. Riggin, M. D	Portsmouth	Do.
Southampton	K. P. COOKE, M. D.	Lexington	Do.
		Courtianu	D0.

State and county	Name of health officer	Post-office address	Official title
Washington:			
Chelan	Paul West, M. D.	Wenatchee	County health officer.
King	C. L. Dixon, M. D	Seattle	I.o.
Snohomish	H. M. Berge, M. D	Everett	Do.
Spokane	W. M. Newman, M. D	Spokane	Do.
Walla Walla	Geo. H. T. Sparling, M. D.	Walla Walla	Do.
Whitman	R. J. Skaife, M. D.	Colfax	Do.
Yakima	H. Storgaard, M. D.	Yakima	Do.
West Virginia:			
Berkelev.	W. Ross Cameron, M. D.	Martinsburg	Do.
Boone	G. W. Luckey, M. D	Madison	Do.
Brooke	W. J. McDonald, M. D.	Wellsburg	Do.
Gilmer	A L Oilar M D	Glenville	Do.
Hancock	A E McClure M D	New Cumberland	Do
Harrison	V A Selby M D D P	Clarkshurg	Do
	Н	Clarkbourg	20.
Kanawha	John Themes M D	Charleston	Do
Lewis	H B Neegle M D	Weston	Do
Logan	P B Wingfield M D	Logon	Do
Merion	H M Betson M D	Feirmont	Do.
Marchell	I H MaCall M D	Mounderille	Do.
Obio	W H Meloin M D	Wheeling	Do.
Dreeton	I U Lowie M D	Wingwood	Do.
Wood	T P Mayor M D	Portorchurg	Do.
Vyoming:	- 1. 1. Micyci, M. D	I GINCISUUI B	D0.
Notrono	IL Comt M D	Coopier	Director of health
Nationa	. n. Gaist, M. D	Casher	Director of nearth.

#### UNIVERSITY OF MICHIGAN SUMMER COURSES IN PUBLIC HEALTH

The University of Michigan offers two groups of courses in hygiene and public health during the coming summer session, which is to be held this year from June 25 to August 3.

The public health training courses will include the following subjects:

- (a) General hygiene and public health.
- (b) Child hygiene.
- (c) School hygiene.
- (d) Methods and materials in health education.
- (e) Communicable diseases and epidemiology.
- (f) Nutrition.
- (g) Public health nursing.
- (h) Mental hygiene and psychiatry.
- (i) Vital statistics.
- (j) Tuberculosis.
- (k) Organization and administration of health education.

Many other courses will be offered which will be of interest and value to public health workers. These will include biology, chemistry, bacteriology, sociology, education, psychology, and medicine.

The course in tuberculosis should prove to be of particular interest to all persons engaged in antituberculosis work. The nursing, medicosocial, and community aspects of tuberculosis will be considered. The course will be conducted by several of our leading specialists in tuberculosis.

In addition to the above, a special Public Health Institute will be conducted on Friday and Saturday of each week during the summer session. This institute is arranged primarily for those who are engaged in public health activities and find it impossible to leave their work for the six weeks of the regular summer session, but can arrange to get away from their labors for two days each week. It consists of six class periods on each Friday and Saturday for six weeks—making a total of 72 class periods. The class periods are arranged to cover the various fields of public health.

#### PUBLIC HEALTH ENGINEERING ABSTRACTS

First Principles in Sewage Disposal. F. C. Temple. *The Surveyor*, vol. 73, No. 1883, February 24, 1928, p. 259. (Abstract by H. W. Streeter.)

A reply to discussions of Mr. Temple's paper, presented at the Public Works, Roads, and Transport Congress at London in November, 1927. Mr. Temple points out the differences existing in the conditions affecting the operation of storm-water tanks in tropical countries, as compared with more temperate climates. In the former case, tanks may be made smaller, but must be filled with clean water between rainy periods in order to provide sufficient capacity for extremely heavy flushings of solid matter accompanying the first tropical rains following long droughts. As regards damage caused by trade wastes, he draws a parallel to aerial nuisances, which are controlled by law. He discusses the standardization of terms defining the relative strength of sewage, noting that an Indian "strong" sewage is stronger than any British sewage, which, in turn, is stronger than American sewage.

Methods Used by Oil Company Stop Pollution of Streams. Charles W. Geiger. Water Works Engineering, vol. 81, No. 2, January 18, 1928, p. 90. (Abstract by Frank Raab.)

At the El Segundo refinery, the Standard Oil Co. of California pumps about 20,000,000 gallons of salt water daily from the ocean. The water is used for cooling purposes in the refining of oil. In its way through the refinery the water picks up a certain amount of oil from leaks, spills, etc. The oil is about one-tenth of 1 per cent of the volume of water used. This oil is removed from the water before the latter is returned to the ocean. The article describes the method used in separating the oil and water by passing it through a tank or series of tanks or compartments and over skimming baffles in an action which keeps the water and oil moving toward the surface, thus assisting and accelerating the movement of the oil to the surface where it is pumped off. The above plant removes all traces of oil from the water.

**Deep-Pit Sludge Digestion at Indianapolis Sewage Works.** C. K. Calvert. *Engineering News-Record*, vol. 100, No. 6, February 9, 1928, pp. 230-231. (Abstract by C. H. Kibbey.)

Sludge containing 7.72 and 1.12 per cent solids, respectively, is pumped to digestion pits. Pits are about 300 feet square, with a depth of 7 to 10 feet. The nature of the soil beneath the pits permits water to escape to such extent that it is only occasionally necessary to remove any quantity of free water, although skimming boxes are provided for the removal of liquor at any depth.

No chemical or temperature control is provided. A pit receives sludge until it is full, and the flow is then diverted to another pit until the level of the sludge in the first pit is lowered by filtration into the ground. This brings about a series of intermittent fillings and effects some seeding. During filling periods, pits become more acid, especially in cold water. Primary sludge enters the pit at a pH of about 6.8 and the activated sludge at 7.3. Under normal filling conditions the mixed sludge seldom drops during digestion below 6.8, and, on standing, without the addition of fresh sludge, goes to 7.8 and 8 in a short time. Above figures indicate conditions under which digestion usually takes place, but hard and fast reaction and time figures can not be given. Relative amounts of fresh and digested sludge and the temperature govern the rate of reaction change.

A tabulation showing figures obtained in taking stock of sludge in the various pits is given. The large reduction in volume is attributed to the nature of the soil underlying the pits and the extent of digestion of solids to the long period of time involved, although the method of filling produces a mixture of some very old and some very fresh sludge in each pit. The mixture has never drained to less than 80 per cent of moisture, and for the most part a moisture content of about 85 per cent obtains.

The author believes that, as the proportion of activated sludge increases, satisfactory draining becomes more difficult and that drying beds will be required to put sludge in a condition to be handled. The present use of sludge by growers has not solved the problem of disposal, but its use may be developed and extended as growers become familiar with its advantages.

Water Supply, Sewage Treatment, and Refuse Disposal in 1927. H. B. Cleveland. Public Works, vol. 59, No. 1 January, 1928, pp. 14-18. (Abstract by R. J. Faust.)

Sewage treatment.—The year 1927 has marked a decided increase in interest on the part of the general public in sewage treatment in eliminating stream pollution. This resulted in the enactment of State laws providing for joint sewer districts, for assessment of sewage-disposal costs as a utility, and for legislative and departmental investigation of stream pollution problems.

Major plants completed, under construction, or planned are as follows: North Side, West Side, and Southwest Side plants at Chicago; a \$20,000,000 Imhoff tank plant for Detroit has been recommended and approved; a Metropolitan Drainage Commission has been appointed to work out plans for joint sewage treatment for St. Paul and Minneapolis. An increasing favor toward separate sludge digestion is noted for smaller plants.

The principal studies on research on which conclusions were reached are as follows: (1) Hydrogen sulphide production, with particular reference to the effects of unfiltered sea water; (2) the effect of comparatively small amounts of chlorides (as found in sea water) is slight; (3) sewage screenings contain comparatively large quantities of carbonaceous materials, but may be digested rapidly under proper conditions; (4) all fats may eventually be digested, but not necessarily within economic limits; (5) at the optimum temperature of 80° F., the permissible daily addition of fresh solids to ripe sludge may be increased to 3.25 per cent, as against 2 per cent at 70° F.; (6) The average time of digestion in separate sludge digestion taken at Plainfield, N. J., was 40 days at a temperature of  $67^{\circ}$ - $68^{\circ}$  F., average pH value was 7.3; (7) more than 75 substances were tried as possible filter fly controls, but none proved satisfactory.

Treatment of London Sewage. Anon. The Surveyor, vol. 73, No. 1883, February 24, 1928, p. 271. (Abstract by H. W. Streeter.)

The London County Council Main Drainage Committee have submitted proposals for the installation at the northern outfall works, at Barking, of a plant for the treatment of sewage by the activated sludge process, estimated to cost about \$1,250,000. The plant is intended to deal with 5 to 10 m. g. d. out of a total of 258 m. g. d. After experience of the proposed installation, further works are contemplated. The average daily quantity of effluent discharged from the

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northern outfall is 164 m. g. d., and from the southern outfall, 94 m. g. d. Dilution is provided mainly by the Thames and its tributaries, only a small volume of tidal waters being considered as available for this purpose. Other effects of the tide are, however, favorable, including (a) the spreading of polluted water over a long stretch of purer water, (b) facilitation of atmospheric reaeration of the water caused by its movement, and (c) the prevention of formation of permanent undisturbed fermenting mud banks. Further natural factors modifying aeration are area of water surface, depth, temperature, air humidity, salinity, wind, etc.

Investigation and Research. Anon. Thirteenth Annual Report of the Bureau of Sewage Disposal, City of Schenectady, New York, 1927, pp. 9–10. (Abstract by W. L. Havens.)

During the winter of 1926-27 an investigation was carried out to ascertain the effect of chlorination of the raw sewage, prior to settling-tank treatment. Chlorine was added at rates varying from 6 to 2 p. p. m., with the result that no residual chlorine was found in the tanks during the study. No bacterial reduction in the tank effluent was obtained and no deleterious effect was produced by gas treatment. Odor conditions were excellent about the plant during the entire summer; and during cooler weather, rates of application of about 1 p. p. m. produced the desired results. Liming of the Imhoff tanks was practiced, with the intention of starting pH control. In addition, a river survey was begun in order to determine the necessity of formulating plans for the treatment of the balance of the sewage flow of the city which is now entering the river untreated.

Rivers Pollution Prevention Work of the West Riding Board. Anon. The Surveyor, vol. 73, No. 1883, February 24, 1928, p. 260. (Abstract by H. W. Streeter.)

The remarkable improvement effected during the past 30 years in the condition of streams in the West Riding of Yorkshire as the result of the work of the West Riding Rivers Board is demonstrated in a special report by the Board's chief inspector, Dr. H. M. Wilson.

The streams, with tributaries, under survey of the board had a total length of over 2,000 miles, including some clean rivers, and others in various states of pollution. There are now 427 sewage works in the board's area, as compared with 167 in 1896. Many works, however, have been abolished, with the process of concentration still going on.

Only those who remember the condition of the streams 20 or 30 years ago, concludes Doctor Wilson, and those who realize the great addition to the total volume of sewage since then, could have any conception of the foul state in which the streams would have been at present had it not been for the work of the board. Pollution of the cleaner streams has been dealt with at an early stage, preventing deterioration already begun.

The Ozone Fallacy in Garage Ventilation. Carroll M. Salls. Journal of Industrial Hygiene, vol. 9, No. 12, December, 1927, pp. 503-511. (Abstract by Leonard Greenburg.)

Doctor Salls presents a discussion of the literature concerned with the reaction of carbon monoxide and ozone, and from this discussion one must conclude that there is great variance in the literature concerned with this reaction.

The experimental studies presented are analyses of the atmosphere from a gassing chamber in which carbon monoxide is mixed with ozone at room temperature. The atmosphere was sampled from the beginning of the mixture of the gases through a period 140 minutes thereafter. The carbon monoxide determinations were made by means of the Sayers-Yant method, using defibrinated steer's blood as a blood reagent. Three samples of the atmosphere were obtained prior to starting the ozonator, the three samples yielding the following results in chronological order: 13, 9, and 7 parts of carbon monoxide. After allowing the ozonator to operate for about 20 minutes a sample was taken which yielded somewhat less than 5 parts of carbon monoxide. Subsequent samples were taken to the end of 140 minutes. When these samples were plotted against time, they fell on a fairly uniform curve which appears to be the curve of absorption of gas by the chamber walls and leakage through them. The starting of the ozonator appears to have altered the shape of the curve in no way.

Doctor Salls concludes that this study indicated no evidence of an appreciable action of the ozone on the carbon monoxide.

Preventing Excessive Smoke. J. F. Bjorkholm. Railway Age, vol. 84, No. 6, February 11, 1928, pp. 357–359. (Abstract by Leonard Greenburg.)

One of the most important discriminations in the field of smoke abatement, so far as railroading is concerned, is the differentiation between smoke prevention and "smoke painting" or whitewashing. The latter is merely a method of decoloring smoke by means of wet steam or vapor, whereas the former, the correct method, requires improved combustion. The author further points out that smoke burning or smoke combustion are misnomers, because smoke already formed ordinarily can not be burned or consumed. The greatest difficulty in avoiding smoke is usually on switch or transfer engines, owing to the nature of their work, and on road engines starting out from their terminal. Here it is necessary to rely on the blower and "smoke burner," by means of which additional air is admitted to the fire box, this air serving to prevent the formation of smoke. When the steam jets are used in the fire box without inducing the flow of additional air into the fire box, the steam jets merely serve to paint the smoke and not to prevent it.

In addition to this generous supply of air, a sufficiently high fire-box temperature is necessary to prevent smoke formation. And, lastly, it is to be pointed out that the proper method of firing has considerable influence on smoke formation. Only a sufficient amount of fuel should be placed in the fire box at each firing to insure proper combustion.

Atmospheric Diffusion of Paris Smokes. Kohn-Abrest. Compt. rend. 185, 617-20 (1927). (Abstract by L. W. Riggs in *Chemical Abstracts*, vol. 22, No. 3, February 10, 1928, p. 473.)

"Samples of air taken at the base and at elevations of 57, 115, and 288 m. of the Eiffel Tower were analyzed. The quantity of  $CO_2$  was about the same except at 288 m., where it was larger than at any of the lower levels. CO was absent at the base and at 288 m.; it was largest in amount at 115 m."

**A New Larvicide for Mosquitoes.** Robert Matheson and G. H. Hinman. *American Journal of Hygiene*, vol. 8, No. 2, March, 1928, pp. 293-296. (Abstract by L. L. Williams, jr.)

The authors experimented with chemically pure borax, with crystalline and calcined sodium borate, and with commercial borax. The latter was found to be as efficient as any. After experimenting with various concentrations, the authors conclude that ordinary borax in the concentration of 1.5 grams per liter of water proved an efficient larvicide for mosquito larvæ. This retains its action for long periods of time in wooden pails. Borax did not stop egg laying and hatching, but in no case did the young larvæ live for more than two days.

They quote reports that borax pools do not produce mosquitoes and that, in a borax country, this substance is not absorbed into the ground, but crystallizes on evaporation of the water and is ready for the next rain. The authors suggest that there is a field of usefulness for borax as a larvicide in such places as fire barrels, etc.

Water Supply, Sewage Treatment, and Refuse Disposal in 1927. H. B. Cleveland. *Public Works*, vol. 59, No. 1, January, 1928, pp. 14-18. (Abstract by R. J. Faust.) Water supply.—The most important change in policy has occurred in the privately owned water-supply field, where several large waterworks holding corporations have been purchasing a network of individual and affiliated watersupply systems, principally throughout the East, South, and Southeast. In the municipally owned water-supply field a marked increase is apparent in the number of joint water-supply districts.

Additional authority is being granted by legislatures to State departments of health in the matter of control of the sanitary quality of public water supplies, and a gradual elimination of cross-connections with polluted mill supplies is being brought about.

Metering is being given more and more consideration, and the use of copper and brass service connections is increasing rapidly.

Completed and projected improvements: New York City's proposed development of Delaware River water supply; the completion of the Moffat Tunnel, increasing the available water supply for Denver: completion of 100,000,000gallon water-filtration plant for Washington, D. C.; proposed 360,000,000-gallon daily capacity intake tunnel under Lake Ontario, together with a filter and pumping station for Toronto; approval for development of Honeoye Lake as an additional source of water supply for Rochester, N. Y.; work is progressing on a new filter plant in Detroit, which will more than double the present filtered water supply; at New Orleans an addition to the filters, increasing the capacity by 72,000,000 gallons daily, is being completed; Baltimore has appropriated \$10,000,000 for water-supply extension; a second pressure tunnel is to be constructed for New York City from Hill View reservoir to Brooklyn.

Purification.—The most important recent developments are as follows: (1) Preliminary mechanical removal of mud and silt from turbid waters before coagulation and filtration; (2) a wider application of methods for aerating treated water to reduce taste and odors and to remove iron; (3) a more intensive study of color removal, principally by coagulation with sodium aluminate in combination with the usual coagulating reagent, aluminum sulphate; (4) increasing adoption of double coagulation, of split or double chlorination, and of chlorination preceding aeration in the case of hydrogen sulphide waters; (5) studies on the use of chloramine are being made as a possible solution of the problem of tastes in chlorinated waters; (6) refinement in strainer or underdrain systems for filters; (7) advancement of operation and handling chemicals at water softening plants; (8) an increase in the number of filter-plant associations.

The typhoid fever death rate again has shown a decrease during the past year.

The Sterilization of Small Quantities of Water. D. T. M. Large. J. Roy. Army M. Corps, 1927, vol. 49, pp. 77–78. Abstract by Guy T. P. Tatham in Bulletin of Hygiene, vol. 2, No. 12, December, 1927, p. 979.

"A solution is made by adding stabilized bleaching powder to a 4-oz. medicine bottle; about 1 inch depth in the bottom of the bottle suffices. The mixture is well shaken, and, after settling out, the supernatant liquor forms the sterilizing solution. A glass of water is sterilized by stirring with a match previously dipped to the hilt in the sterilizing solution. For a soldier's water bottle, a wire of the thickness of a match dipped in the solution for a few inches is enough. Ten drops is recommended for a washbasin as fitted in Indian trains. Diluted seven times with water the sterilizing solution forms a good wound antiseptic."

Swimming Pools and Other Public Bathing Places. Report of Joint Committee on American Public Health Assn., and Conference of State Sanitary Engineers. The American Journal of Public Health and The Nation's Health, vol. 18, No. 2, February, 1928, pp. 194–198. (Abstract by W. M. Olson.)

The committee dates from December, 1918. Its first work was to present data concerning epidemics caused by improperly operated pools. Next, by reStandards have been prepared, representing the experience of committee members and also the consensus of opinion of a large number of sanitarians and pool operators. While not yet formally adopted by either of the two organizations, these standards have been quite generally accepted. They were pubished in *The American Journal of Public Health* for December, 1926, and reprinted for wide distribution.

The committee recommends the adoption of the standards as printed, with minor changes in wording.

The Swimming Pool—Its Care and Aims. Francis E. Fronczak. Journal of the American Association for Promoting Hygiene and Public Baths, vol. 9, 1927, pp. 38-45. (Abstract by R. E. Tarbett.)

This article discusses the subjects of design, supervision, and maintenance of indoor swimming pools, touching upon some of the more important factors of each.

Indoor and Outdoor Swimming Pool Sanitation. Bengt Norman Bengtson. The Nation's Health, vol. 9, No. 4, April 15, 1927, pp. 41-45. (Abstract by Harriet S. Ryan.)

The author presents the practical side of pool hygienc. Observations were made mainly at pools of the West Chicago Park Commission and statistics were obtained from the Chicago public health department.

With the increasing popularity of swimming, the problem of modern pool hygiene is becoming more serious. The eradication, from the swimmer, the water, and the tank, of possible mediums for the transmission of any communicable disease is discussed. It was proved by experiments that careful supervision of shower rooms would lower considerably the bacterial count of the water. Warm water and liquid soaps should be used in the shower, and no suits should be worn wherever practicable not to do so. The bacterial count is influenced by drainage, dilution, and the use of chemicals. The most popular chemical treatment is chlorination. The necessity for toilet facilities and cuspidors is an important factor, and the care of the tanks should not be neglected. Directions for tank sanitation are given in the article.

Pollution of Water Supply by Swimming Pool Restrained. Anon. Water Works Engineering, February 29, 1928, p. 270. (Abstract by Harriet S. Ryan.)

Because the water from a public swimming pool in the Navasota River emptied directly into and polluted the lake of water impounded for the domestic use of the citizens of Groesbeck, Tex., legal proceedings were instituted by the city to prevent the use of that river for bathing purposes. The operators contended they had acquired legal rights as riparian owners, but the court restrained further use of the swimming pool, stating that it was not the question whether riparian owners were entitled to use public streams for bathing purposes, but that the real issue was, Could a public swimming pool be established for commercial purposes on a river and be used to the extent that it pollutes the water and makes it unfit for drinking and domestic purposes? The evidence in this record showed that the extent to which the swimming pool was to be used would contaminate and pollute the drinking water of the city of Groesbeck.

#### **DEATHS DURING WEEK ENDED APRIL 21, 1928**

Summary of information received by telegraph from industrial insurance companies for the week ended April 21, 1928, and corresponding week of 1927. (From the Weekly Health Index, April 25, 1928, issued by the Bureau of the Census. Department of Commerce)

	Week ended Apr. 21, 1928	Corresponding week, 1927
Policies in force	70, 998, 155	67, 421, 189
Number of death claims	15, 838	13, 589
Death claims per 1,000 policies in force, annual rate_	11. 7	10. 5

Deaths from all causes in certain large cities of the United States during the week ended April 21, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, April 25, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week en 21,	nded Apr. 1928	Annual death	Deaths y	Infant mortality	
City	Total deaths	Death rate <sup>1</sup>	1,000 corre- sponding week, 1927	Week ended Apr. 21, 1928	Corre- sponding week, 1927	rate, week ended Apr. 21, 1928 <sup>1</sup>
Total (66 cities)	8, 593	15.0	14.0	917	807	75
Akron         Albany <sup>3</sup> Atlanta         White         Colored         Baltimore <sup>8</sup> White         Colored         Birmingham         White         Colored         Boston         Bridgeport         Buffalo         Camden         Camden         Chicago <sup>3</sup> Cincinnati         Cloured         Dallas         White.         Colored         Denver         Des Moines         Detroit.         Duluth         El Paso         Erie         Fall River <sup>3</sup> Flint         Colored         Grand Rapids         Houston         White.         Colored         Grand Rapids         Houston         White.         Colored         Grand Rapids	52 42 83 40 43 258 85 198 60 69 27 42 25 85 4 228 85 4 228 85 4 144 24 24 22 25 85 4 31 31 33 37 25 55 20 24 27 38 31 37 37 37 57 55 20 20 40 57 57 57 57 57 57 57 57 57 57 57 57 57	(4) (5) (16. 2) (16. 2) (16. 2) (16. 2) (16. 2) (16. 9) (13. 5) 10. 0 9. 3 9. 8 14. 1 13. 5 10. 0 9. 3 9. 8 14. 1 14. 6 12. 3 (4) 14. 8 15. 5 14. 1 12. 1 12. 4 9. 3 9. 5 11. 8 (5) 15. 5 14. 1 12. 1 15. 5 14. 1 12. 1 12. 4 9. 3 9. 5 11. 8 (4) 15. 5 14. 1 12. 1 12. 4 (5) 15. 9 (4) 15. 9 (5) (5) (5) (5) (5) (5) (5) (5)	18.8           12.6           9.8           19.1           16.6           14.1           30.7           16.5           13.0           12.6           14.1           30.7           16.5           13.0           13.0           13.0           13.0           14.2           14.3           19.6           11.0           8.8           14.3           13.4           21.3           11.9           11.9	$\begin{array}{c} 6 \\ 1 \\ 15 \\ 5 \\ 10 \\ 22 \\ 29 \\ 27 \\ 40 \\ 22 \\ 17 \\ 40 \\ 1835 \\ 29 \\ 64 \\ 22 \\ 73 \\ 67 \\ 21 \\ 16 \\ 76 \\ 51 \\ 55 \\ $	5 3 7 4 3 3 4 16 8 11 5 6 31 3 10 3 7 2 7 19 23 16 2 2 0 8 3 5 2 1 4 2 3 6 7 7 0 3 7 6 1 5 3	65         20           20         86         68           157         34         28           48         48         136         37           713         71         0         24           773         71         9         24           91         79         56         103           47         21         103         89           775         38         44         44
Colored Jersey City	19 88	( <sup>4</sup> ) 14. 2	18.6 13.6	0 11	29	0 82

<sup>1</sup> Annual rate per 1,000 population. <sup>2</sup> Deaths under 1 year per 1,000 births. Cities left bank are not in the registration area for births. <sup>3</sup> Deaths for week ended Friday, Apr. 20, 1928. <sup>4</sup> 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; Byrmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Kndxville, 15; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended April 21, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, April, 25, 1928, issued by the Bureau of the Census, Department of Commerce)—Continued

	Week en 21,	nded Apr. 1928	Annual death	Deaths y	Infant mortality	
City	Total deaths	Death rate	1,000 corre- sponding week, 1927	Week ended Apr. 21, 1928	Corre- sponding week, 1927	week ended Apr. 21, 1928
Kansas City, Kans	27	11.9	12.4	0	5	0
White	21		10.3	0	3	Ő
Colored	6	(1)	22.1	0	2	0
Kansas Olty, Mo	113	10.1	12.0	9	5 1	04
White	15	14. 1	10.2	î	i	24
Colored	10	(1)	8.5	0	Ō	0
Los Angeles	270			27	27	77
Lowell.	29		13.2	4	3 2	84
Memphis	91	25.0	18.7	6	10	70
White	41		12.2	4	3	75
Colored	50	(1)	30.4	.2	7	63
Milwaukee	148	14.2	11.7	17	20	76
Nashvilla	132	28.3	12.0	14	12	04
White	44		15.3	4	3	85
Colored	31	(1)	22.8	2	1	120
New Bedford	29	12.7	11.8	6	4	152
New Orleans	162	19.7	11.0	11	11	53
White	92		10.5	-5	6	36
Colored	70	(4)	28.4	6	5	87
New York	1,856	16.1	13.8	196	159	79
Bronx Borougn Brooklyn Borouzh	218 613	· 13.0	11.3	18 72	20 50	54 72
Manhattan Berough	795	23.7	19.8	88	69	104
Queens Borough	178	10.9	9.3	13	17	52
Richmond Borough	52	18.0	11.4	5	3	90
Oklehoma City	131	14.8	12.1	13	11	67
Omaha	63	14.8	11.7	9	5	104
Paterson	34	12.3	17.4	5	3	87
Philadelphia.	609	15.4	16.1	50	53	67
Pittsburgn	213	. 10.0	14.4	21	15	88 43
Providence.	78	14.2	14.1	8	4	70
Richmond	59	15.9	17.4	3	7	39
White	31		16.8	0	2	0
Colored	28	(15.8	18.8	6	5	110
St. Louis	234	14.4	13.4	23	26	77
St. Paul	69	14.3	13.3	8	5	77
Salt Lake City <sup>3</sup>	39	14.8	15.0	6	2	98
San Antonio	80	19.2	19.7	19	11 -	10
San Francisco	151	13.5	15.4	6	10	38
Schenectady	20	11.2	9.0	2	3	63
Seattle	81	11.1	9.4	4	3	41
Somerville	28	14. 3	9.2	9		207
Springfield, Mass	38	13.3	15.2	4	4	63
Syracuse	73	19.2	16.7	11	7	134
Tacoma	26	12.3	13.1	3	2	77
l'Oledo	72	12.0	13.3	5	8	48
Washington, D. C.	154	14.6	13.6	6	10	34
White	98		12.3	3	7	$\tilde{25}$
Colored	56	(1)	17.6	3	3	55
Waterbury	27	11 4	10 @	0	2	0 52
Worcester	20	20.1	10.0	4	3	49
Yonkers	31	13.4	9.2	2	3	46
Youngstown	47	14.1	14.2	6	5	80
		1	1	1	1	

<sup>3</sup> Deaths for week ended Friday, Apr. 20, 1928. <sup>4</sup> 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; Knorville, 15; 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 April 30, 1927, and April 28, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 30, 1927, and April 28, 1928

	Diph	theria	Infl	uenza	Me	asles	Mening meni	gococcus ngitis
Division and State	Week ended Apr. 30, 1927	Week ended Apr. 28 1928	Week ended Apr. 30 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928
New England States: Maine New Hampshire Vermont	2	1	7		86	31 30 32	0	- 0
Massachusetts Rhode Island Connecticut	75 3 26	92 8 29	14 3	29 17	408 2 50	1, 397 361 354	2 1 0	3 0 3
New York	423 110 172	289 107 169	<sup>1</sup> 45 22	<sup>1</sup> 155 28	869 76 744	3, 045 1, 499 2, 024	7 2 1	49 3 4
Dio Indiana Illinois Michigan	34 99 81	145 15 109 60	33 58	114 114 227 21	281 1,459 211	702 650 173 1, 126	0 12 0	11 0 13 6
Wisconsin West North Central States: Minnesota Iowa	34 13	18 27 5	43 5	780 9	847 140	49 105 18	9 7	4
Missouri North Dakota South Dakota Nebraska Kenses	51 2 9	19 11 	1 9 8 19	29 132 13 15	205 73 219 406	527 26 11 128 167	3 0 1 0	7 1 0 0
South Atlantic States: Delaware Maryland <sup>2</sup> District of Columbia West Virginia North Carolina	2 29 16 12 11	30 17 19 19	12 34 2 105	38 3 12	1, 027 8 23 6 169 1, 681	35 728 168 207 1, 384	0 0 0 0	0 0 2 0
South Carolina Georgia Florida	12 8 14	13 6 7	1, 222 140 7	543 102 1	173 106	401 150 94	0 1 1	0 1 0
Kentucky. Tennessee Alabama. Mississippi.	8 . 23 . 5	9 17 11 9	112 87	28 339 181	121 317	319 784 426	1	0 2 0 1
West South Central States: Arkansas. Louisiana Oklahoma <sup>3</sup> Texas.	7 26 13 11	2 13 21 15	59 27 67 17	351 45 730 59	195 80 421 275	393 355 447 103	0 0 0 0	1 1 1 0
Mountain States: Montana Idaho Wyoming Colorado	1 1 2 23	2 1 13		1	40 48 75 118	4 14 96	2 2 0 1	0 1 0 5
New York City only.	2   2 We	8 ) xek ende (1090	1   d Friday )	3   7.	117   <sup>3</sup> Excl	64 l usive of	0   Fulsa.	0

#### Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 30, 1927, and April 28, 1928 Meningococcus meningitis Diphtheria Influenza Measles Week ended Apr. 28, 1928 Week ended Apr. 30, 1927 Week ended Apr. 28, 1928 Week ended Apr. 30, 1927 Week ended Apr. 28 1928 **Division** and State Week Week Week ended Apr. 30, 1927 ended Apr. 30, 1927 ended Apr. 28, 1928 Mountain States-Continued. 7 6 27 63 8 0 0 2 1 Arizona Utah <sup>1</sup> Pacific States: 7 6 1 7 2 ----

Washington	. 14	8		1	459	165	3	1
California	118	88	23	27	2, 378	111	7	5
<b></b>	Polion	nyelitis	Scarle	t fever	Sma	llpox	Typho	id fever
Division and State	Week ended Apr. 30, 1927	Week ended Apr. 28, 1928						
New England States:			20	24	0	0	4	
New Hampshire		ŏ	20	9		ŏ	·····	ò
Vermont	0	0	12	10	0	0	1	6
Massachusetts	2		435	240	0	0	5	4
Connecticut	1 i	ŏ	99	77	ŏ	ŏ	i	ŏ
Middle Atlantic States:								
New York	4		944	722	3		18	6
Pennsylvania	1	2	466	439	ŏ	2	42	6
East North Central States:	-	-				_		
Ohio				219		25		6
Inglana	0	Ň	255	314	100	37	8	12
Michigan.	ŏ	ŏ	253	301	34	27	ň	4
Wisconsin	1	0	127	122	7	9	1	2
West North Central States:		1	176	190	8	9	2	1
Iowa		ō	1/0	78	0	51		2
Missouri	0	0	95	108	18	44	3	1
North Dakota	0	0	69 57	39	12	3	2	1
Nebraska	ő	0	57 60	23 63	31	52	1	ŏ
Kansas	ŏ	ŏ	83	159	5	104	ô	Š.
South Atlantic States:							•	•
Delaware	0	0	19	100	N N	0	11	05
District of Columbia	ŏ	ô	29	51	ŏ	ĭ	ö	ŏ
West Virginia	Ó	0	43	27	48	40	1	9
North Carolina	0	1	19	16	47	103	15	17
Georgia	ō	ō	13	14	24	ŏ	13	4
Florida	3	Õ	7	4	32	12	25	4
East South Central States:		أم		-				F
Tennessee	0	1	31	30	·····	48	·····	4
Alabama	ŏ	ō	9	ii	34	5	12	$\overline{2}$
Mississippi	0	0	10	11	4	0	2	10
Arkansas	0	0	3	12	8	15	16	4
Louisiana	2	ŏ	ž	10	12	20	17	9
Oklahoma <sup>3</sup>	1	0	53	49	41	94	11	8
TCIAS	U	0	14	53	47	43	12	3
Montana.	0	1	61	8	8	30	3	0
Idaho	0	0	11	9	15	7	0	0
Wyoming	. 0	0	145	20	1	1	2	1
New Mexico	ŏ	ō	11	29	ō	3	ő	ĭ
Arizona	Ō	Ō	4	2	Ó	6	2	1
Utah <sup>2</sup>	0	1	29	10	0	11	0	0
Washington	0	2	60	38	21	35	4	0
Oregon	ĭ	õ	32	2	19	63	$\hat{2}$	10
California	0	6	186	122	34	19	9	3
1		I	<u> </u>	1		l	1	

<sup>3</sup> Week ended Friday.

<sup>3</sup> 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	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Malaria	Measles	Pella- gra	Polio- myelitis	Scarlet fever	Small- pox	Ty- phoid fever
March, 1928										
Arkansas	10	18	2, 168	105	1, 986	74	1	81	27	22
Flo ida	1	56	36	13	227	5	1	35	40	33
Illinois	63	643	854	7	896		6	1,669	232	42
Indiana	2	132	184		1,038		1	720	710	11
Iowa	4	56			173		0	343	257	4
Louisiana	4	96	513	34	1,202	17	0	63	122	30
Michigan	0	281	17	1	5, 813		2	1, 229	161	- 19
Mississippi	2	77	11,095	2, 833	8, 536	549	7	64	31	51
Missouri	40	246	558	1	1, 349	2	5	628	296	10
New York	103	1, 583		5	10, 394		17	3, 912	37	79
Ohio	20	577	258		4, 598		10	1, 289	187	35
Pennsylvania	35	954			6, 670	1	5	2,620	2	53
Rhode Island	0	44	10		481		1	225	0	1
Tennessee	5	85	1,207	41	2,158	18	3	171	148	31
West Virginia	6	112	180		628		3	241	391	33
Wyoming	6	1	5		254		1	83	32	1

March, 1928	Cases
Actinomycosis:	
Illinois	1
Anthrax:	
Illinois	1
New York	4
Pennsylvania	8
Chicken pox:	
Arkansas	137
Florida	425
Illinois	1, 738
Indiana	425
Iowa	244
Louisiana	79
Michigan	663
Mississippi	894
Missouri	439
New York	2,732
Ohio	1, 530
Pennsylvania	2,888
Rhode Island	34
Tennessee	206
Virginia	303
Wyoming	60
Conjunctivitis:	
Missouri	19
Dengue:	
Mississippi	14
Dysentery:	
Florida	5
Illinois	17
Iowa	2
Mississippi-	
Amebic	58
Bacillary	249
Missouri (amebic)	3
New York	8
Tennessee	8
German measles:	
Illinois	126
Iowa	7

German measles—Continued	Cases
New York	1, 594
Ohio	66
Pennsylvania	505
Rhode Island	3
Hookworm disease:	
Arkansas	7
Florida	38
Louisiana	7
Missouri	263
Lead poisoning:	
Illinois	13
Ohio	13
Leprosv.	
Florida	2
Louisiana	1
Lathargic anconholitis:	-
Dethaight encephantis.	11
Тото	
I misiana	1
Michigan	1
Miccouri	1
Now York	17
Obio	2
Pennsylvania	0
Tennessee	3
Mumns:	Ŭ,
Arkansas	195
Florida	66
Illinois	1,743
Indiana	713
Iowa	395
Louisiana	24
Michigan	2, 398
Mississippi	1, 507
Missouri	1, 188
New York	3, 464
Ohio	2, 322
Pennsylvania	4,611
Rhode Island	185
Tennessee	396
Wyoming	48

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Ophthalmia neonatorum:	Cases
Arkansas	2
Illinois	49
Mississippi	26
New York	9
Ohio	82
Pennsylvania	12
Tennessee	4
Paratyphoid fever:	
Arkansas	1
Florida	1
Puerperal septicemia:	
Illinois	20
Mississippi	34
New York	18
Ohio	4
Pennsylvania	11
Rabies in animals:	
Mississippi	10
Missouri	3
New York	22
Rhode Island	10
Rabies in man:	
Illinois	1
Ohio	1
Tennessee	2
Scables:	
Iowa.	7
W voming	14
Septic sore throat:	
Illinois	32
Michigan	41
Missouri	26
New York	56
Ohio	93
Tennessee	13
Tetanus:	
Florida	1
Tilinois	1
Louisiana	2
Missonri	-2
New York	1
11VII 1 VIA	•

Trachoma:	Cases
Arkansas	98
Illinois	15
Mississippi	14
Missouri	4
New York	4
Ohio	6
Tennessee	14
Trichinosis:	
Illinois	1
Tularaemia:	
Louisiana	1
Ohio	1
Tennessee	1
Typhus fever:	
New York	1
Undulant (Malta) fever:	
Iowa	1
Ohio	1
Vincent's angina:	
Illinois	1
Iowa	1
New York	89
Whooping cough:	
Arkansas	107
Florida	43
Illinois	1.131
Indiana	169
Iowa	33
Louisiana	31
Michigan	651
Mississippi	1, 579
Missouri	404
New York	2, 024
Ohio	728
Pennsylvania	1, 307
Rhode Island	23
Tennessee	125
Virginia	75
Wyoming	25
-	

#### **RECIPROCAL NOTIFICATIONS**

Notifications regarding communicable diseases sent during the month of March, 1928, by departments of health of certain States to other State health departments

Referred by—	Diph- theria	Amebic dysentery	Scarlet fever	Smallpox	Tuber- culosis	Typhoid fever
California				23	1	
Minnesota New Mexico	••••••	* 00	1	1		
Ohio						i

<sup>1</sup>61 of these cases are delayed reports for year 1927.

#### **GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES**

The 100 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregated population of more than 31,400,000. The estimated population of the 94 cities reporting deaths is more than 30,700,000. The estimated

expectancy is based on the experience of the last nine years, excluding epidemics.

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:	1		1
43 States	1, 440	1, 724	
100 cities	867	1,037	883
Measles:		•	
42 States	17,668	15, 173	
100 cities	8, 112	4, 547	
Poliomyelitis:			1 .
43 States	21	13	
Scarlet fever:			
43 States	4, 191	5, 185	
100 cities	1,365	2,296	1.324
Smallpox:			
43 States	1.060	881	
10C cities	123	143	133
Typhoid fever:			
43 States	161	278	
100 cities	33	47	48
Deaths reported			
Influenza and nueumonia.			
94 nitipe	1 200	000	
Smallnor	1, 380	899	
04 nition		0	
07 UUUD	v	U	
			6

Weeks ended April 14, 1928, and April 16, 1927

#### City reports for week ended April 14, 1928

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

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1919 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations 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.

		Chick-	Diph	theria	Infl	lenza			
Division, State, and city	Population, July 1, 1926, estimated	en pox, cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported	Mea- sles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
NEW ENGLAND									
Maine:									
Portland	76 400	6	1	1	<b>^</b>	<u>م</u>	•	14	
New Hampshire:	10,100	v	-	•	U		v	14	7
Concord	1 22 548	0	1		0	0	0	0	2
Manchester	84 000	ň	5	Ň	Ň	i i	4	Ň	Å
Vermont:	01,000	v	~	v	v	-	•	v	. *
Barre	1 10, 008	5	0	0	0	0	0	0	0
Burlington	1 24 089	ŏ	ň	ĭ	ň	ň	š	ň	Ň
Massachusetts:	21,000	v	v	-		v		, v	v
Boston	787,000	14	35	29	3	0	332	11	32
Fall River	131,000	2	3	3	ň	ň	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		4
Springfield	145 000	ā	3	ă	ž	Ϋ́		41	3
Worcester	193,000	15	Ă	5	ĩ	i i	54	10	ดี
Rhode Island:	100,000		- 1	Ŭ	-	-		10	U
Pawtucket	71,000	3	1	1	0	0	A	12	2
Providence.	275,000	ŏ	8	13	ň	1	215	17	ลี้
	,	• 1	¢ 1		• 1	- i	101	• •	

<sup>1</sup> Estimated, July 1, 1925.

	[		Diph	theria	Infl	uenza			
Di <del>vis</del> ion, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported	Mea- sles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
NEW ENGLAND-Con.									
Connecticut: Bridgeport Hartford New Haven	(*) 164, 000 182, 000	2 7 7	5 6 3	- 9 2 1	0 1 1	0 0 1	2 26 112	0 8 61	3 8 6
MIDDLE ATLANTIC								ж.,	
New York: Buffalo New York Rochester Syracuse New Jersey:	544, 000 5, 924, 000 321, 000 185, 000	9 138 3 15	9 248 9 5	26 301 5 2	117 1	0 31 1 0	112 1, 634 54 160	24 24 17 13	0 318 10 6
Camden Newark Trenton Pennsylvania:	131, 000 459, 000 134, 000	3 27 2	5 11 3	3 26 4	0 7 1	0 0 3	65 427 8	3 12 0	4 20 5
Philadelphia Pittsburgh Reading	2, 008, 000 637, 000 114, 000	59 22 13	70 17 2	52 10	2 0 0	12 8 0	967 136 7	76 65 0	98 33 4
EAST NORTH CENTRAL									
Ohio: Cincinnati Cleveland Columbus Toledo	411, 000 960, 000 285, 000 295, 000	5 30 4 26	8 25 3 3	10 43 0 3	2 13 5 6	4 3 5 4	74 49 74 266	3 156 4 19	24 23 5 5
Fort Wayne Indianapolis South Bend Terre Haute	99, 900 367, 000 81, 700 71, 900	2 29 0 5	2 5 1 1	3 5 3 0	0 0 0 0	1 1 0 0	1 88 0 0	0 151 0 0	3 24 0 3
Chicago Springfield	3, 048, 000 64, 700	76 11	72 1	81 0	37 1	14 1	30 1	44 9	105 2
Micingan: Detroit Flint Grand Rapids Wisconsin:	1, 290, 000 136, 000 156, 000	39 12 5	49 3 4	27 1 0	5 0 0	6 0 1	1, 084 90 25	35 80 13	70 14 1
Kenosha Milwaukee Racine Superior	52, 700 517, 000 69, 400 1 39, 671	32 94 5 0	0 13 2 0	0 4 1 0	0 8 0 0	0 5 0 0	2 6 1 0	0 22 4 0	0 23 2 5
WEST NORTH CENTRAL									
Minnesota: Duluth Minneapolis St. Paul Lowe:	113, 000 434, 000 248, 000	4 83 28	0 14 12	0 7 4	40 0 0	2 6 0	1 88 2	4 206 67	2 29 11
Davenport Des Moines Sioux City Waterloo	<sup>1</sup> 52, 469 146, 000 78, 000 36, 900	6 0 8 11	0 2 1 0	1 1 0 0	0 0 0		0 0 4 2	1 0 39 7	
Missouri: Kansas City St. Joseph St. Louis.	375, 000 78, 400 830, 000	17 3 21	5 1 39	1 0 38	0 0 0	3 0 0	53 0 290	108 9 13	19 7
Grand Forks	1 26, 403 1 14, 811	0 0	0 0	0 0	0	1	0 0	1	0
Aberdeen	1 15, 036	10	0	o	0		o	0	
Lincoln Omaha Kansas:	62, 000 216, 000	11 6	1 2	0 1	0	0 0	0 1	36 0	0 12
Topeka	56, 500 92, 500	23 21	1 1	0 1	0 0	0	0 1	3 0	5 1

<sup>1</sup> Estimated, July 1, 1925.

<sup>3</sup> No estimate made.

#### City reports for week ended April 14, 1928-Continued

			Dipb	theria	Influ	uenza				
Division, State, and city	Population, July 1, 1928, estimated	Chick- en pox, cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported	Mea- sles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported	
SOUTH ATLANTIC				····						
Delaware: Wilmington	124, 000	1	. 2	2	0	0	3	7	.4	
Baltimore	808, 000	71	27	25	13	6	818	22	48	
Frederick	1 33,741 1 12 035	4	0	1	0	0	2	0	2	
District of Columbia:	12,000	, v		Ŭ	v	v	U U	U	3	
Washington Virginia:	528,000	11	11	14	4	4	157	0	12	
Lynchburg	30, 500	1	0	0	0	0	12	1	1	
Richmond	174,000	15	1	0	0	0	68	1	6	
Roanoke	61, 900	5	ő	ő	ŏ	2	9	ō	ŏ	
West Virginia: Charleston	50 700					,				
Wheeling	1 56, 208	2	1	ŏ	ŏ	ō	6	ő	1	
North Carolina: Raleigh	1 30 371									
Wilmington	37, 700	3	1	ō	ŏ	ŏ	8	1	32	
Winston-Salem	71, 800	8	1	0	0	0	33	15	5	
Charleston	74, 100	0	0	0	8	0	0	0	2	
Greenville	41,800	7	0	0	0	0	4	31	2	
Georgia:	21,011	v	•	0	0	•	-	1	2	
Atlanta	(2)	15	2	2	9	2	12	8	13	
Savannah	94, 900	3	ŏ	ŏ	6	1	3	ð	15	
Florida: Miami	1 60 754						.		•	
St. Petersburg	1 26, 847		0	2		ŏ.	1	0	2	
Tampa	102,000	6	0	0	0	0	1	1	0	
EAST SOUTH CENTRAL										
Kentucky:	59 500		.							
Louisville	311,000	1	4	2	5	ő	108	10	6 12	
Tennessee:	177 000	10							-	
Nashville	137,000	12	3	2	ő	6	34 18	13	5	
Alabama:	811 000			_				, i	-	
Mobile	66, 800	ő	1	1	13	3	37	5	6 2	
Montgomery	47,000	7	0	1	0 -		13	i		
WEST SOUTH CENTRAL										
Arkansas:										
Little Rock	75.900		0	0	0	·····i-	15	0	A	
Louisiana:	410,000					-				
Shreveport	419,000 59,500	2	0	24	12	7	48	0	14	
Oklahoma:										
Tulsa	133,000	3 26	1		34	. 0	22 4	12	5	
Texas:	002 000						]]			
Fort Worth	159,000	11	2	i	ő	ő	8	3	12	
Galveston	49,100	0	0	1	0	0	3	0	2	
San Antonio	205, 000	2	í	5	ŏ	11	4	ŏ	13	
MOUNTAIN										
Montana:		1								
Billings	1 17, 971	0	0	2	0	0	0	0	0	
Helena	1 12, 037	6	ő		0	0	2	0	1	
Missoula	1 12, 668	ŏ	ŏï	ŏI	ŏI	ŏ	ŏI	ŏ	ĭ	

<sup>1</sup>Estimated, July 1, 1925.

<sup>2</sup>No estimate made.

			Diph	theria	Influ	lenza				
Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Cases, esti- mated expect- ancy	ses, tti- ted re- ported cy		Deaths re- ported	Mea- sles, cases re- ported	Mumps, cases re- ported	monia, deaths re- ported	
MOUNTAIN—continued										
Idaho:				1					1	
Boise	1 23, 042	2	1	0	0	0	0	0	Ó	
Colorado:										
Denver	285,000	29	10	9	<b>-</b>	5	69	77	15	
Pueblo	43, 900	8	1	0	jO	0	9	0	4	
Albuquerque	1 21 000	3	0	6	6	6	7		6	
Utah:	21,000	Ŭ	v	, v	l v	v	•	, i	v	
Salt Lake City	133, <b>00</b> 0	35	3	3	0	1	3	0	0	
Nevada:	1 10 007									
Reno	, 12, 005	U	U	U	U	0	1	U	U	
PACIFIC										
Washington:										
Seattle	(2)	16	5	0	0		133	5		
Spokane	109,000	6	2	0	0		0	0		
Tacoma	106,000	6	1	0	0	0	27	57	2	
Oregon:	1 000 000		-							
Colifornie:	* 282, 383	30	"	Ð	U	· U	10	3	9	
Los Angeles	(2)	141	42	19	32	3	24	72	18	
Sacramento	73.400	2	2	1	0	ő	1	.4	10	
San Francisco	567,000	40	20	<u>9</u>	4	ĭ	20	32	2	
					_	_			-	

	Scarle	t fever		Smallp	DX.		Т	yphoid f	lever	Whoop	
Division, State, and city	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	Tuber- culosis, deaths re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	ing cough, cases re- ported	Deaths, all causes
NEW ENGLAND											
Maine									1		
Portland	3	2	0	0	0	1	1	6	6		24
New Hampshire:	-	-	ľ	, v	, i	-	- 1	Ť	l ·	Ů	
Concord	1	0	0	0	0	2	0	0	0	0	1 11
Manchester	4	3	Ŏ	Ŏ	Ŏ	ō	Ŏ	ŏ	l õ	Ŏ	26
Vermont:								-	-		
Barre	0	0	0	0	0	0	0	0	0	0	1
Burlington	0	0	0	0	0	0	0	0	0	0	8
Massachusetts:											
Boston	72	71	0	0	0	12	1	0	0	56	245
Fall River	4	0	0	0	0	4	1	1	0	0	32
Springfield	6	19	0	0	0	1	0	0	0	10	35
Worcester	10	7	0	0	0	2	1	0	0	12	72
Rhode Island:											
Pawłucket		1	0	0	Ŭ	-2	v v	0		U U	25
Connectiont:	9	20	U	v	U	0	U			2	92
Bridgeport	12	3	•	0	٥	1	0	•	6	۰ ۵	24
Hartford	15	3	ŏ	ŏ	ŏ	2	ŏ	1	Ň	2	30
New Haven	11	ŏ	ŏ	ŏ	ŏ	ĩ	ň	n i	ň	24	25
		Ŭ	Ŭ	ů	Ű	•	Ů	Ů	Ŭ		
MIDDLE ATLANTIC											
New York:											
Buffalo	23	1	0	0	0	14	1	0	0	12	172
New York	275	386	1	0	0	116	9	10	1	145	1, 763
Rochester	15	6	0	0	0	3	0	0	0	3	95
Syracuse	12	10	0	0	0	0	0	0	0	24	54
New Jersey:											47
Namonia	0	3	0	0	0	2	<b>Q</b>		0	10	4/
Troptop	30	30	N N	N N	Ň	Ŭ,	1		, i	19	130
Denneylyania	3	- 1	0	0		1			U U		99
Philadelphia	05	22	<u>_</u>			10	,		<u>م</u>	60	650
Pittshurgh	20	18	1		21	11	1	Å.	ň	10	204
Reading	20	18	5	Ň	Ň		5	Ň	Ň	8	200

\* No estimate mage.

	Scarle	t fever		Smallpox Typhoid fever		ever	Whoop				
Division, State, and eity	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	Tuber- culosis, deaths re- ported	Cases, esti- mated expect- ancy	Cases re ported	Deaths re- ported	ing cough, cases re- ported	Deaths, all causes
BAST NORTH CENTRAL											
Ohio: Cincinnati Cleveland Columbus Toledo Indiana:	20 37 9 14	18 16 10 7	1 0 2 2	1 0 0 0	0 0 0 0	8 17 8 1	1 1 0 0	0 0 0	0 0 0 1	7 49 2 14	170 212 83 55
Fort Wayne Indianapolis South Bend Terre Haute Illinois	6 9 4 2	3 11 0 0	3 8 0 1	0 8 1 3	0 0 0	0 7 0 1	0 0 0 0	0 0 0 0	0 0 0 0	2 0 0 0	22 118 12 20
Chicago Springfield	119 2	74 9	2 0	0 9	0 0	65 0	2 0	0 0	0 0	116 0	784 29
Detroit Flint Grand Rapids. Wisconsin:	92 7 7	99 9 4	2 1 1	2 12 0	0 0 0	27 0 1	1 0 0	1 0 0	2 0 0	65 2 1	358 36 43
Kenosha Milwaukee Racine Superior	3 27 4 3	1 40 2 0	1 2 1 1	0 0 0 0	0 0 0 0	0 8 1 1	0 0 0 0	0 1 0 0	0 0 0 0	0 4 4 0	6 148 14 12
WEST NORTH CENTRAL											
Minnesota: Duluth Minneapolis St. Paul Iowa:	7 49 29	8 31 6	1 5 4	0 0 1	0 0 0	0 0 3	0 0 0	0 0 0	0 0 0	5 15 32	24 138 47
Davenport Des Moines Sioux City Waterloo	0 6 2 1	13 12 2 8	3 2 2 0	0 9 1			0 0 0	0		0 0 0 3	
Missouri: Kansas City St. Joseph St. Louis North Dakata:	13 3 39	37 2 36	3 1 4	4 2 3	0 0 0	11 1 20	0 0 2	0 0 2	1 0 0	8 0 11	99 25 235
Fargo Grand Forks South Dakcta:	2 0	1 3	1 0	0 0	0	0	1 0	2 0	0	10 0	2
Aberdeen Nebraska: Lincoln	2	2 4	0	0 -	0		0	0  _ 0	 0	2.	22
Omaha Kansas: Topeka	3	5	8	4	0	1	0	0 0	1	0	51 21
Wichita	2	1	I.	7	Ó	1	Ō	Ō	Ő	10	15
Delaware: Wilmington	5	0	0	0	0	0	0	0	0	0	31
Baltimore Cumberland Frederick	36 0 1	34 0 1	0 0 0	0 0 0	0 0 0	22 0 0	2 0 0	0 0 0	0 0 0	35 0 0	284 14 5
bia: Washington Virginia:	23	27	1	1	0	12	1	0	0	7	141
Lynchburg Norfolk Richmond Roanoke	0 1 3 2	0 4 3 4	0 0 0	000000000000000000000000000000000000000	000000000000000000000000000000000000000	0 2 6 0	0 1 0	0	000000000000000000000000000000000000000	6 4 2 1	7 48 19
West Virginia: Charleston Wheeling	03	1	10	1	0	1	0	0	0	0	16 19
Wilmington Winston-Salem	1 0 0	0 0 0	0 0 5	2 0 0	0	1	0 0 0	0 0 0	0 0 0	3 1 0	14 9 25

	Scarle	t fever		Smallp	ox		Ту	phoid f	Whoon-		
Division, State, and city	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	Tuber- culosis, deaths re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported	ing cough, cases re- ported	Deaths, all causes
SOUTH ATLANTIC-											
South Carolina: Charleston Columbia Greenville Georgia:	0 0 0	0 2 0	0 0 1	0 0 0	0 0 0	1 1 1	0 1 0	0 0 0	0 0 0	0 0 0	12 11 12
Atlanta Brunswick Savannah	4 0 0	11 0 0	5 0 1	0 0 1	0 0 0	9 1 3	0 0 0	0 0 0	0 0 0	0 1 0	83 5 33
Miami St. Petersburg Tampa	0 1 0	1 1	1 0 0	0 0	0 0 0	2 2 0	1 0 0	3 2	1 0 0	3 0	27 10
EAST SOUTH CENTRAL		•									
Covington Louisville	2 7	3 41	1 0	1 3	0 0	0 7	0 1	0 1	· 0 1	0 5	28 85
Memphis Nashville	5 2	2 1	4 1	0 3	0 0	11 2	1 1	0 2	0 0	4 0	74 53
Birmingham Mobile Montgomery	2 0 0	0 0 0	8 1 0	0 0 0	0 0	5 0	1 1 0	0 1 0	0 0	8 0 0	62 27
WEST SOUTH CENTRAL											
Arkansas: Fort Smith Little Rock	0 1	0 9	0 0	0 0	0	i	0 1	0 0	0	5 0	<b>-</b>
New Orleans	5 0	6 1	1 1	0 0	0 0	17 0	2 0	3 0	1 0	6 3	138 31
Oklahoma City Tulsa	2 1	4 10	3 1	12 3	0	1	1 0	0 0	0	0	34
Dallas Fort Worth Galveston	2 1 0 1	12 6 0 1	2 3 0 1	3 8 0 1	0 0 0	2 0 0 3	0 0 0	0 0 2 0	0 0 2 1	14 0 0	52 45 13 67
San Antonio MOUNTAIN	1	3	0	Ō	Õ	4	Ŭ	Ŏ	Ō	ŏ	73
Montana: Billings Great Falls Helena Missoula	0 1 0 1	0 0 0	0 0 0	0 3 2 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	6 5 0	7 9 2 6
Idaho: Boise	1	0	0	0	0	0	0	0	o	0	8
Denver Pueblo	11 2	22 2	2 0	0 1	0 0	8 0	1	0 0	0	24 0	96 12
Albuquerque Utah:	0	0	0	0	0	2	0	0	0	0	12
Salt Lake City. Nevada: Reno	2	2	1	11	0	0	0	0	0	7	21
PACIFIC				Ů	Ů	v	Ū	Ŭ	Ů	Ů	0
Seattle Spokane Tacoma	8 6 2	5 6 2	3 5 5	0 24 1	0	0	1 0 0	0.0	0	2 0 2	26
Portland California:	8	1	6	32	0	3	1	0	0	o	77
Los Angeles Sacramento San Francisco.	22 1 16	21 0 14	4 0 3	2 0 2	0 0 0	30 7 14	1 0 1	0 0 1	0 0 0	30 1 10	25 186

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#### City reports for week ended April 14, 1928-Continued

	Cerebrospinal meningitis		Let	thargic phalitis	Pe	ellagra	Poliomyclitis (infan- tile paralysis)		
Division, State, and city	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths
NEW ENGLAND									
Massachusetts: Worcester Connecticut: Bridgeport	0 0	0 1	0 0	0 0	0 0	0	0 0	0	1
MIDDLE ATLANTIC									
New York: New York New Jersey: Newsyk	34	13	2	2	0	0	0	1	1
Pennsylvania: Philadelphia Pittsburgh	0 1	0 2	0	0	° O O	0	0	1	1
EAST NORTH CENTRAL									•
Ohio: Cleveland Columbus Toledo.	4 1 1	0 1 1	0 0 0	0	000	0	0 0	0	0
Indiana: Indianapolis	0	3	0	0	0	0	0	0	0
Illinois: Chicago Michicana	9	2	1	0	0	0	0	1	0 0
Michigan: Detroit	6	4	0	0	0	0	0	0	0
Milwaukee	6	3	0	0	0	0	0	0	0
WEST NORTH CENTRAL			1						
Minnesota: Minneapolis St. Paul	1	0	0	0	0	0	0	0	0
Missouri: Kansas City	1	2	0	o	0	0	0	0	0
North Dakota: Fargo	3	0	0	0	0	0	0	0	0
SOUTH ATLANTIC 1							Ĩ	-	v
Maryland:									
District of Columbia:		0	2	2	0	0	0	0	0
Virginia: Bichmond	1			0	0	0	0	0	0
South Carolina: Charleston	ő	0	0	1	1	0	0		0
Greenville Georgia:	ŏ	ŏ	ŏ	Ô	ō	ĭ	ŏ	ŏ	ŏ
Brunswick	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL						ļ		Í	
Tennessee: Nashville	0	0	0	0	1	0	0	0	0
Birmingham Mobile	1 0	1 0	0	0	0	0 1	0	0	0
WEST SOUTH CENTRAL									
Arkansas: Little Rock Louisiana:	0	0	0	0	0	2	0	o	0
New Orleans	0	0	0	0	4	2	0	0	0
'Typhus fever, 2 cases at Tampa, Fl	а.								

	Cereb men	rospinal ingitis	Let ence	hargic phalitis	Pe	llagra	Poliomyelitis (infan- tile paralysis)			
Division, State, and city	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths	
west south Central—continued										
Oklahoma: Oklahoma City	0	0	0	1	0	1	0	0	0	
Texas: Fort Worth Houston	0 1	0 0	0 0	0 0	0 0	1 0	0	0 0	0	
MOUNTAIN Colorado: Denver	2	3	0	1	0	0	0	0	0	
Nevada: Reno	1	0	0	0	0	0	0	0	0	
PACIFIC Washington: Spozane	1	0	0	Q	0	0	0	0		
Tacoma California: Los Angeles San Francisco	0	0	0	0	0	0	0	1	1	
	1	•	٩	•	1		U	1		

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 14, 1928, compared with those for a like period ended April 16, 1927. The population figures used in computing the rates are approximate estimates as of July 1. 1927 and 1928, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,050,000 in 1927 and 31,657,000 in 1928. The 95 citics reporting deaths had nearly 30,370,000 estimated population in 1927 and nearly 30,961,000 in 1928. 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, March 11 to April 14, 1928-Annual rates per 100,000 population compared with rates for the corresponding period of 1927 1 1

DIPHTHERIA CASE RATI	ΞS	
----------------------	----	--

	Week ended-										
	Mar. 19, 1927	Mar. 17, 1928	Mar. 26, 1927	Mar. 24, 1928	Apr. 2, 1927	Mar. 31, 1928	Apr. 9, 1927	Apr. 7, 1928	Apr. 16, 1927	Apr. 14, 1928	
101 cities	176	158	178	158	190	139	200	132	174	2 144	
New England	137	136	130	124	137	110	181	126	105	168	
Middle Atlantic	240	212	226	222	263	181	269	188	271	209	
West North Central	107	130	1/3	143	159	140	169	121	135	116	
South Atlantic	141	139	146	112	157	121	117	101	109	* 105	
East South Central	30	105	41	60	61	85	66	25	86	40	
West South Central	161	136	174	116	178	108	335	132	141	160	
Mountain	126	106	81	80	108	115	170	44	108	133	
Pacific	165	125	193	105	170	74	125	77	115	74	

<sup>1</sup> 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, 1927 and 1928, respectively. <sup>2</sup> St. Paul, Minn., not included.

Summary of weekly reports from cities, March 11 to April 14, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

MEASLES CASE RATES

		Week ended-								
	Mar. 19, 1927	Mar. 17, 1928	Mar. 26, 1927	Mar. 24, 1928	Apr. 2, 1927	Mar. 31, 1928	Apr. 9, 1927	Apr. 7, 1928	Apr. 16, 1927	Apr. 14, 1928
101 cities New England East North Central West North Central South Atlantic East South Central West South Central Mountain Rogido	929 212 93 1, 233 1, 560 1, 010 441 1, 026 5, 397 2, 992	1, 349 2, 277 1, 213 1, 063 590 2, 972 1, 855 1, 328 345 820	943 198 114 1, 138 1, 514 972 436 1, 754 5, 074 2, 162	1, 326 1, 536 1, 393 1, 009 725 2, 893 1, 426 1, 120 504	837 205 127 925 1,821 1,091 284 935 3,443 935	1, 388 2, 014 1, 491 1, 023 748 2, 905 1, 696 836 752 752	867 270 159 957 1, 300 936 608 2, 114 2, 788	1, 277 1, 874 1, 504 1, 034 762 2, 285 958 436 708	766 223 172 885 1, 314 1, 311 396 1, 005 2, 060	<sup>2</sup> 1, 351 1, 726 1, 739 998 <sup>2</sup> \$46 2, 115 1, 117 428 743

#### SCARLET FEVER CASE RATES

	the second se									
101 cities	431	300	423	309	440	303	394	273	391	2 227
New England Middle Atlantic East North Central West North Central South Atlantie East South Central West South Central Mountain Pacific	546 572 353 426 220 208 62 1, 336 253	402 352 296 271 223 160 208 248 217	479 580 347 400 179 162 58 1,130 360	411 374 306 292 224 234 124 177 202	530 612 329 467 197 172 54 1, 210 340	405 398 266 257 221 204 144 186 207	367 594 272 433 177 177 99 941 243	331 366 252 263 179 100 148 239 133	423 581 285 396 150 218 50 950 243	301 273 194 2 292 154 234 128 239 123
						i	11	1		

#### SMALLPOX CASE RATES

101 cities	31	21	30	25	28	25	26	18	24	2 20
New England. Middle Atlantic. Bast North Central. West North Central. Softh Atlantic. Exist South Central. West South Central. Mountain. Pacific.	0 0 33 49 51 132 45 90 84	0 26 64 33 20 44 53 38	0 0 29 69 41 106 74 18 99	0 0 18 125 23 25 36 62 61	2 0 33 30 61 122 62 9 68	0 0 24 64 68 30 36 142 23	0 0 37 42 25 86 103 27 55	0 0 24 84 14 10 4 106 18	0 0 32 55 27 96 87 27 26	0 0 24 2 52 11 35 16 150 74

#### **TYPHOID FEVER CASE RATES**

101 cities	7	4	8	4	8	5	8	4	8	2 5
New England Middle Atlantic East North Central West North Central South Atlantic East South Central West South Central Mountain Pacific	5 6 4 0 11 21 12 9 18	7 2 3 4 11 10 12 0 5	5 7 4 13 41 29 0 10	9 4 3 0 11 5 8 0 5	12 6 1 2 16 20 25 0 24	5 4 2 2 21 10 12 0 3	7 6 5 9 35 37 0 8	2 1 3 6 12 15 16 0 8	9 5 1 12 13 35 17 9 18	2 9 5 1 2 9 4 20 20 0 3

<sup>1</sup> St. Paul, Minn., not included.

Summary of weekly reports from cities, March 11 to April 14, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 1—Continued

		Week ended-								
	Mar. 19, 1927	Mar. 17, 1928	Mar. 26, 1927	Mar. 24, 1928	Apr. 2, 1927	Mar. 31, 1928	Apr. 9, 1927	Apr. 7, 1928	• Apr. 16, 1927	Apr. 14, 1928
95 cities	31	25	27	32	22	29	23	34	21	<b>3</b> 0
New England Middle Atlantic East North Central West North Central South Atlantic East South Central West South Central Mountain	19 31 18 21 79 90 21 18	7 26 12 16 19 84 115 80	7 26 16 14 65 96 25 27	9 22 35 16 39 98 133	12 21 15 4 38 106 30 27	11 29 24 18 21 78 86 53	7 26 9 17 40 74 51 35	16 31 40 16 19 73 107 80	16 21 11 12 38 90 42 18	9 27 227 226 30 84 90 53

#### INFLUENZA DEATH RATES

#### PNEUMONIA DEATH RATES

184	221	167	213	163	222	162	215	153	² 207
172 226 142 114 262 191 195 161	239 258 194 139 214 335 263 203	156 198 141 101 218 197 136 170	182 245 211 118 240 240 275 168	156 186 147 93 225 133 161 161	225 264 207 130 230 288 242 106	140 198 131 137 150 218 140 242	179 244 241 122 179 397 185 97	156 175 141 128 184 138 76 152	177 243 199 169 209 183 238 186
	184 172 226 142 114 262 191 195 161 93	184         221           172         239           226         258           142         194           114         139           262         214           191         335           195         203           161         203           93         125	184         221         167           172         239         156           226         258         198           142         194         141           114         139         101           262         214         218           191         335         195           195         263         136           161         203         170           93         125         110	184         221         167         213           172         239         156         182           226         258         198         245           142         194         141         211           114         139         101         118           262         214         218         240           191         335         197         240           195         263         136         275           161         203         170         168           93         125         110         101	184         221         167         213         163           172         239         156         182         156           226         258         198         245         186           142         194         141         211         147           114         139         101         118         93           262         214         218         240         225           191         335         197         240         133           195         263         136         275         161           161         203         170         168         161           93         125         110         101         128	184         221         167         213         163         222           172         239         156         182         156         225           226         258         198         245         186         264           142         194         141         211         147         207           114         139         101         118         93         130           262         214         218         240         225         230           191         335         197         240         133         288           195         263         136         275         161         242           161         203         170         168         161         106           93         125         110         101         128         118	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$

<sup>2</sup> St. Paul, Minn., not included.

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

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

#### FOREIGN AND INSULAR

#### THE FAR EAST

Report for the week ended March 31, 1928.—The following report for the week ended March 31, 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 present in the following ports:

PLAGUE	SMALLPOX
Egypt.—Sucz. Aden Protectorate.—Aden. India.—Bassein, Bombay, Rangoon. Ceylon.—Colombo. Dutch East Indies.—Surabaya. Siam.—Bangkok. CHOLERA	IndiaBombay, Calcutta, Madras, Moulmein, Bangoon, Tuticorin, Vizagapatam. French IndiaPondicherry. Dutch East IndiesBanjermasin, Pontianak. ChinaCanton, Shanghai, Hong Kong. JapanShimonoseki. KennaMombasa
India.—Bassein, Bombay, Calcutta, Madras, Moulmein, Rangoon. Siam.—Bangkok. Frenck Indo-China.—Saigon. China.—Canton, Shanghai.	Egypt.—Suez. Kwantung.— Dairen. Manchuria.—Mukden. Sarawat.—Kuching.

Returns for the week ended March 31 were not received from Balikpapan or Sabang, Dutch East Indies, or Basra, Iraq.

#### CANADA

Provinces—Communicable diseases—Week ended April 7, 1928.— The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended April 7, 1928, as follows:

Disease	Nova Scotia	New Bruns- wick	Que- bec <sup>1</sup>	Ontario	Mani- toba	Sas- katch- ewan	Alberta	Total
Cerebrospinal fever Infinenza	6			1 3				1
Smallpox Typhoid fever		2	12	9 9	1	12 1	13	34 25

<sup>1</sup> 1 case of poliomyelitis and 15 cases of typhoid fever reported from Province of Quebec for week ended Mar. 31, 1928.

Quebec Province—Communicable diseases—Week ended April 14, 1928.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended April 14, 1928, as follows:

Discase	Cases	Disease	Cases
Chicken pox	63	Scarlet fever	103
Diphtheria	43	Smallpox	20
German measles	15	Tuberculcsis	59
Influenza	5	Typhoid fever	14
Measles	214	Whooping cough	6

Vital statistics—Quebec Province—February, 1928.—Births and deaths in the Province of Quebec for the month of January, 1928, were reported as follows:

Estimated population	000
Birth rate per 1,000 population	27.4
Death rate per 1,000 population	12.4
Infant mortality rate1	26.3
Deaths from—	
Cancer	126
Cerebrospinal meningitis	2
Diphtheria	45
Diabetes	26
Diarrhoea	77
Heart disease	326
Influenza	108

Deaths from—Continued.	
Measles	15
Pneumonia	257
Poliomyelitis	2
Scarlet fever	12
Smallpox	0
Syphilis	4
Tuberculosis (pulmonary)	198
Tuberculosis (all other forms)	55
Typhoid fever	18
Violence	33
Whooping cough	32
•	

The following table gives a comparison of the vital statistics of the Province of Quebec for the month of February of the years 1926, 1927, and 1928:

		February	
	1926	1927	1928
Births. Mari lages. Deaths. Deaths under 1 year.	6, 172 974 2, 812 847	6, 137 1, 145 3, 244 835	6, 051 1, 025 2, 730 764

#### HAITI

Cape Haitien-Meningococcus meningitis-April 26, 1928.-Under date of April 26, 1928, an epidemic of meningococcus meningitis was reported in the region around Cape Haitien, Haiti.

#### IRAQ

Leprosy—1922-1927.—During the six years ended December 31, 1927, a total of 210 lepers was registered in the Iraq Health Directorate, of whom 199 were males, suggesting that a number of female lepers were not registered.

Of the registered cases approximately 56 per cent were anesthetic, 37 per cent nodular, and 7 per cent mixed. The places of origin, which are probably the places of infection, were as follows:

Places of origin	Males	Fe- males	Total cases	Places of origin	Males	Fe- males	Total cases
Baghdad Liwa Basra Liwa. Mosul Liwa. Amarah Liwa. Arbil Liwa. Diwaniyah Liwa. Diyalah Liwa. Dulaim Liwa. Hillah Liwa. Kerbalah Liwa.	14 20 6 62 10 3 4 3 1	1 0 1 6 0 0 0 0 0 0	15 20 7 68 10 3 4 3 1	Kirkuk Liwa. Kut Liwa. Sulaimani Liwa Tribal (unclassified). Kurdistan Persia. Afghanistan, etc. Total.	3 11 17 2 6 6 28 3 199	0 0 1 0 0 0 1 1 1 11	3 11 18 2 6 6 29 4 210

#### **MEXICO**

Puerto Mexico—Malaria—October-December, 1927—Campaign against hookworm infection, March, 1928.—Malaria was reported present with more than the usual rate of prevalence at Puerto Mexico, State of Vera Cruz, Mexico, during the period October-December, 1927. In March, 1928, a campaign against hookworm infection was instituted at Puerto Mexico and Minatitlan, with special reference to school children, the local units supplying the remedies necessary when gratuitous treatment was required.

#### SWITZERLAND

Basel—Vital statistics, 1926.—The population of Basel, Switzerland, in 1926, was estimated at 147,426. The birth rate for that year was 16.4 per 1,000 population; the death rate 11.7 per 1,000; and the infant mortality was 34.4 per 1,000 births. The following table gives the number of cases of the more common communicable diseases, and the deaths from these diseases for the year 1926:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis. Chicken pox. Diphtheria. Measles. Mumge. Puerperal fever. Scarlet fever.	2 364 84 2, 410 28 8 139		Smallpor Tuberculosis (pulmonary) Tuberculosis (miliary) Tuberculosis (other forms) Typhoid fever Whooping cough	0 	0 137 8 35 2 2

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

## CHOLERA

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

											м	reek ei	lded-					
Place	July 31- Aug. 27, 192	Aug. 28- Sept. 724, 1927	Sept. 25- Oct. 22, 1927	Oct. 23- Nov. 19, 1927	Nov. 20- Dec. 17, 1927	Dec. 18, 1827- Jan.	Janu 19	SS .	ы Ц	bruary	1928			Mar	ch, 192	<b>60</b>		Apr. 7, 1928
							21	*	-4	=	18	53		10	17	2	31	
China: Amoy	8°.	22	16															
Canton I	222	283°	14	11														
Foochow Hong Kong	<u></u>	A.→	2. A.							$\frac{1}{1}$	$\frac{1}{1}$							
Shanghai (settlement and concession) — Foreigners only C Including natives I	-8 -0	6 4 7 6	~~															
Swatow	<del>7</del>	<u> </u>	<u> </u>	<u>م</u> م														
Tientsin		12	2	<b>₽</b> %:	- ~													
l India	45, 16	3 31, 390	20, 160	23, 047	3 25, 139	15, 377	3, 267	3, 097	3, 026	3, 001	565	3, 047				$\overline{1}$		
Bassein Bourbay		-	, ,	14, 000	070 (er	600 <b>.</b>		1, tou	5			, nor	Ē			4	55	22
Calcutta		SI20	101	51 <u>66</u>	428	921	30	36	19.9	<u>.</u>		æ	8	162	164		-	
Madras			2 <u>-</u> '	ž.	<u>8</u>		- 18 -	77	8	2	S	4.00	3=1	0	5	2		1
Madras Presidency		- 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3	- 73	3, 073	°.20 °.20	1, 864	1, 163	1, 301	1, 305	912	330	830	~		Ť	1		
Negapatam.		8	99 	Ne) '1	z, 104		4	010		0.4			$\overline{1}$			İİ	ÌÌ	
Rangoon	200						<del>4</del> 4				20	ក់ភ្នា		-	40			
Tuticorin					с ж 						•	*		4	N	<u> </u>		° 3
	D			18	14										=			00

CHOLERA-Continued

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

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

											3	eek en	ded-					
Place	July 31- Aug. 27, 192	Aug. 28- Sept. 24, 192	Sept. 25- Oct. 22, 1927	Oct. 23- Nov. 19, 1927	Nov. 20- Dec. 17, 1927	Dec. 18, 1927- Jan.	Janu 19	lary, 28	Fet	ruary,	1928			Marc	h, 1928		$\frac{1}{1}$	Apr. 7, 1928
						14, 1940	21	*		11		55	 m		2		Ħ	
India (French): ('handermagor		-		9	101	1 7	-				610	010						
Karikal	- 20 2				2	⊃n ac <del>-</del>	6	1	- 00 r	30 -	2 12 12	- R R	010				$\frac{1}{1}$	
Pondicherry1		-22			52	* <u>= 9</u>	N 10 C	• 00 00	2 21 21		123	-0 <u>1</u> 4	1     1 0 m					
Indo-China: Saigon			-			m ⊶	-			- 7		1 22	8	<b>x</b> 9	27 19	ž x	12	28
raq ' Philippine tstands: Manila Stand	1-	•	2	110	38	110	8	8	38	69	7	63	Z	22				
Bangkok	<u> </u>	51 <sup>co</sup> -	=	<u>و</u> ج :	¥ e	ଛର୍ଟ୍	¥='.	282	<b>7</b> 88	<b>4</b> % 1	882	<u>81</u> =	<u>63</u> 2	; ;;	<b>20</b> ki	25	191	24
Straits Settlements: Singapore1				11-10	104	:82	- 61		3		:			·				
On vessel: S. S. Adrastus: At Yokohama, Japan																		
S. S. Hawaii Maru at Singapore from Saigon, French Indo-C'hina																		đ
S. S. Tabaristan: At Basra, Iraq														$\frac{1}{1}$	$\frac{1}{1}$	-	Ī	
1 From Tuly 1040 Day 96 100" 1 470 more of abole	T OTOTO P	orortod	in Ira (	with 1	063 400	the act	allowe	A more	h T.iwo	261.00	06 908	5 doot)	S. Bot	popul	e ovi	an nace	P 09 8	oat he

From Jury 1910 Dec. 1, 1927, 1,479 cases of cubrera were reported in Iraq, with 1,068 of deaths, Amaran Luwa, 20 cases, bu deaths, Bagnada Luwa, 20 cases, bu deaths, Barn Luwa, 421 cases, 330 deaths, Diwaniah Liwa, 122 cases, 72 deaths; Diyalah Liwa, 1 case, 1 death; Dulaim Liwa, 100 cases, 69 deaths; Hillah Liwa, 105 cases, 71 deaths; Kerbalah Liwa, 79 cases, 60 deaths; Kut Liwa, 66 cases, 44 deaths; Muntafq Liwa, 24 cases, 151 deaths.

	July-Sep-	October.	No	vember,	1927	Å	cember, 1	120	Jar	luary, 19	8	Fe	bruary, 1	828	Marc	h, 1928
- 1909 -	1927	1927	1-10	11-30	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-29	1-10	11-20
Indo-China (French): Annam Cochina (French): Cambodia Cochin-China Jaos Tonkin Cochina Cochin-China Cochin Cochin Cochina Cochina Cochina Cochina Cochina	3, 179 251 469 1, 246 1, 246 1, 297	226 180 178 178 178	10,28,33	75 1 27	8888	12319	3822	83 89 99 28 99	79 30 1 1	95 9 119 9 119	130 130	2383	883 11 12 13 13	14 51 153 153	<b>5</b> 03338	223 217
				IC indies	tes rates	LAGUE	the P	resent								
										We	ek ende	p				
Place		Aug. 28- Sept.	Sept. 25- Oct.	Nov.		8. 27- Jar	uary, 19:		Februai	y, 1928			March, 1	928	<b>A</b>	oril, 1928
		24, 1927	22, 192/1	8, 1927 17	1927 14,	1928	8		Ħ	18	ន	3 10	11	24	3	14
Algeria: Oran. Asebie: Adam				3					g							
Argentina: Argentina: Bahla Blanca district. Buons Aires. Cordoba Provines.			A.	<u>р</u>	3	ar 19	200	58 300	<b>7</b> 3	38	31	- <sup>6</sup> -	9 134	135		28
Artmat. Gultino. Rosario. Sattlago Province. Ucacha. Azores: St. Michaels Island.						10 QI			63							
Brazil: Bahia Porto Alegre							- 2 -	- 66 -	3+	40 -0	4.00 1-1	- 6				

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

PLAGUE-Continued

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

Week ended-	Sept. Oct. Nov. 18. 25- 23- 23- 1927- January, 1928 February, 1928 March, 1928 AI 1024: Nov. Dec. 1927- 1371	14, 1928         21         28         4         11         18         25         3         10         17         24         31         7																		2
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1 32 cases and 5 deaths from plague in Minich F ? During January, 1928, 5 cases of plague were r	Province	Egypt, n interi	for weel	z ended iegal; 17	Apr. 21, cases w	1928. Ith 13 d	eaths dt	rring las	it 2 weel	ks in Fe	bruary	s cases	and 4	deaths,	Mar. 1	li to 3	0,1028.

\*8 cases of plague with 6 deaths were reported in Bengardane region, Tunisia, Mar. 17 to 27, 1928.

FEVER-Continued
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# PLAGUE-Continued

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

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

8 -----April, 1928 ; ------; i : ..... -1 -1 5 5 ; ł 2 i 13 æ į i • 19 ..... 1 ຊ 90 35 31 35 **20 m** i **۲**۵ đ C1 C1 8 3 March, 1928 6 7 60 ន 60 ; ł 11 8 4 8 - 01 i <u>ო</u>ო 2 ж чч Ж -R 3 i 3° 50.04 Week endedŝ 8 H 2 ~~**4** ..... 58**4** 5 33 **ء**ء February, 1928 800 - 0 đ 84 8 -----3 ---------ø ∾⊒ ..... 27 00 8**4** 8 -----Ξ ...... -----ត្តតុ -----g = \_¤\_-21-4 -...... F ဗြူက 4 10 ..... .......... January, 1928 61 8<u>7</u> – 6 8 -----୍ଷ<sup>∞</sup> 22 500 ŝ ដ 4 .... 212 8°87 °∞⊐° 88 ..... 31 Ξ Dec. 1827-1928-1928 00 4 888° 347 88 12 61 12 C 20 C ..... ρ. œ 30 22 32° 12 ~ 2 264 0ct. 23-19. 1927 ຊ 661 6900 -----Sept. 25-1927, 1927 1-0 8 ..... i A i ន 11 2≓ 683 **\$**0 ...... -----200 °-2 210 뗧 16 82 1 Aug. 28-24. 1927 22 5401 13.0 -..... ..... ..... 8 159 6 1 22 5-July 31-27. 1927 0000000 DOAA 00 0000 DADA 000000 0000 Kingston Ottawa Windsor Quebec.....Quebec..... Quebec. Riviere du Loup. Sherbrooke Para. Rio de Janeiro. Alberta Calgary Edmonton British Columbia: Vancouver Manitoba Winnipeg New Brunswick <sup>1</sup> Nova Scotia. Halifax Ontario Hamilton Toronto Montreal\_\_\_\_\_ Algiers ----------Southern Rhodesia British East Africa: Tanganyiki...... British South Africa: Northern Rhodesis..... Place Arabia: Aden..... ............ **Jran** Canada: Algeria Brazil:

<sup>1</sup> The report of 2 cases of smallpor in New Brunswick during the week ended Sept. 24, 1927, which has been published in prior issues of the PUBLIC HEALTH REPORTS, was erron neous. No smallpox was reported in New Brunswick during September, 1927.

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

SMALLPOX-Continued

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

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

SMALLPOX-Continued

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

Week ended	1028 February, 1928 March, 1928 April, 1928	1         28         4         11         18         25         3         10         17         24         31         7         14	1 3 7 1 3 7 1 3 7 1 3 7 1 3 7 1 3 7 1				
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vluL	31- 27,	1927		9			-
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Portugal: Lisbon Senegal: Dakar Senegal: Dakar Bangkok Bangkok Spain: Malaga Sevila Sevila Strats Settlements: Singapore Sevila Strats Settlements: Singapore Sevila Strats Settlements: Singapore Cape Province Cape Province Crauge Free State Crauge Free State Crauge Pree State Crauge Volta On vessel: S. S. Arendskerk at Singa	pore fro		AA	<u></u>	∞	* · · · · · · · · · · · · · · · · · · ·	Q1 9-1 1 4		8	69 LL 10 09	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	8 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				<b>3</b>		
Ē	July.	August	t. Septer	a- Octob	er. Nov		Decemb	er, 1927	ř	anuary,	1928	Fel	oruary,	1928	W	arch, 19:		Apr.
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FEVER-Continued
<b>YELLOW</b>
EVER, AND
TYPHUS F
SMALLPOX,
PLAGUE,
CHOLERA,

SMALLPOX-Continued

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

Place	July- Sep- tember	Octo- ber	No- vem-	ber p.	Janu- ary	Feb- ruary	March	Place	July- Sep- tember	Octo- ber	No- vem- ber	ber ber	Janu- ary	Feb- ruary	March
Angola Congo	51 51 1 2 1 3 37 7 7 7 7 10 10	Eac 0 44000 44	4		4001	23 10 10 10	0 10 10 10 10 10 10 10 10 10 10 10 10 10	Latvia Merico Moroco Nigeria Portugal Persia Portugal U.S.S.R. Railways, etc. Contenteriories	221 1820 1820 1733 286 366 80 80 80 80 80 80 80 80 80 80 80 80 80	220 111 111 111	23 23 23 23 23 23 23 23 23 23 24 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25	585 28 28	143 1	47	
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## TYPHUS FEVER

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

Week ended-           Jary, 1328         March, 1928           4         21         28         4         11         18         25         3         10         17         24         31                 1         24         31         27         31         11         2         31         2         31         2         31         31         2         31         31         2         31 <t< th=""><th></th></t<>	
Week cnded-         March, 1928         March, 1928           1ary, 1928         February, 1928         March, 1928           1         1         12         24           1         1         18         25         3         10         17         24           1         1         18         25         3         10         17         24	
Week ended-           Jary, 1925         Meek ended-           4         21         28         March, 19           4         21         28         4         11           1         1         18         25         3         10         17	
Week cnded-           Jary, 1928         February, 1928         Mar           4         21         28         4         11         18         25         3         10           -         -         -         -         -         -         21         23         3         10	
Week ended- aary, 1928 February, 1928 4 11 18 25 3	
Week ended-           Jary, 1928         February, 1928           4         21         28         4	
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CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued

TYPHUS FEVER-Continued

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

			1927			Nov	ember,	1927	Dec	eniber, 1	927	Jai	19 Juary, 19	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Febr	uary, 19	8
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Bulgaria. Morocco		12 148	31-24	1-21-	°-1	5	14		5	9	21 12 12	2	9			8 <u>1</u> 8	60
P.ace	July- Sep- ember	October	Novem ber	- Decer ber	n- Janu ary	- Febri ary			Place			July- Sep- tember	October	Novem- ber	Decem- ber	Janu- ary	Febru- ary
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[C indicates cases; D, deaths; P, present]

YELLOW FEVER

Place	July 3-30, 1927	July 31- Aug. 27, 1927	Aug. 28- Sept. 24, 1927	Sept. 25- Oct. 22, 1027	Oct. 23- Nov. 19, 1927	Nov. 26. 1927	3 <sup>-</sup>	Deceu	16er, 19	54	Weel	Jar	d	1 1028		Febru	18 18	ន ន	
Ashanti: Obuasi 0 Belgian Congo: 0 Boma 0 Matadi 0 Oahomey: 0 Grand Popo 0 Porto Novo 0 Porto Novo 0 Vory Coast 0 Nigeria. Monrovia 0 Nigeria 0 Dakar 0 Togoland 0		0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0			883×5							615 C			μους, μου μου μου μου μου μου μου μου μου μου				
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