CONTENTS

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SEX DIFFERENCES IN THE INCIDENCE OF CERTAIN DISEASES AT DIFFERENT AGES[1]

Hagerstown Morbidity Studies No. IX[2]

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The present paper is, in a sense, a continuation of the reports on "The Illness Rate among Males and Females," and on "The Incidence of Various Diseases According to Age," previously published, since its purpose is to present the results of the Hagerstown morbidity study bearing on the incidence of certain diseases as manifested in illness among males and females at different age periods.

Since the scope and method of the study in which the basic data were obtained have been set forth at considerable length in the first paper of this series, and since especial reference may be made to the two papers mentioned above, it will not be necessary to repeat what already has been said. The comparability of the records for males and females is so essential, however, to whatever observations may be made in this paper that the question ought to be given rather careful consideration before presenting the data and in discussing the results of the study.

As was stated in the first paper of this series, the record of illness in our study was furnished by an adult member—usually the mother of the family—of each household visited. Might not this fact mean that a more complete record of illnesses, particularly the minor

[1] From the Office of Statistical Investigations, U. S. Public Health Service.

[2] 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. 25, June 24, 1927. Reprint No. 1167.

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

VII. The Causes of Illness at Different Ages. Pub. Health Rep., vol. 43, No. 18. Reprint No. 1225.

VIII. The Incidence of Various Diseases According to Age. Pub. Health Rep. vol. 43, No. 19. Reprint No. 1227.

ailments or those conditions which were manifested by subjective symptoms, was obtained for these informants than for other members of the household?

It is at once apparent that this condition could have no appreciable effect upon the illness rate among younger persons (up to 20 years of age); but the possibility of its effect upon comparative rates for certain diseases among adult males and females is undoubtedly great. This applies with especial force, of course, to diseases the occurrence of which is manifested in subjective symptoms only and the diagnosis of which is differentiated thereby. The records of diseases and conditions which manifest themselves in objective ways obviously are not so liable to this error. But undoubtedly the tendency on the part of the informant to report illnesses incident upon herself more completely than illnesses in others must nearly always be regarded as a weakness in the data whenever the method of collecting them does not eliminate it.

This weakness in the present study is difficult to eradicate, and we can only do so partially by two methods. One is to limit comparison of rates for males and females to those diseases which do manifest themselves in objective rather than subjective ways. The other is to select from our population groups of persons of opposite sex whose records were not subject to this incomparability. Both of these methods were followed, with the results that the illness data are reported (1) as recorded for persons of different sex-age groups for infectious diseases, diseases and conditions of the eye, ear, skin and kidneys and annexa, and external causes; (2) as recorded for other diseases and conditions for persons of different sexes and ages *under 20 years of age;* and (3) as recorded in a selected group of adults. The selection of the latter group was made in such a way as to eliminate as far as possible the effect of the condition already referred to, that many women reported their own illnesses and ailments whereas relatively few men did, as follows: We used the records of those families in which more than one adult female and at least one adult male were continuously resident. Since the original record contained a notation as to the identity of the informant on each case of illness, it was possible to compare the incidence of illness among those for whom other informants gave the information. In order to render as comparable as possible the two sets of records, only persons of adult age were included. A comparison of three groups was possible: (1) Women reporting upon themselves; (2) women reported upon by other women in the same households; and (3) men in the same households who were reported upon, usually by their wives.

The size of the experience in each sex and age group, upon which the results presented in this communication are based, was as follows:

Number of white males and females observed for the incidence of disease 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	
	Males	Females
All ages [1]	8,001	8,516
0–4	942	835
5–9	1,093	1,012
10–14	846	867
15–19	677	712
20–24	523	613
25–29	545	691
30–34	581	654
35–44	1,038	1,133
45–54	822	854
55–64	428	472
65 and over	346	464

[1] Includes population of unknown age.

The data as recorded for those diseases which we considered fairly suitable for sex comparisons in any age period are given in Table 1. The rates on an annual basis are given in Table 2.

TABLE 1.—*Number of cases of certain diseases and conditions among males and females in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Disease or condition	Sex	Number of cases							
		All ages [1]	0–4	5–9	10–14	15–24	25–44	45–64	65+
Epidemic, endemic and infectious diseases (1–42, except 11 and 31).	Males	740	336	326	37	13	15	8	2
	Females	725	292	292	50	27	38	18	6
Diseases of the eyes and annexa (85)	Males	73	10	20	13	8	12	7	2
	Females	66	5	14	16	3	13	10	4
Diseases of ears and mastoid process (86)	Males	106	41	25	21	11	5	3	------
	Females	142	31	53	24	9	19	3	2
Diseases of skin and cellular tissue (151–154, part of 205). [2]	Males	179	42	53	34	15	22	9	3
	Females	142	29	32	23	12	26	10	9
External causes (165–203)	Males	398	31	64	44	56	100	76	19
	Females	258	20	32	31	26	51	66	19

[1] Including unknown age.
[2] Includes rash, hives, and sores on body.

TABLE 2.—*Incidence of certain diseases and conditions among males and females in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Disease or condition	Sex	Annual rate per 1,000							
		All ages	0–4	5–9	10–14	15–24	25–44	45–64	65+
Epidemic, endemic and infectious diseases (1–42, except 11 and 31).	Males	92.5	356.8	298.3	43.7	10.8	6.9	6.4	5.8
	Females	85.1	349.6	288.6	57.7	20.4	15.3	13.6	12.9
Diseases of the eyes and annexa (85)	Males	9.1	10.6	18.3	15.4	6.7	5.5	5.6	5.8
	Females	7.8	6.0	13.8	18.5	2.3	5.3	7.5	8.6
Diseases of ears and mastoid process (86)	Males	13.3	43.5	22.9	24.8	9.2	2.3	2.4	------
	Females	16.7	37.1	52.4	27.7	6.8	7.7	2.3	4.3
Diseases of skin and cellular tissue (151–154, part of 205). [1]	Males	22.4	44.6	48.5	40.2	12.5	10.2	7.2	8.7
	Females	16.7	34.7	31.6	26.5	9.1	10.5	7.5	19.4
External causes (165–203)	Males	49.7	32.9	58.6	52.0	46.6	46.2	60.9	54.9
	Females	30.3	24.0	31.6	35.8	19.6	20.6	49.8	40.9

[1] Includes rash, hives, and sores on body.

The incidence of infectious diseases was found to be higher among boys than among girls, which is in line with general morbidity and mortality experience. In every age period after 10 years, however, the female rate is higher than the male rate, an indication which is not so generally observed and regarding which not a great deal of data have been published. The number of cases for most of the diseases included under this general title is too small to warrant com-

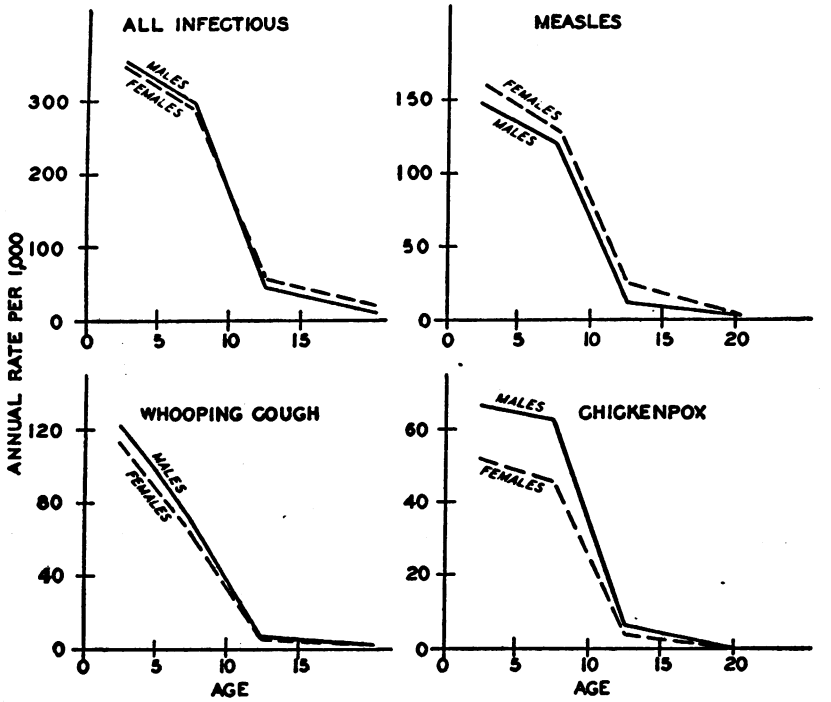


FIG. 1.—Incidence of infectious diseases manifested in illness among boys and girls in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

parisons according to age.[3] For measles, whooping cough, and chicken pox the number of cases is perhaps sufficiently large to record for different age groups, and is given in Tables 3, 4, and 5, and plotted in Figure 1. The male rate for measles, which disease occurred in epidemic form during the period of study, was under that of females; the reverse was true for chicken pox and whooping cough.

[3] See Tables 1 and 2 in Hagerstown Morbidity Studies No. I for number of cases and rates by diseases for males and females of all ages.

TABLE 3.—*Incidence of measles among males and females, by age, in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Age	Annual rate per 1,000		Number of cases		Age	Annual rate per 1,000		Number of cases	
	Males	Females	Males	Females		Males	Females	Males	Females
All ages	34.9	33.9	279	289	15–24	0.8	2.3	1	3
					25–44	.5	.4	1	1
0–4	147.6	160.4	139	131	45–64				
5–9	119.0	129.5	130	131	65+				
10–14	9.5	23.1	8	20					

TABLE 4.—*Incidence of whooping cough among males and females, by age, in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Age	Annual rate per 1,000		Number of cases		Age	Annual rate per 1,000		Number of cases	
	Males	Females	Males	Females[1]		Males	Females	Males	Females[1]
All ages	25.5	20.0	204	170	15–24	0.8	1.5	1	2
					25–44	.5	1.2	1	3
0–4	122.1	112.5	115	94	45–64	1.6	.8	2	1
5–9	71.4	63.3	78	64	65+				
10–14	8.3	5.8	7	5					

[1] Including 1 case in which the age was not known accurately enough for classification.

TABLE 5.—*Incidence of chicken pox among males and females, by age, in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Age	Annual rate per 1,000		Number of cases		Age	Annual rate per 1,000		Number of cases	
	Males	Females	Males	Females		Males	Females	Males	Females
All ages	17.4	10.9	139	93	15–24				
					25–44	0.5		1	
0–4	66.9	51.5	63	43	45–64				
5–9	63.1	45.5	69	46	65+				
10–14	7.1	4.6	6	4					

With reference to eye diseases and conditions, as shown in Figure 2 some differences between the sexes are apparent which may not be really significant on account of the small numbers involved. The excess in the male rate under 10 years of age was confined to a slightly higher incidence of pink eye and conjunctivitis, which possibly reflects the generally higher prevalence of infections among boys than among girls. The excess in the female rate in the older adult ages was due to "other eye trouble," which might have resulted from a failure on the part of informants to report similar conditions for males.

The sex-age curves for ear diseases and conditions are generally similar, as Figure 3 shows. The somewhat higher rate among girls aged 5 to 9 was due to a greater prevalence of otitis media and

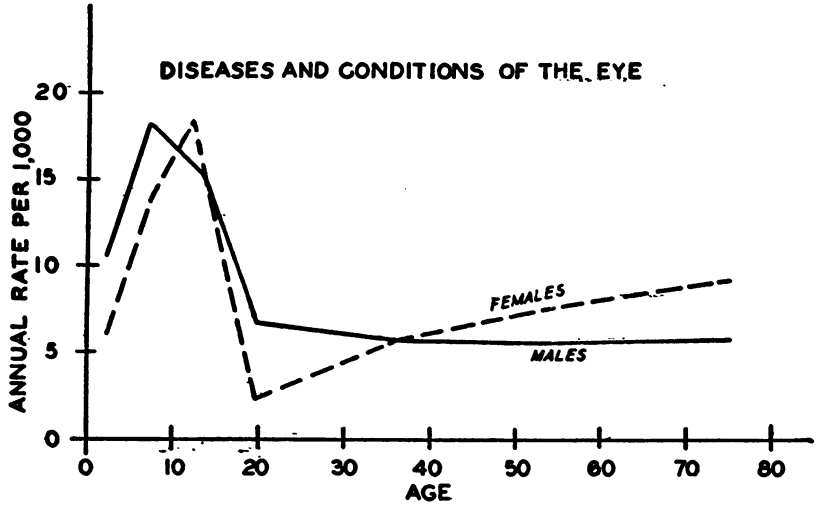


FIG. 2.—Incidence of diseases and conditions of the eye as manifested in illness among males and females of different ages in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

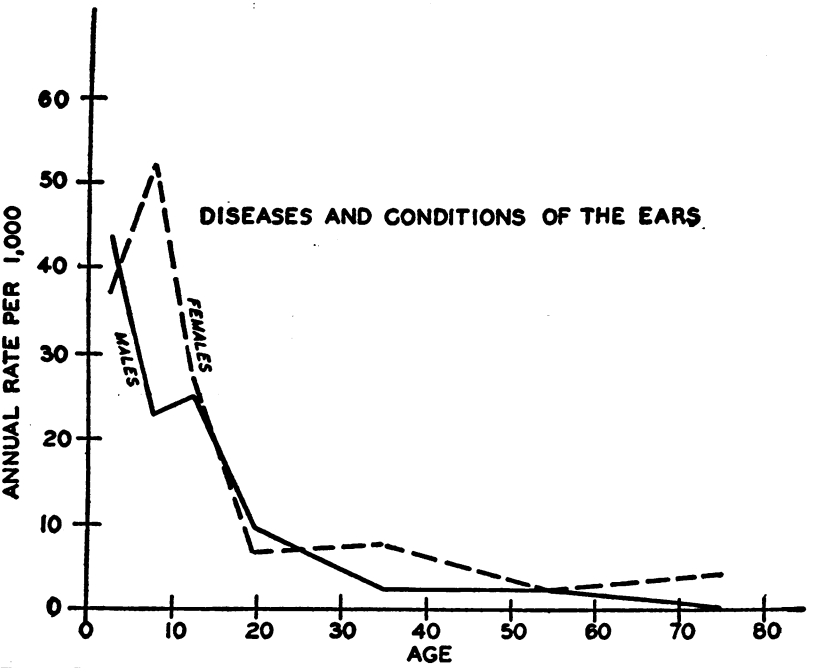


FIG. 3.—Incidence of diseases and conditions of the ear as manifested in illness among males and females of different ages in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

"earache," but the numbers are not large enough to justify any generalization.

The excess in the male rate for skin diseases and conditions under 20 years of age, as shown in Figure 4, occurs in spite of the fact that scabies and pediculosis were somewhat more prevalent among girls than among boys, as shown by Collins' data for the Hagerstown school children (*1*). This indication is again in accordance with the tendency for boys to be affected by infectious conditions to a greater extent than girls. In other age groups the age curves for this group of diseases is generally similar.

Keeping in mind the fact that practically all disabilities resulting from external causes were accidents, the rate for males is higher than that for females in every age period and is relatively highest in the

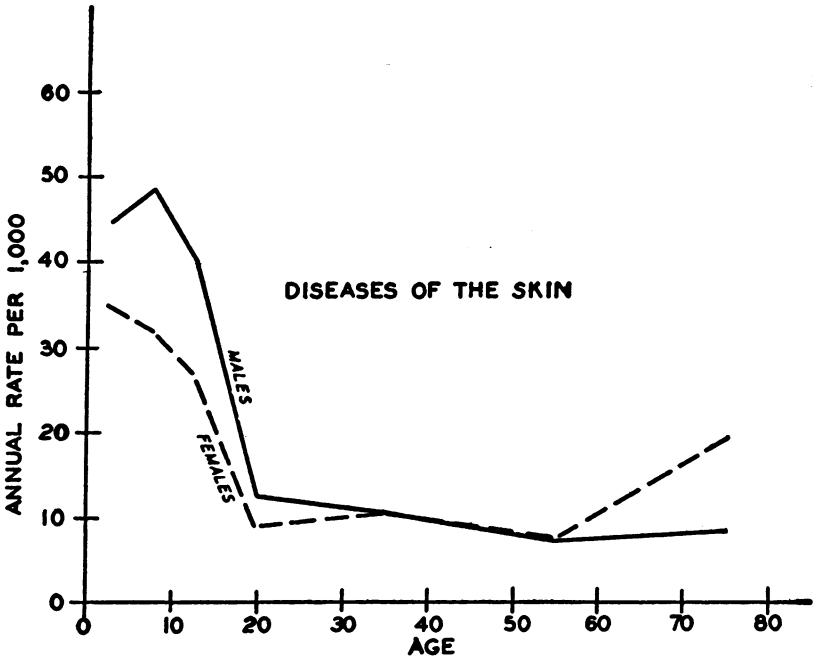


FIG. 4.—Incidence of diseases of the skin as manifested in illness among males and females of different ages in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

young adult (15 to 44 years) ages. (See Table 2 and fig. 5.) The accidents included are both industrial and nonindustrial; and this greater excess in the adult male rate at these ages may be safely ascribed to the greater frequency of accidents occurring directly or indirectly in connection with work. The proverbial greater adventuresomeness of boys is borne out by these accident statistics, and is exhibited in greatest degree in the age period 5 to 9 years. Between the ages of 9 and 15 the sex difference is diminished considerably, the accident rate for boys decreasing and the rate for girls increasing.

The size of the excess in the female rate over the male rate for nonvenereal diseases of the genito-urinary system from the beginning of

adolescence until old age was somewhat surprising and led us to doubt the comparability of the record for the two sexes. In all probability the records are not comparable from the viewpoint of completeness, but that there is a considerable excess in the female rate can not be doubted, for this group of diseases and conditions includes dysmenorrhea and kindred conditions that are peculiar to women. Brundage (*2*) reports for the (Boston) Edison Co. an annual rate of only 9 disabilities of one day or longer per 1,000 males for nonvenereal genito-urinary diseases as against 314 per 1,000 females of which 306 were due to dysmenorrhea and kindred conditions. These are ex-

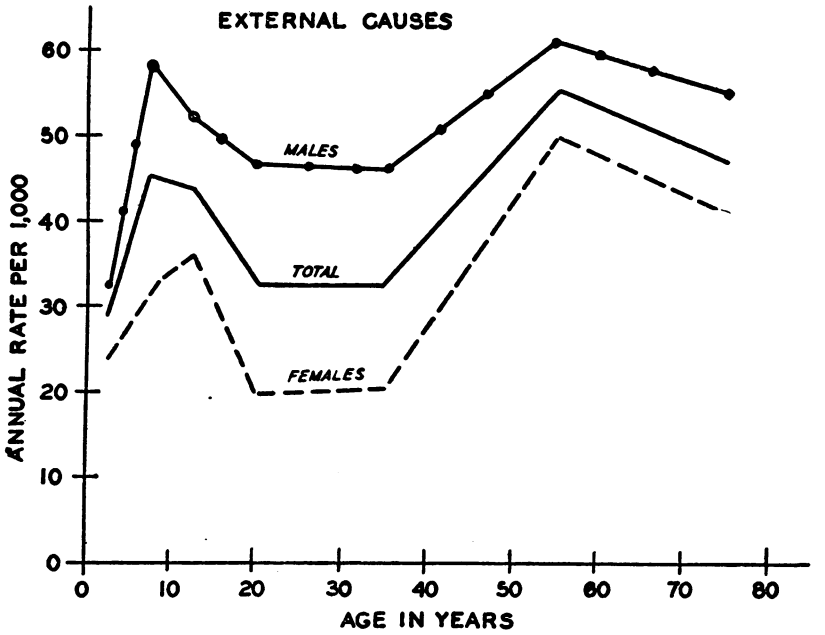


FIG. 5.—Incidence of disabilities from external causes among males and females of different ages in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

clusive of puerperal diseases and conditions which are shown separately in Figure 6. (For data and rates see Hagerstown Morbidity Studies, No. VIII.)

Sex differences in the incidence of respiratory, nervous, digestive, and circulatory diseases probably are accurately indicated by our records for persons under 20 years of age for the reason that those individuals were reported upon by some other person, usually the mother. (See Tables 7, 10, 11, and 13.) Therefore we have plotted the age specific rates for the four disease groups in Figure 7. The indications are not without interest. In general, young boys were affected to a greater extent than young girls by all of these diseases, but in adolescence precisely the opposite is true. Respiratory diseases and conditions were more frequent among boys in the age

periods 0 to 4 and 5 to 9, and among girls in the ages 10 to 24. Although both sexes under 5 years of age were affected about equally by nervous diseases and disorders, in the succeeding quinquennial period the male rate was higher, followed by a definite excess in the female rate in the age period 10 to 24. The excess in the male rates for digestive diseases and disorders, and circulatory conditions and diseases was confined to the age period 0 to 4 years; in the age period 5 to 9 years and in adolescence the female rates for both disease groups were definitely in excess of the male rates, especially for circulatory diseases and conditions. The number of cases is hardly large enough

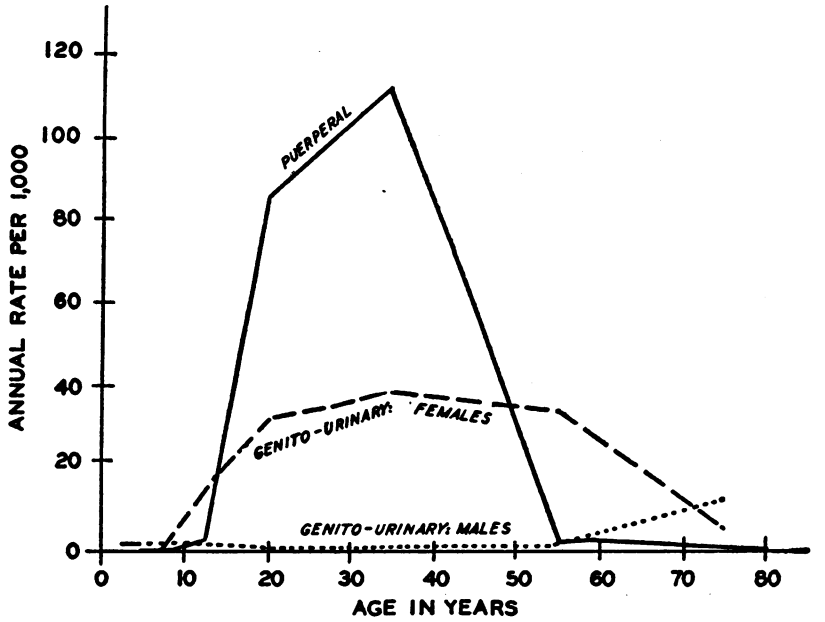


FIG. 6.—Incidence of illness due to puerperal conditions among females and of illness in which genito-urinary conditions were causes among males and females in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

to warrant more detailed conclusions, but the rates for such specific circulatory conditions as were recorded may be of interest, and are presented in Table 6.

TABLE 6.—*Incidence of specific circulatory diseases and disorders among males and females under 25 years of age in a white population group of Hagerstown, Md., December 1, 1921–March 31, 1924*

Condition	Sex	Annual rate per 1,000 for age periods			
		0–4	5–9	10–14	15–24
Heart disease	Males	-------	0.92	4.73	5.00
	Females	-------	3.95	15.00	9.06
Adenitis	Males	15.93	3.66	4.73	2.50
	Females	7.18	8.90	8.07	2.26
Hemorrhage [1]	Males	1.06	3.66	-------	-------
	Females	-------	-------	1.15	.75

[1] Including "nose bleeding."

TABLE 7.—*Incidence of respiratory attacks among males and females, by age, in a canvassed group of white persons of Hagerstown, Md., December 1, 1921,–March 31, 1924*

Age	Annual rate per 1,000		Number of cases [1]		Age	Annual rate per 1,000		Number of cases [1]	
	Males	Females	Males	Females		Males	Females	Males	Females
All ages	602	723	4,815	6,157	25–29	407	586	222	405
					30–34	437	724	254	474
0–4	974	861	917	719	35–44	427	734	443	832
5–9	949	919	1,037	930	45–54	470	701	386	599
10–14	733	838	620	726	55–64	452	688	193	325
15–19	469	579	318	412	65+	477	666	165	309
20–24	384	539	201	330					

[1] Including cases among 59 males and 96 females whose ages were not known accurately enough for classification.

Adenitis thus accounted for the excess in the male rate under 5 years of age, whereas the female rate for every condition save one was higher in the later ages.

We may now turn to some comparisons of disease incidence in adult males and females that are more difficult, because of the possibility that the records are more complete for females than for males.

The respiratory illness rate as recorded by us was higher among females in every age period except under 10 years. As already noted, the excess of the male rate in children was greatest under 5 years, diminished in the second quinquennial period, and in the third the reverse appeared. The excess of the female rate then continues throughout the remainder of the life span. These results are in conformity with those found by Surgeon J. G. Townsend and the writer (*3*) in the experience of families of medical officers of the Army, Navy, and Public Health Service, for persons up to 25 years of age, but are in contradiction to those found for persons 25 years of age and over. The ratios of the female respiratory rates to the male rates at different ages in the medical officers' families were as follows:

Ratio of respiratory attack rate among females to that among males in families of medical officers of Army, Navy, and Public Health Service, 1924

Age	Ratio: female / male	Age	Ratio: female / male
0–4	0.94	25–34	0.80
5–9	.92	35–44	.92
10–14	1.09	45–54	.83
15–24	1.23	55+	.96

Now, the attacks in the medical officers' families were reported by the medical officers themselves, and the medical officers constituted practically all of the male population 35 years of age and over; in the middle and later adult ages, therefore, the males reported upon

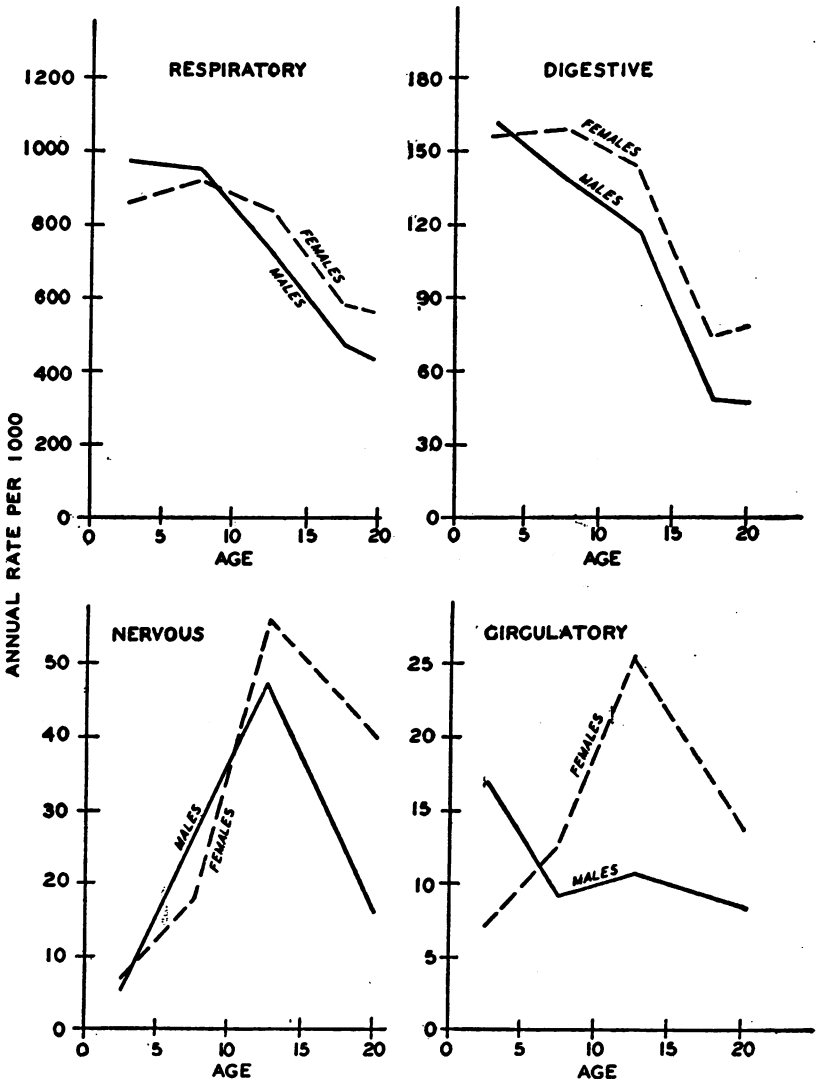


FIG. 7.—Incidence of respiratory, digestive, nervous, and circulatory diseases and conditions as manifested in illness among boys and girls in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

themselves, which is in contrast to the situation in Hagerstown, where, in the middle and later adult ages, the females reported upon themselves. The difference in the results of these two studies would seem to be due, therefore, chiefly to differences in the source of

information.[4] The possibility that one result may be nearer the truth than the other, however, ought to be considered, and the matter need not rest here; for, using the records for Hagerstown households where both adult males and adult females were *reported upon*, we find that the ratio of the adult female respiratory rate to the adult male was 1.2 to 1. For the entire adult population observed, this ratio was 1.5 to 1. So that for the kind of respiratory attacks that were recorded in the Hagerstown study the influence of the source of information upon its accuracy in this particular respect does not seem to account for all of the higher rate for females. Furthermore, this Hagerstown result is corroborated by all the indus-

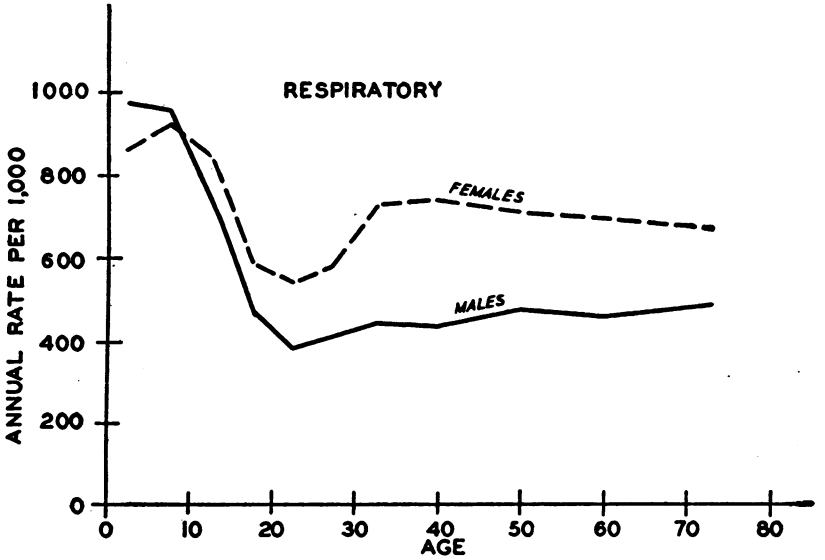


FIG. 8.—Incidence of respiratory diseases as manifested in illness among males and females in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

trial morbidity experience bearing upon this point that we have collected. For example, Brundage (*2*) has reported the (Boston) Edison Co.'s 10 years' experience of illness resulting in at least one day of disability, which gives a ratio of the adult female respiratory rate to the adult male rate of 1.70 to 1. Similarly, four years' records (*4*) of more serious illnesses (eight days or more of disability) among a large group of industrial employees has shown a sex ratio of 1.47 (females) to 1 (males) for respiratory diseases, exclusive of influenza, for which the ratio is 1.10 to 1.

[4] The data of the two studies are not comparable in some other respects. Thus the annual respiratory attack rate in the medical officers' families was 2,009 per 1,000, as contrasted with only 657 in the Hagerstown group. In the latter, only those attacks which manifested themselves in some degree of illness, as the word is ordinarily understood, were recorded, whereas in the former group it was the intention to secure records of all definite respiratory attacks regardless of the degree of sickness involved. Again, in the medical officers' families practically every attack was reported by a physician, whereas in the Hagerstown group only a small proportion of respiratory attacks of a minor nature were attended by physicians.

TABLE 8.—*Number of cases of diseases of the kidneys and annexa among males and females in a canvassed group of white persons of Hagerstown, Md., December 1, 1921—March 31, 1924*

Disease or condition	Sex	Number of cases							
		All ages[1]	0–4	5–9	10–14	15–24	25–44	45–64	65+
Diseases of kidney and annexa (128-134)	Males	77	3	7	4	3	14	22	23
	Females	160	13	5	7	8	36	56	31
Nephritis, acute and chronic (128, 129)	Males	31	1	1	1	1	6	9	12
	Females	52	------	------	2	5	2	23	19
Kidney trouble (unqualified) (131)	Males	24	1	3	3	2	5	5	5
	Females	67	13	4	5	3	22	14	5
Calculi of the urinary passages (132)	Males	7	------	------	------	------	2	4	1
	Females	7	------	------	------	------	1	4	2
Cystitis (133)	Males	5	------	------	------	------	1	1	3
	Females	18	------	------	------	------	3	9	4
Bladder trouble (133)	Males	10	1	3	------	------	------	3	2
	Females	14	------	1	------	------	6	6	1

[1] Includes cases among 1 male and 4 females whose ages were not known accurately enough for classification.

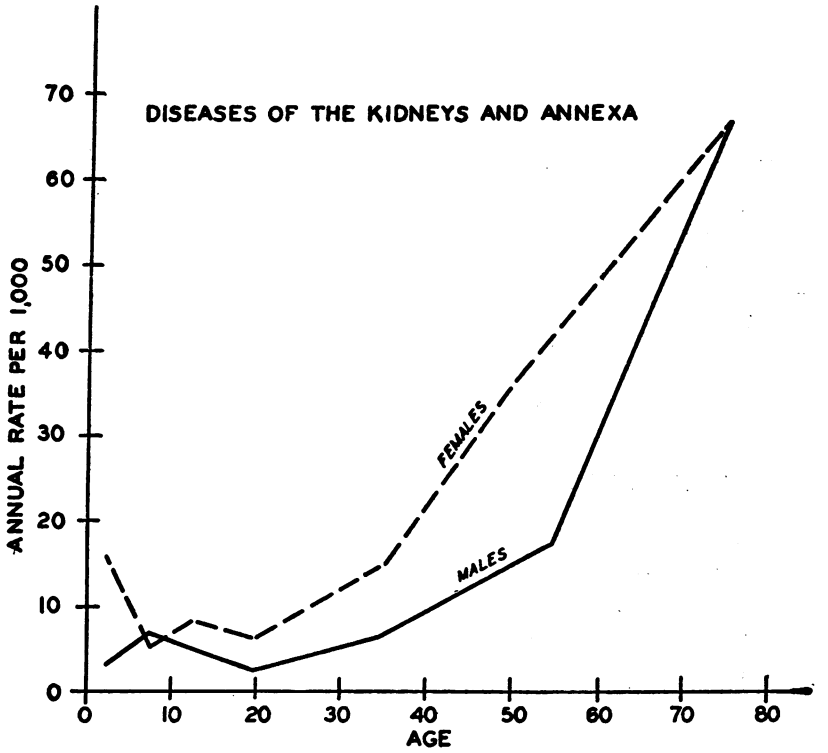


FIG. 9.—Incidence of diseases of the kidneys and annexa as manifested in illness among males and females in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

The rates as given in Table 7 and as plotted in Figure 8 do, we believe, represent a real sex difference in the incidence of respiratory diseases according to age in a general population group.

The excess of the female rate for kidney diseases at almost every age, as shown in Tables 8 and 9 and Figure 9, is contrary to mor-

tality experience. Whether or not the illnesses from these causes were more completely reported for females than for males, it is difficult to say; the number of cases was too small, in the selected group already referred to, to yield any indication on this point. Keeping in mind that the experience for the entire population is not large, the consistency of the excess in the female rate is not without possible significance. The detailed rates of diseases in this group are given as a matter of record, but we are not in a position to comment upon the apparent sex differences at the present time.

TABLE 9.—*Incidence of diseases of the kidneys and annexa among males and females in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Disease or condition	Sex	Annual rate per 1,000							
		All ages	0–4	5–9	10–14	15–24	25–44	45–64	65+
Diseases of kidney and annexa (128–134)	Males	9.6	3.2	6.4	4.7	2.5	6.5	17.6	66.5
	Females	18.8	15.6	4.9	8.1	6.0	14.5	42.2	66.8
Nephritis, acute and chronic (128, 129)	Males	3.9	1.1	.9	1.2	.8	2.8	7.2	34.7
	Females	6.1	------	------	2.3	3.8	.8	17.3	40.9
Kidney trouble (unqualified) (131)	Males	3.0	1.1	2.8	3.6	1.7	2.3	4.0	14.5
	Females	7.9	15.6	4.0	5.8	2.3	8.9	10.6	10.8
Calculi of the urinary passages (132)	Males	.9	------	------	------	------	.9	3.2	2.9
	Females	.8	------	------	------	------	.4	3.0	4.3
Cystitis (133)	Males	.6	------	------	------	------	.5	.8	8.7
	Females	2.1	------	------	------	------	1.2	6.8	8.6
Bladder trouble (133)	Males	1.3	1.1	2.8	------	------	------	2.4	5.8
	Females	1.6	------	1.0	------	------	2.4	4.5	2.2

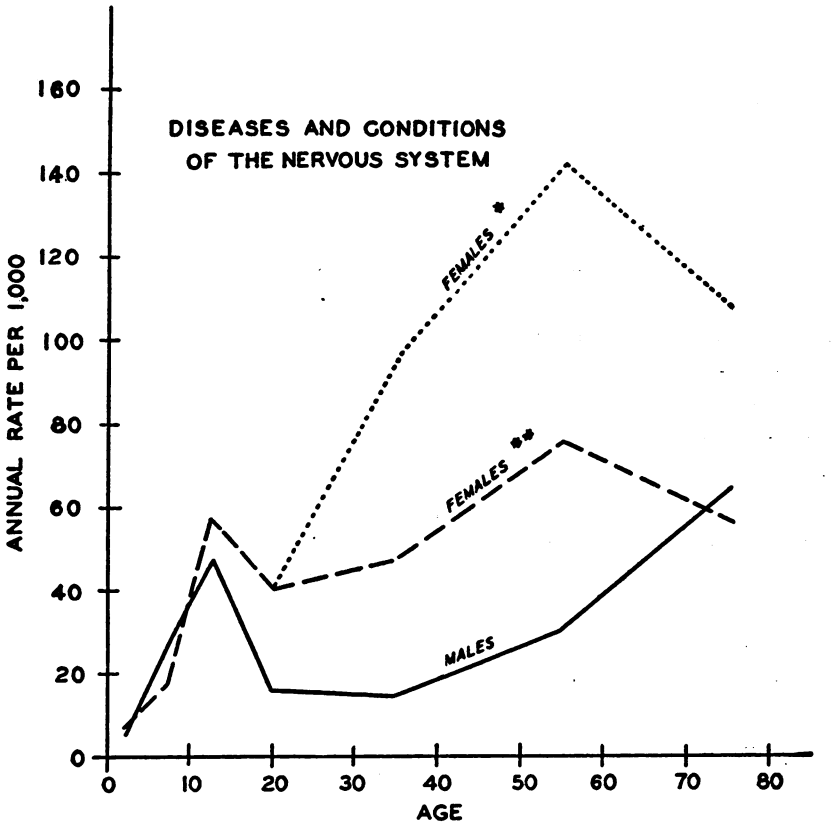
The female rate for diseases and conditions of the nervous system, as it was recorded (Table 10), is higher than the male rate in every age group after 10 years. Since we have included under this heading all headaches that presumably were not symptoms of some other condition noted, and since most of the manifestations of these diseases and conditions are subjective in character, some of the excess of the female rate in adult ages might easily have been due to the tendency for women informants to have reported more completely their own ailments than those of their husbands.

TABLE 10.—*Incidence of diseases of the nervous system, by age, among males and females in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Age	Annual rate per 1,000		Number of cases [1]		Age	Annual rate per 1,000		Number of cases [1]	
	Males	Females	Males	Females		Males	Females	Males	Females
All ages	23.3	72.3	186	616	15–24	15.8	40.0	19	53
					25–44	14.3	96.1	31	238
0–4	5.3	7.2	5	6	45–64	29.6	141.7	37	188
5–9	26.5	17.8	29	18	65+	63.6	107.7	22	50
10–14	47.3	56.5	40	48					

[1] Including cases among 3 males and 14 females whose ages were not known accurately enough for classification.

As a matter of fact, in those households where a comparison could be made of the rates for the two sexes when both were reported upon by others, the ratio of the adult female to the adult male rate for nervous diseases was only 2.58 to 1, as contrasted with 4.94 to 1 for the entire adult population studied. In plotting the sex-age curves in Figure 10 for illnesses in which nervous diseases or conditions were involved, a rough correction has been attempted for this factor by reducing the recorded rate by 48 per cent. The female rate is still



* Rate as recorded.
** Rate as estimated from the incidence among families reported upon by informants other than themselves.

FIG. 10.—Incidence of diseases and conditions of the nervous system as manifested in illness among males and females in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924

in excess of the male rate from the ages 10 to 65, and this indication is corroborated by our industrial morbidity experience. For example, the (Boston) Edison Co.'s (*2*) 10 years' record shows a ratio of female rate to male rate of 4.1 to 1 for nervous disabilities of one day or longer. The four years' record of illness causing disability of eight days or longer in a large group of industrial workers showed a ratio of 2.4 to 1 (*4*).

Similarly, our record of digestive diseases (Table 11) shows a considerable excess in the adult female rate over the adult male rate in all age periods, but in the group of males and females reported upon by others in the same household this excess persists to the extent of a ratio of 1.8 to 1, which is not so greatly below that for the entire adult population, which was 2.1 to 1. Brundage (*2*) data for the (Boston) Edison Co. give a ratio of 2 to 1, while the records of more serious digestive illnesses (*4*) give a ratio of 1.8 to 1. The excess of the adult female illness rate from digestive causes seems, therefore, to be about 80 to 100 per cent above the male rate. For some of the specific diseases and conditions the rates (all ages) are shown in Table 12.

TABLE 11.—*Incidence of diseases of the digestive system among males and females, by age, in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Age	Annual rate per 1,000		Number of cases [1]		Age	Annual rate per 1,000		Number of cases [1]	
	Males	Females	Males	Females		Males	Females	Males	Females
All ages	83.6	119.3	669	1,016	15–24	48.3	74.0	58	98
					25–44	42.0	96.9	91	240
0–4	161.4	155.7	152	130	45–64	68.1	147.8	85	196
5–9	139.1	158.2	152	160	65+	83.8	114.2	29	53
10–14	117.0	143.0	99	124					

[1] Includes cases among 3 males and 15 females whose ages were not known accurately enough for classification.

TABLE 12.—*Incidence of certain digestive diseases and conditions among males and females as recorded in a white population group of Hagerstown, Md., December 1, 1921–March 31, 1924*

Disease or condition	Annual rate per 1,000		Disease or condition	Annual rate per 1,000	
	Males	Females		Males	Females
"Indigestion" and "upset stomach"	40.1	49.1	Hernia	2.3	1.1
"Stomach trouble" and nausea	7.4	9.2	Biliary calculi	1.4	7.2
Diarrhea	12.0	14.4	Cholecystitis	.4	3.4
Appendicitis	3.3	8.6	Jaundice	2.3	3.2
			"Biliousness"	7.3	13.4

The Hagerstown record of the illness rate from diseases and conditions of the circulatory system among adults is at variance with industrial experience. As indicated in Table 13, the adult female rate is higher than the male rate in all age periods except "65 years and over," whereas the Edison Co.'s (*2*) experience of disabilities of one day or longer due to these causes shows that the female rate was only 82 per cent of the male rate and the industrial employees' record of disabilities lasting eight days or longer shows that the female rate was 92 per cent of the male, all of these wage earners being under 65 years of age. The wage earners were all

actively employed, however, and it is possible that a higher prevalence of circulatory diseases may characterize the nonwage-earning women than men. Upon this point we have no adequate data as yet.

TABLE 13.—*Incidence of diseases of the circulatory system among males and females, by age, in a canvassed group of white persons of Hagerstown, Md., December 1, 1921–March 31, 1924*

Age	Annual rate per 1,000		Number of cases [1]		Age	Annual rate per 1,000		Number of cases [1]	
	Males	Females	Males	Females		Males	Females	Males	Females
All ages	13.4	29.4	147	250	15–24	8.3	13.6	10	18
					25–44	11.6	19.4	25	48
0–4	17.0	7.2	16	6	45–64	26.4	60.3	33	80
5–9	9.2	12.9	10	13	65+	124.2	112.0	43	52
10–14	10.6	25.4	9	22					

[1] Includes cases among 1 male and 11 females whose ages were not known accurately enough for classification.

SUMMARY

To summarize our findings on differences in the incidence of various diseases as manifested in illness between males and females:

In general, the incidence of most diseases is higher among boys than among girls under the age of 5, and for some diseases the excess of the male rate persists in the age group 5 to 9 years. In the adolescent ages, however, the opposite is true, the principal exceptions being diseases of the ears and eyes. In the adult ages, the Hagerstown records show a higher female rate for all diseases for which comparisons are warranted. The only definite exception to the excess in the female rate in ages 10 years and over is the incidence of disabilities from external causes, nearly all of which were accidents.

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.

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STATISTICS OF ADMISSIONS TO HOSPITALS FOR THE INSANE

The United States Public Health Service is making an attempt to secure and publish regularly current monthly data relative to admissions to hospitals for the care and treatment of insane persons in the United States. For this purpose monthly reports are being sought from institutions in each State which care for this class of patients, and it is believed that, with the cooperation of these hospitals, the information published will be of considerable value not only to all persons interested in mental hygiene, but to health authorities generally. For the present time it will be possible to secure and classify the data by sex and psychoses only. It is desired, of course, to make these statistics as complete as possible, and therefore the cooperation of all institutions for insane patients is most earnestly desired.

On page 1288 of this issue of Public Health Reports there are published the reports that have been received of first admissions to hospitals for the insane for the month of January, 1928. The tabulation includes 2,103 first admissions classified by psychoses and by sex of patient. These reports were received from 83 institutions, located in 30 States, the District of Columbia, and the Territory of Hawaii. Reports from other institutions are expected, and data for later months will be published as soon as compiled.

COURT DECISION RELATING TO PUBLIC HEALTH

Lighting and ventilation provision in city housing code upheld.—(Oregon Supreme Court; Daniels *v.* City of Portland et al., 265 P. 790; decided March 27, 1928.) The housing code of the city of Portland, which code came into existence in 1919, contained a provision reading as follows:

SEC. 123. No room in a dwelling erected prior to the passage of this code shall hereafter be occupied for living purposes unless it shall have a window of an area of not less than 8 square feet opening directly upon the street, or upon a rear yard not less than 10 feet deep, or above the roof of an adjoining building, or upon a court or side yard not less than 25 feet square in area, open to the sky without roof or skylight, unless such room is located on the top floor and is adequately lighted and ventilated by a skylight opening directly to the outer air.

A hotel building, constructed in 1907 under a permit granted by the city pursuant to the building code provisions then in force, had certain rooms, designed as sleeping and housekeeping rooms, with windows opening only upon a light well or court. The said light well or court was covered at the top with a sloping canopy, constructed partly of translucent glass and partly of wood or other supporting material, and the only opening in the canopy was a small ventilator. The plaintiff, the owner of the hotel, alleged that the chief health inspector of the city, under threat of immediate arrest, illegally ordered and directed him to remove the skylight over the court, or immediately to cease using or renting for sleeping purposes rooms having windows opening on the court. In a suit to enjoin the city from enforcing the above-quoted provision of the housing code the plaintiff contended that the said provision was unconstitutional, and that the ordinance was arbitrary and not a proper exercise of the police power vested in the city. The supreme court stated that the right of regulation, under the police power, was not limited by the fact that the value of an investment would be lessened, and that, as the record tended to show an unhealthful condition in the matter of ventilation, it became the plaintiff's duty, upon complaint to the proper authorities, to abate the condition in some feasible and efficient manner. Regarding the plaintiff's assertion that the ordinance was retrospective, the court said that the building permit granted by the city for the construction of the hotel did not "affect the right of the police power of the city of Portland to adopt and apply to it regulative measures looking to the public health." The trial court's decree, dismissing the complaint, was affirmed.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Preliminary Report of the Investigation of the Pollution of the Mississippi River in the Vicinity of Minneapolis and St. Paul. H. R. Crohurst. Unpublished report made under supervision of U. S. Public Health Service in cooperation with the States of Minnesota and Wisconsin and the cities of Minneapolis and St. Paul. 86 pages. (Abstract by H. R. Crohurst.)

The basic data collected during a study of the pollution of the upper Mississippi River, between Minneapolis and Winona, Minn., in connection with a joint investigation by the Public Health Service, the States of Minnesota and Wisconsin and the cities of Minneapolis and St. Paul, during the period June, 1926–August, 1927, has been made available, in mimeograph form, for the use of the cooperating agencies, to assist in the solution of the sewage-disposal problem existing in that portion of the Mississippi River.

The report contains summarized results, as monthly averages of the chemical and bacteriological examinations and the hydrometric data. Population estimates, estimates of sewered population, population equivalent to industrial wastes, and other pertinent data are presented.

The disposal of the sewage of the Twin Cities, by dilution, is complicated by a dam located below Minneapolis, behind which there is a considerable deposition of sewage solids from the city sewage as a result of decreased velocity in the river. The problem of the disposal of the sewage from the remainder of the metropolitan area will be still further complicated by the construction of a second dam, in the near future, which will form a second pool immediately below the present one and will decrease the velocity in the river through St. Paul and South St. Paul.

Indications are that the sewage load in the river will increase so that objectionable conditions through the Twin Cities and as far down stream as Hastings will be of frequent occurrence in the future. The formation of the second pool will intensify the present objectionable conditions.

Studies of methods of sewage disposal are being conducted by the Metropolitan Drainage Commission, created by the last legislature and by the Minnesota State Department of Health. It was primarily to make available the basic data relative to conditions existing in the river, for the use of these State organizations, that the preliminary report was prepared.

Milwaukee Metropolitan Sewerage District Problem. T. Chalkley Hatton. Proceedings of Ninth Texas Water Works Short School, January 24–29, 1927. pp. 297–300. (Abstract by H. E. Hargis.)

The city of Milwaukee has a population of approximately 560,000 and an area of 34 square miles, and surrounding it are 13 separate municipalities of a combined population of 80,000. The city of Milwaukee obtains its water from an intake 70 feet below the lake surface and 6,500 feet from shore. The average daily flow of sewage is about 65,000,000 gallons, and all the water that was used for drinking purposes had *B. coli* present, necessitating chlorination.

In 1913 a statute was passed creating a sewage commission for the city of Milwaukee, but this commission had no power outside the city limits. In 1921, however, a statute was passed creating a metropolitan sewerage commission, and giving it authority to build a sewage-treatment plant outside the city of Milwaukee, and to collect all the sewage from the outlying towns and dispose of it here. The cost of operation was to be assessed against the municipalities in proportion to the amount of sewage each contributed.

An activated sludge plant was installed with a maximum capacity of 128,000,000 gallons. By November 1, 1925, the plant was in operation and satisfactorily treating about 70,000,000 gallons a day. At present it is costing about $11 per

million gallons to treat the sewage, not including interest, sinking fund, or depreciation.

The Public Works of the Ruhr Sanitary District. Karl Imhoff. Pamphlet in German, June, 1927. 8 pages. (Abstract by A. L. Dopmeyer.)

The Ruhr River Sanitary District was established by a Prussian law on June 5, 1913. Its sole purpose is to prevent pollution of the Ruhr River and its tributaries. The total contributing population is about 1,300,000. Industrial wastes are contributed by coal mines, iron and steel works, tanneries, textile works, and cellulose and paper works. According to the law one-third of the cost of carrying on the work of the district is paid by the water works, since they are considered as receiving the greatest benefit.

Most of the construction work has been carried on in the last four years, during which time total expenditures for the years were as follows: 1923, $472,000; 1924, $710,000; 1925, $1,150,000; 1926, $1,970,000; 1927, estimated, $2,140,000.

The works consist of sewage-disposal units, sewerage systems, and pumping plants. To date 36 disposed units, 56.5 miles of collecting sewer, and five pumping plants have been built.

For three towns located near the mouth of the Ruhr, a collecting sewer 6.8 miles long was constructed, which carries this sewage to the main stream—the River Rhine.

In other sections where it was impossible to divert sewage directly to the Rhine, various types of disposal plants have been installed. The methods of treatment used at various places are listed in this article and there are a number of photographic views.

Separate sludge digestion is used in one town of 16,000 and in another of 12,500. A sludge digestion tank, in which the sludge is heated, is used at one place. The sludge digestion tank was installed as an addition to the original Emscher tank. Heat is obtained by burning the gas from the treatment plant. Chlorination of sewage is used only to a limited extent. An activated sludge plant is used at Essen-Rellinghausen, population 45,000. There are very few treatment plants for handling industrial wastes alone, and it has been the general rule to mix the wastes with domestic sewage and treat the mixture.

Stream Pollution in Wisconsin. Wis. State Bd. Health, 1927. pp. XVIII+328. Experiment Station Record, U. S. Dept. of Agriculture, vol. 58, No. 6. April, 1928, p. 585.

"This is a joint report of the Conservation Commission and the State Board of Health of Wisconsin concerning their activities in the control of stream pollution from July 1, 1925, to December 31, 1926.

"The data reported indicate that the discharge of industrial waste into certain streams is the only practical method of ultimate disposal in many cases and constitutes a necessary and proper use of the stream, provided the dilution is so great that there is no menace to public health nor material interference with the natural aquatic life of the stream.

"Nearly all wastes cause reduction of the dissolved oxygen of the stream, and industrial wastes generally have a greater oxygen demand than domestic sewage. Biological oxidation is more rapid during warm weather than during cold weather, so that the oxygen demand of the waste is greater, although the actual amount of oxygen available is less, since warm water retains less oxygen in solution. When the dissolved oxygen of a stream is depleted, green plants and other grasses of aerobic life die and anaerobic organisms such as worms and lower animal life prevail. A stream tends to purify itself by natural processes and will ultimately return practically to normal if the concentration of the wastes is not too great.

"The results of an experimental investigation concerning the efficiency and practicability of chemical treatment in removing substances from pea-cannery wastes that cause local nuisances and objectionable stream pollution showed that by careful operation and the application of about 3.25 pounds of ferrous sulphate and 7.25 pounds of lime per 1,000 gallons of waste, the oxygen demand can be reduced approximately 75 per cent. If the sludge is allowed to accumulate in the tank, the oxygen demand reduction averages only 34 per cent, because the precipitated organic matter goes partially into solution and is carried through the tank. Aeration of the tank effluent will effect a further reduction in the oxygen demand, approximately 50 per cent being indicated by laboratory tests. The chemical treatment will materially reduce stream pollution and prevent local nuisances created by pea-cannery wastes.

"Studies in the treatment of sulphite waste liquor from pulp and paper mills to reduce its oxygen demand in the control of stream pollution showed that ponding and aeration of the waste will effect a very material reduction in its oxygen demand. Mechanical aeration will also reduce the oxygen demand.

"Data from stream pollution surveys are also included."

The Effect of the Activation of Sewage Sludge on Pathogenic Organisms. H. Bruns and F. Sierp. Abstract by M. E. Delafield in *Bulletin of Hygiene*, vol. 2, No. 2, November, 1927, pp. 904–905. (Abstract by R. E. Tarbett.)

Experiments with activated sludge method of sewage treatment were carried on to determine the reduction in pathogenic organisms where definite numbers of such organisms were added to the raw sewage. Sewage containing 450,000 typhoid organisms per cubic centimeter was found to undergo a reduction of 96 per cent after 12 hours' treatment, the greatest effect being secured in the first 6 hours. The clear effluent was practically free from the organisms, such as remained being in the sludge.

Similar reductions were obtained in the case of paratyphoid, bacillary dysentery, and cholera. Anthrax spores were found to have a much greater resistance.

It is suggested that the bacterial destruction is due to the bacteriophagic power of the sewage plankton.

Sanitary Supervision of Tourist Camps and Recreation Places. Lewis S. Finch. *The American City*, vol. 36, No. 5, May, 1926, pp. 661–664. (Abstract by D. W. Evans.)

For the last four years an inspection of all tourist camps has been made by the water and sewage department of the State board of health of Indiana. Water supplies are sampled, methods of disposal of garbage and sewage are investigated, and unsatisfactory conditions noted. The final report of the survey, with recommendations, is sent to the owner and to the local health officer. It is the duty of the latter to require that all recommendations be carried out, otherwise the camp is declared a health nuisance and may be ordered closed. During 1926, of the 233 camps operating, 104 were approved. The regulations dealing with these subjects are noted in the article and include headings on supervision, drainage, water supply, sewage, garbage or waste disposal, and enforcement of the rules.

The second topic gives a general statement with regard to sanitation of resorts, and it is brought out that the "Lake Order" of 1926 will indirectly improve conditions at the resorts by requiring treatment of sewage before discharge into a lake. The third topic briefly states the regulations dealing with swimming pools as tentatively adopted by the conference of State sanitary engineers.

The efficient operation of any of these recreational features depends mainly upon close supervision by an experienced operator, while the responsibility of seeing that sanitary conditions are maintained rests entirely with the local health officer.

Zeolitic Water Softening. Ray Riley. Proceedings of Ninth Texas Water Works Short School, January, 1927, pp. 139–143. (Abstract by H. D. Cashmore.)

A semitechnical discussion of the zeolitic method of softening water and its applications.

The terms "hard" and "soft" are only relative terms and are dependent on the individual using them and the section of the country from which he comes. Hard water is not only an annoyance but an expense. Precipitation of the hardening constituents costs more in soap than the amount of soap required for cleaning purposes; and when this item is eliminated, the saving will in many cases pay for the cost of softening.

The two methods of water softening, namely, the lime-soda process and the zeolite process, are compared as to use, cost, and results obtained. The lime-soda method is more suitable where large amounts of water are used; but when small supplies are to be treated, the zeolite method is less expensive. This method has found application to textile industries, power plants, laundries, hotels, and houses. Following are some of the advantages: (1) Complete removal of hardness with no "after reactions"; (2) unaffected by fluctuations in hardness; (3) occupies a small space and simple in operation.

A great deal of variation exists in the zeolites upon the market to-day in reference to operation. There are two general classes of zeolites: (1) Those of natural origin—from clay, from glauconite or greensand; and (2) synthetic—precipitated, gel type. A detailed discussion is given regarding the production and use of these two groups.

The real operation or procedure of softening water by this method is a chemical engineering problem. There are many details which must be worked out and are included in this discussion.

Nitrites Formed in Water by Chlorination. C. E. Morgan. *Water Works*, vol. 67, No. 3, March, 1928, pp. 125–126. (Abstract by C. R. Cox.)

The water supply of Miami, Fla., is derived from wells drilled in limestone. The well water is colored and has a large organic content, especially albuminoid ammonia, but there are no nitrites present in the raw water. The water is coagulated and softened and filtered, but not chlorinated at all times. Following the hurricane, the filtered water was chlorinated. It was ascertained that apparently a large residual chlorine content existed at distant points in the distribution system. Investigation indicated that this was due to the reaction of nitrites with orthotolidine, the nitrites being formed by the oxidation of the albuminoid ammonia by the chlorine. The orthotolidine test is still available for determining chlorine, provided the test is made within 30 minutes after the chlorine is applied. The reaction of nitrites and orthotolidine is slow, requiring 20 minutes for maximum color to appear. False results were also secured when nitrites reacted with starch-iodide reagent.

The Value of Laboratory Tests in Water-Works Operation. A. E. Berry. *Contract Record and Engineering Review*, vol. 42, No. 11, March 14, 1928, pp. 291–294. (Abstract by R. E. Thompson.)

A general discussion, with particular reference to conditions in Ontario. Fifty of the 240 waterworks systems in operation in Ontario include filtration plants, and over 110 employ chlorination. Considerably over 75 per cent of all water used for domestic purposes is purified. The Department of Health maintains 8 laboratories, in addition to an experimental station, located at convenient points to serve the whole Province. Last year over 20,000 samples were analyzed, but, unfortunately, most of these were from a limited number of supplies. Fifty per cent of the supplies had less than 50 analyses made, and 40 per cent had none whatever. The expenditure for a plant laboratory may frequently be offset by the savings in cost of treatment accomplished thereby. Reports are not uncommon in which are recorded reductions in chemicals to the extent of 50 per cent and

amounting to several thousand dollars per year as a result of laboratory control. The importance of adequate plant records is stressed.

New Filtration Plant at Waukegan, Illinois, Designed on Duplex Plan. Anon. *Water Works*, vol. 67, No. 3, March, 1928, pp. 97–102. (Abstract by C. R. Cox.)

This article is a description of a modern rapid sand filtration plant, with many interesting features, designed to filter Lake Michigan water. The plant is designed as two independent units with suitable cross connections to permit any one portion of one unit to be operated with the other portions of the other unit. A specially designed raw water aerator is used, which operates on the injector principle, whereby air is drawn through numerous tubes as the water flows by the ends of the tubes. The air is carried with the water to the bottom of a tank, and then rises to the surface, thus causing agitation of the water, which mixes the coagulant added just prior to aeration. The aerated water is then discharged into covered coagulating basins of 3½-hour capacity, and then to 10 rapid sand filter beds. The filters are conventional except for the underdrains. A cast-iron header is located in the front wall of each filter, and 20 bronze underdrains project across the bottom of each filter from these headers. The tubes are embedded in the furrows of a ridge and furrow concrete bottom, with ⅛-inch holes drilled on the upper side of the tubes, which are flush with the bottom of the furrows. Clear wells are located under each row of 5 filter beds. Duplicate chlorination equipment, with two machines in each unit, is used to chlorinate the filtered water flowing to duplicate, secondary aerators of the same design as the primary aerator. The chlorinated and aerated water then enters duplicate covered storage reservoirs with a 12-hour detention period. Provisions have been made for split or double chlorination in case this is found to be desirable.

The Effect of Slightly Alkaline Tap Water Upon Spawn and Eggs of Trout and Perch. Edward S. Hopkins. *Journal American Water Works Association*, vol. 19, No. 3, March, 1928, p. 313. (Abstract by J. H. O'Neill.)

The impossibility of hatching or raising brook or rainbow trout at the Druid Hill Tank hatchery, supplied with water from the city supply of Baltimore, Md., led to a study of the cause of the high mortality among the fish.

Experiments were made with three types of water: (*a*) The Baltimore water. alkaline, and with high oxygen content and no free carbon dioxide; (*b*) water from Lewiston, containing free carbon dioxide and high oxygen content; (*c*) a spring water containing free carbon dioxide and low oxygen content.

It was found that trout and perch would not live in water (*a*) but would live and thrive in the other two waters. When artificially carbonated to a pH value of about 6 to 7, water (*a*) was not detrimental to fish life. These experiments indicated that free carbon dioxide, regardless of the oxygen concentration, is necessary in water for the sustenance of fish life.

Saving and Keeping Elevated Water Storage Tanks or Towers and Standpipes in Sanitary Condition. D. W. Pyle. Prodeedings of Ninth Texas Water Works Short School, January, 1927, pp. 219–220. (Abstract by H. D. Cashmore.)

Many tanks are lost through laxity in the proper and timely care of the surfaces. The surfaces should be cleaned by an electric wire brush and the paint supplied by a compressed-air spray.

The installation of a clean-out valve has the following advantages: (1) Sediment can be flushed out without emptying tank or removing it from service; (2) many tanks have the riser main extending up into the tank some distance, making it impossible to flush by draining without a clean-out valve; (3) cleaning by means of a flush valve prevents the contamination due to other methods.

The bottom of standpipes should be fitted with 3-inch or 4-inch valve and covered with a coat of rock asphalt or tar higher on the opposite side. This permits efficient flushing by the pressure of the water alone.

DEATHS DURING WEEK ENDED MAY 12, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended May 12, 1928, and corresponding week of 1927. (From the Weekly Health Index, May 16, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 12, 1928	Corresponding week, 1927
Policies in force	71, 171, 763	67, 645, 777
Number of death claims	15, 891	12, 728
Death claims per 1,000 policies in force, annual rate	11. 7	9. 8

Deaths from all causes in certain large cities of the United States during the week ended May 12, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, May 16, 1928, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 12, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended May 12, 1928 [2]
	Total deaths	Death rate [1]		Week ended May 12, 1928	Corresponding week, 1927	
Total (66 cities)	8, 762	15. 4	12. 9	906	780	75
Akron	46			6	5	65
Albany [3]	45	19. 5	17. 0	7	1	143
Atlanta	68	13. 9	16. 1	7	10	
White	33		12. 2	3	5	
Colored	35	(4)	25. 4	4	5	
Baltimore [3]	239	15. 0	14. 6	20	21	64
White	169		12. 6	13	13	52
Colored	70	(4)	26. 0	7	8	110
Birmingham	90	21. 2	13. 4	7	5	66
White	38		8. 2	3	3	41
Colored	52	(4)	21. 5	4	2	90
Boston	268	17. 5	17. 0	31	33	86
Bridgeport	39			4	1	73
Buffalo	157	14. 8	13. 3	12	21	52
Cambridge	42	17. 5	12. 2	6	3	107
Camden	24	9. 3	14. 1	5	3	80
Chicago [3]	925	15. 3	11. 1	115	72	99
Cincinnati	178	22. 5	17. 7	14	13	85
Cleveland	260	13. 5	9. 4	35	24	95
Columbus	83	14. 6	10. 7	8	4	75
Dallas	38	9. 1	10. 1	8	5	
White	29		9. 3	7	5	
Colored	9	(4)	15. 2	1	0	
Denver	85	15. 1	14. 6	9	4	
Des Moines	32	11. 0	12. 3	3	2	50
Detroit	392	14. 9	12. 0	52	46	80
Duluth	34	15. 2	11. 8	1	5	23
El Paso	30	13. 3	13. 8	11	12	
Erie	23			3	4	62
Fall River [3]	31	12. 1	10. 2	3	3	51
Flint	29	10. 2	9. 9	7	1	89
Fort Worth	44	13. 7	15. 9	3	9	
White	37		15. 2	3	8	
Colored	7	(4)	21. 3	0	1	
Grand Rapids	41	13. 1	10. 6	5	2	75
Houston	53			8	4	
White	40			6	1	
Colored	13	(4)		2	3	
Indianapolis	106	14. 5	13. 8	7	8	53
White	88		13. 6	6	4	52
Colored	18	(4)	15. 1	1	4	61
Jersey City	95	15. 3	13. 6	6	14	45
Kansas City, Kans	34	15. 0	12. 4	1	1	21
White	23		9. 7	1	0	25
Colored	11	(4)	24. 6	0	1	0
Kansas City, Mo	98	13. 1	14. 3	13	20	92
Knoxville	37	18. 4	13. 3	4	0	87
White	25		12. 8	2	0	48
Colored	12	(4)	17. 1	2	0	427

(Footnotes at end of table.)

Deaths from all causes in certain large cities of the United States during the week ended May 12, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, May 16, 1928, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 12, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended May 12, 1928
	Total deaths	Death rate		Week ended May 12, 1928	Corresponding week, 1927	
Los Angeles	342			30	25	86
Louisville	67	10.6	12.2	3	1	25
White	49		9.6	2	1	19
Colored	18	(4)	26.7	1	0	69
Lowell	33	15.6	10.9	3	5	63
Lynn	26	12.9	17.9	2	2	50
Memphis	65	17.9	20.1	5	6	59
White	30		12.2	1	3	19
Colored	35	(4)	34.5	4	3	125
Milwaukee	142	13.7	11.4	22	17	98
Minneapolis	110	12.6	9.2	6	9	36
Nashville	47	17.7	17.8	6	5	94
White	25		14.2	4	2	85
Colored	22	(4)	26.8	2	3	120
New Bedford	28	12.2	8.7	3	4	65
New Haven	80	22.3	11.0	4	5	56
New Orleans	152	18.5	20.8	14	23	68
White	82		15.1	6	7	44
Colored	70	(4)	36.9	8	16	116
New York	1,920	16.7	13.1	188	152	76
Bronx borough	250	13.7	10.6	25	13	76
Brooklyn borough	665	15.1	11.6	72	56	72
Manhattan borough	783	23.4	18.6	78	67	92
Queens borough	176	10.8	8.1	13	12	52
Richmond borough	46	16.0	14.2	0	4	0
Newark, N. J	119	13.1	9.6	10	11	51
Oakland	52	9.9	11.3	1	3	11
Oklahoma City	32			2	2	
Omaha	44	10.3	12.4	5	2	58
Paterson	41	14.8	10.2	4	2	69
Philadelphia	574	14.5	13.0	55	53	74
Pittsburgh	214	16.7	14.2	32	20	105
Portland, Oreg	58			3	6	32
Providence	64	11.7	9.1	6	10	52
Richmond	56	15.1	16.0	4	10	52
White	29		14.9	1	4	20
Colored	27	(4)	18.8	3	6	110
Rochester	93	14.8	14.1	12	13	97
St. Louis	301	18.6	12.9	18	7	60
Salt Lake City [3]	35	13.3	13.4	4	4	65
San Antonio	78	18.7	15.5	23	13	
San Diego	42	18.3	18.1	2	4	38
San Francisco	168	15.0	12.9	6	11	38
Schenectady	25	14.0	11.7	3	3	94
Somerville	24	12.2	7.2	4	0	138
Spokane	21	10.1	15.3	1	1	26
Springfield, Mass	47	16.4	14.5	6	7	95
Syracuse	75	19.7	9.3	9	3	109
Tacoma	21	9.9	11.2	1	2	26
Toledo	91	15.2	13.0	6	9	58
Trenton	44	16.6	18.3	3	6	51
Utica	29	14.6	12.1	3	2	68
Washington, D. C	172	16.3	11.5	12	5	68
White	107		9.0	6	3	50
Colored	65	(4)	18.8	6	2	111
Waterbury	26			6	0	174
Wilmington, Del	33	13.4	12.4	3	2	79
Worcester	57	15.1	15.5	8	2	97
Yonkers	29	12.5	9.7	4	2	91
Youngstown	38	11.4	10.8	5	2	67

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Deaths for week ended Friday May 11, 1928.
[4] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Weeks Ended May 19, 1928, and May 21, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 19, 1928, and May 21, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927
New England States:								
Maine	1	6	36	1	19	106	0	0
New Hampshire	2				62		0	
Vermont					23	153	0	0
Massachusetts	55	85	55	9	782	475	2	1
Rhode Island	8	8			247		0	0
Connecticut	23	22	46	2	279	44	2	1
Middle Atlantic States:								
New York	338	481	[1]94	[1]17	4,129	907	25	6
New Jersey	128	140	46	4	1,952	111	4	1
Pennsylvania	128	167			2,895	663	3	3
East North Central States:								
Ohio	68		119		983		3	
Indiana	12	16	65	8	680	209	0	0
Illinois	83	134	96	73	214	1,060	19	5
Michigan	86	82	4	4	1,129	263	7	3
Wisconsin	16	31	554	26	86	879	12	0
West North Central States:								
Minnesota	16	29	3	3	78	149	2	1
Iowa		31				281		1
Missouri	38	33	34	8	521	192	21	5
North Dakota	1	7	30		10	38	0	1
South Dakota	2		1	1	21	65	3	0
Nebraska	8	1	1		39	186	0	0
Kansas	8	6		5	233	960	5	1
South Atlantic States:								
Delaware		2	1		40	21	0	0
Maryland [2]	40	43	14	10	700	21	2	0
District of Columbia	12	12	2	1	234	4	1	0
Virginia								
West Virginia	7	16	319	30	107	157	1	0
North Carolina	11	10			1,054	1,613	3	0
South Carolina	9	11	474	478	247	228	0	0
Georgia	14	9	103	86	103	120	0	0
Florida	6	12	38	2	70	106	0	1

[1] New York City only.

[2] Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 19, 1928, and May 21, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927
East South Central States:								
Kentucky	4		30		194		0	
Tennessee	9	4	222	20	185	88	1	1
Alabama	7	10	352	35	370	227	2	0
Mississippi	8	4					1	
West South Central States:								
Arkansas	2	5	227	54	306	78	0	0
Louisiana	13	11	37	6	231	45	1	0
Oklahoma [3]	10	3	180	23	233	301	4	0
Texas	16	15	31	45	103	198	0	0
Mountain States:								
Montana	2	3			10	17	1	0
Idaho	1	2			4	36	0	1
Wyoming					12	97	2	1
Colorado	12	4	1	1	139	150	1	0
New Mexico	4	2			149	124	0	0
Arizona		2			5	42	1	0
Utah [2]	2	8	12		3	20	0	0
Pacific States:								
Washington	7	14			88	488	1	3
Oregon	7	9	10	13	29	308	2	1
California	101	113	43	22	120	1,638	6	4

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927
New England States:								
Maine	0	0	24	48	0	0	0	0
New Hampshire	0		3		0		0	
Vermont	0	0	6	3	0	0	0	0
Massachusetts	1	2	215	439	1	0	1	8
Rhode Island	0	1	28	18	0	0	2	0
Connecticut	0	1	132	99	4	0	0	0
Middle Atlantic States:								
New York	6	5	601	894	3	18	19	21
New Jersey	3	2	210	262	1	0	6	0
Pennsylvania	1	0	374	532	0	0	3	9
East North Central States:								
Ohio	2		195		31		4	
Indiana	0	0	70	107	133	98	1	2
Illinois	1	3	301	258	47	33	8	16
Michigan	1	0	265	247	29	43	3	9
Wisconsin	1	0	200	152	14	25	35	3
West North Central States:								
Minnesota	0	1	110	168	2	1	0	4
Iowa		0		33		6		1
Missouri	0	0	110	84	70	24	8	5
North Dakota	0	3	28	27	1	1	1	0
South Dakota	1	0	19	17	1	0	0	0
Nebraska	0	0	100	28	91	9	0	0
Kansas	1	1	122	66	69	11	4	6
South Atlantic States:								
Delaware	0	0	2	10	0	0	0	0
Maryland [2]	0	0	75	75	0	0	9	7
District of Columbia	0	0	43	13	0	6	0	0
Virginia								
West Virginia	0	0	21	50	48	28	4	11
North Carolina	0	0	24	18	76	44	4	9
South Carolina	0	1	4	5	13	25	22	39
Georgia	0	0	22	9	0	37	11	31
Florida	0	0	6	5	3	64	7	17

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

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 19, 1928, and May 21, 1927—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927	Week ended May 19, 1928	Week ended May 21, 1927
East South Central States:								
Kentucky	0	----	38	----	21	----	3	----
Tennessee	1	0	21	29	18	17	8	20
Alabama	1	0	6	8	10	27	5	21
Mississippi	0	0	14	6	2	43	4	12
West South Central States:								
Arkansas	0	0	31	2	5	2	2	13
Louisiana	0	2	7	8	50	4	11	18
Oklahoma [3]	0	0	33	23	80	36	3	28
Texas	0	0	87	8	48	47	1	6
Mountain States:								
Montana	0	0	19	31	16	3	0	3
Idaho	0	0	6	13	37	7	2	2
Wyoming	0	0	22	11	0	0	0	0
Colorado	0	0	77	97	2	1	2	1
New Mexico	0	1	18	9	7	0	1	0
Arizona	0	1	4	8	2	0	5	4
Utah [2]	0	0	6	34	13	4	0	0
Pacific States:								
Washington	0	0	27	35	36	42	1	5
Oregon	0	0	11	46	46	20	4	6
California	2	4	143	161	30	22	14	9

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

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
April, 1928										
Alabama	8	54	1,078	85	1,670	59	4	37	28	20
Arizona	8	38	130	----	131	----	1	29	86	6
Massachusetts	7	338	84	----	6,436	1	6	1,129	0	11
Michigan	0	232	51	2	6,376	----	2	1,094	141	23
New Hampshire	0	11	43	----	----	----	0	62	0	3
New Jersey	16	439	113	----	6,470	----	3	1,083	54	15
Vermont	0	4	----	----	282	----	1	40	0	16

April, 1928	Cases
Anthrax:	
Massachusetts	1
New Jersey	1
Chicken pox:	
Alabama	225
Arizona	43
Massachusetts	655
Michigan	552
New Jersey	568
Vermont	121
Dysentery:	
Arizona	1
New Jersey	1
German measles:	
Massachusetts	73
New Jersey	647
Lead poisoning:	
Massachusetts	4
New Jersey	2
Lathargic encephalitis:	
Alabama	2
Massachusetts	6
Mumps:	
Alabama	142
Arizona	64
Massachusetts	998

April, 1928	Cases
Mumps—Continued.	
Michigan	1,580
Vermont	193
Ophthalmia neonatorum:	
Massachusetts	135
New Jersey	3
Paratyphoid fever:	
New Jersey	2
Rabies in man:	
Alabama	1
New Jersey	1
Septic sore throat:	
Massachusetts	10
Michigan	15
Tetanus:	
Massachusetts	1
Trachoma:	
Arizona	37
Massachusetts	8
New Jersey	1
Whooping cough:	
Alabama	126
Arizona	10
Massachusetts	823
Michigan	574
New Jersey	548

ADMISSIONS TO HOSPITALS FOR THE INSANE, JANUARY, 1928

Reports for the month of January, 1928, showing new admissions to hospitals for the care and treatment of the insane have been received by the Public Health Service from 83 institutions located in 30 States, the District of Columbia, and the Territory of Hawaii. Sixteen of these institutions were corporate or private. These hospitals reported a total of 113,720 patients on January 31, 1928, including those on parole.

The following table shows the numbers of new admissions for the month of January, 1928, by psychoses.

First admissions to 83 hospitals for the insane, January, 1928

Psychoses	Male	Female	Total
Traumatic psychoses	7	0	7
Senile psychoses	114	85	199
Psychoses with cerebral arteriosclerosis	93	54	147
General paralysis	136	36	172
Psychoses with cerebral syphilis	29	27	56
Psychoses with Huntington's chorea	2	1	3
Psychoses with brain tumor	1	2	3
Psychoses with other brain or nervous disease	18	15	33
Alcoholic psychoses	64	10	74
Psychoses due to drugs and other exogenous toxins	8	6	14
Psychoses with pellagra	3	17	20
Psychoses with other somatic diseases	22	32	54
Manic-depressive psychoses	155	155	310
Involution melancholia	17	29	46
Dementia præcox (schizophrenia)	248	177	425
Paranoia and paranoid conditions	22	21	43
Epliptic psychoses	35	31	66
Psychoneuroses and neuroses	19	23	42
Psychoses with psychopathic personality	17	8	25
Psychoses with mental deficiency	51	35	86
Undiagnosed psychoses	140	44	184
Without psychosis	67	27	94
Total	1,268	835	2,103

Thirty-nine and seven-tenths per cent of the new admissions were females and 60.3 per cent were males, giving a ratio of 152 males per 100 females. The 83 institutions on January 31, 1928, had 59,973 male patients and 53,747 female patients, the ratio being 112 males per 100 females.

Undiagnosed psychoses constituted 8.7 per cent of the total admissions; dementia præcox, 20.2 per cent; manic-depressive psychoses, 14.7 per cent; senile psychoses, 9.5 per cent; general paralysis, 8.2 per cent; psychoses with cerebral arteriosclerosis, 7 per cent; and 4.5 per cent were recorded as without psychosis.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,650,000. The estimated population of the 95 cities reporting deaths is more than 30,960,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 5, 1928, and May 7, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,276	1,662	----
101 cities	746	1,088	857
Measles:			
41 States	18,956	13,840	----
101 cities	8,614	4,145	----
Poliomyelitis:			
42 States	20	18	----
Scarlet fever:			
42 States	3,950	4,828	----
101 cities	1,560	2,142	1,256
Smallpox:			
42 States	876	699	----
101 cities	84	130	117
Typhoid fever:			
42 States	157	268	----
101 cities	38	57	48
Deaths reported			
Influenza and pneumonia:			
95 cities	1,405	839	----
Smallpox:			
95 cities	1	0	----
Terre Haute, Ind	1	0	----

City reports for week ended May 5, 1928

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

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

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	76,400	13	1	0	0	0	4	18	4
New Hampshire:									
Concord	[1] 22,546	0	0	0	0	0	0	0	0
Manchester	84,000	0	2	0	0	1	8	0	1
Vermont:									
Barre	[1] 10,008	9	0	0	0	0	0	0	0
Massachusetts:									
Boston	787,000	37	36	41	16	2	173	8	48
Fall River	131,000	3	3	1	0	0	1	0	2
Springfield	145,000	4	2	2	1	1	3	15	1
Worcester	193,000	4	4	1	1	0	13	10	5
Rhode Island:									
Pawtucket	71,000	1	1	1	0	0	23	16	2
Providence	275,000	0	8	5	0	2	234	1	5
Connecticut:									
Bridgeport	(2)	2	5	1	1	1	13	0	5
Hartford	164,000	6	5	5	0	1	53	14	5
New Haven	182,000	16	3	1	23	2	58	40	5
MIDDLE ATLANTIC									
New York:									
Buffalo	544,000	6	9	20	----	0	87	33	23
New York	5,924,000	148	254	215	319	47	2,448	36	359
Rochester	321,000	6	9	2	1	1	56	19	8
Syracuse	185,000	15	5	0	----	0	208	11	7
New Jersey:									
Camden	131,000	8	5	10	0	0	74	1	6
Newark	459,000	25	12	17	48	0	345	13	16
Trenton	134,000	6	3	2	1	0	8	0	3
Pennsylvania:									
Philadelphia	2,008,000	66	70	57	0	6	1,301	48	71
Pittsburgh	637,000	20	17	25	3	3	104	48	46
Reading	114,000	8	3	1	0	0	21	2	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	411,000	9	7	7	0	4	46	0	20
Cleveland	960,000	53	22	36	38	5	94	103	32
Columbus	285,000	8	3	1	61	6	110	10	5
Toledo	295,000	12	4	0	6	6	157	11	9
Indiana:									
Fort Wayne	99,900	2	2	6	0	1	3	0	3
Indianapolis	367,000	35	3	5	0	1	140	75	26
South Bend	81,700	0	1	1	0	0	1	0	5
Terre Haute	71,900	4	0	0	0	0	0	0	5
Illinois:									
Chicago	3,048,000	56	72	60	49	20	31	20	122
Springfield	64,700	1	0	0	4	3	0	5	2
Michigan:									
Detroit	1,290,000	33	47	36	8	6	645	24	59
Flint	136,000	12	4	0	0	1	120	39	4
Grand Rapids	156,000	0	3	1	0	2	20	13	8

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended May 5, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	52,700	16	1	0	0	0	0	0	4
Milwaukee	517,000	53	11	8	5	4	4	19	26
Racine	69,400	2	1	2	13	2	0	1	2
Superior	[1] 39,671	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	113,000	5	0	0	0	2	0	0	2
Minneapolis	434,000	51	15	7	0	11	79	132	15
St. Paul	248,000	11	12	1	0	4	6	26	16
Iowa:									
Davenport	[1] 52,469	0	1	0	0	----	0	0	----
Des Moines	146,000	0	2	1	0	----	0	0	----
Sioux City	78,000	4	1	0	0	----	6	27	----
Waterloo	36,900	11	0	1	0	----	2	10	----
Missouri:									
Kansas City	375,000	14	5	3	0	3	31	83	13
St. Joseph	78,400	2	1	1	0	0	1	4	3
St. Louis	830,000	17	38	24	0	0	304	15	----
North Dakota:									
Fargo	[1] 26,403	0	1	0	0	0	1	0	0
Grand Forks	[1] 14,811	0	0	0	0	----	0	0	----
South Dakota:									
Aberdeen	[1] 15,036	4	0	0	0	----	0	0	----
Nebraska:									
Lincoln	62,000	6	1	2	0	0	1	17	0
Omaha	216,000	6	2	2	0	0	0	5	10
Kansas:									
Topeka	56,500	15	0	1	6	6	3	4	2
Wichita	92,500	9	0	0	0	0	23	0	2
SOUTH ATLANTIC									
Delaware:									
Wilmington	124,000	1	2	0	0	0	8	4	6
Maryland:									
Baltimore	808,000	71	23	27	7	4	604	43	35
Cumberland	[1] 33,741	0	0	0	0	0	1	0	0
Frederick	[1] 12,035	0	0	1	0	0	40	0	2
District of Columbia:									
Washington	528,000	11	12	14	4	3	215	0	16
Virginia:									
Lynchburg	30,500	2	0	2	0	0	41	4	1
Norfolk	174,000	14	0	0	0	0	34	2	6
Richmond	189,000	2	2	1	0	3	133	2	8
Roanoke	61,900	9	0	0	0	0	22	1	2
West Virginia:									
Charleston	50,700	2	0	0	0	0	0	0	1
Wheeling	[1] 56,208	7	1	0	1	0	9	0	2
North Carolina:									
Raleigh	[1] 30,371	0	0	1	0	0	28	0	1
Wilmington	37,700	7	1	0	0	0	4	0	1
Winston-Salem	71,800	13	1	0	0	0	29	18	2
South Carolina:									
Charleston	74,100	0	0	0	11	1	0	0	2
Columbia	41,800	11	0	1	0	0	6	31	1
Greenville	[1] 27,311	0	0	0	0	0	1	3	0
Georgia:									
Atlanta	(2)	6	1	1	27	1	23	6	16
Brunswick	[1] 16,809	0	0	0	0	0	1	0	0
Savannah	94,900	1	0	0	9	0	1	1	3
Florida:									
Miami	[1] 69,754	21	1	6	0	0	9	5	2
St. Petersburg	[1] 26,847	----	0	----	----	0	----	----	0
Tampa	102,000	3	0	2	0	0	3	2	0

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended May 5, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,500	0	1	1	0	1	1	0	2
Louisville	311,000	0	3	3	5	1	140	10	11
Tennessee:									
Memphis	177,000	12	2	3	0	4	11	11	4
Nashville	137,000	1	1	1	0	4	24	2	6
Alabama:									
Birmingham	211,000	9	1	0	30	6	37	2	18
Mobile	66,800	0	0	0	1	0	4	0	0
Montgomery	47,000	9	0	0	2	----	10	1	----
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	[1] 31,643	2	0	1	0	----	3	0	----
Little Rock	75,900	3	0	0	7	0	7	7	1
Louisiana:									
New Orleans	419,000	1	7	9	2	4	2	0	10
Shreveport	59,500	0	0	1	0	0	11	0	3
Oklahoma:									
Oklahoma City	[2]	7	0	3	43	2	14	7	7
Tulsa	133,000	14	0	1	0	----	12	19	----
Texas:									
Dallas	203,000	14	3	1	2	1	18	0	3
Fort Worth	159,000	17	1	2	0	2	4	5	3
Galveston	49,100	0	0	0	0	0	0	0	1
Houston	[1] 164,954	1	3	4	1	1	49	0	4
San Antonio	205,000	0	1	4	0	0	8	0	0
MOUNTAIN									
Montana:									
Billings	[1] 17,971	2	1	0	0	0	0	0	0
Great Falls	[1] 29,883	13	1	0	0	1	2	0	2
Helena	[1] 12,037	0	0	0	0	0	0	0	0
Missoula	[1] 12,668	2	0	0	0	0	0	1	0
Idaho:									
Boise	[1] 23,042	11	0	0	0	0	0	1	0
Colorado:									
Denver	285,000	59	11	6	----	2	82	72	14
Pueblo	43,900	0	1	0	0	0	0	0	0
New Mexico:									
Albuquerque	[1] 21,000	10	1	0	0	0	9	0	0
Utah:									
Salt Lake City	133,000	15	3	3	0	1	1	1	2
Nevada:									
Reno	[1] 12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	[2]	66	5	4	0	----	56	9	----
Spokane	109,000	7	2	0	0	----	0	0	----
Tacoma	106,000	8	1	0	0	0	11	46	1
California:									
Los Angeles	[2]	103	40	35	22	2	13	50	13
Sacramento	73,400	8	2	1	0	0	4	6	3
San Francisco	567,000	83	18	9	1	0	20	37	5

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended May 5, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	3	2	0	0	0	0	0	1	1	4	18
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	11
Manchester	2	6	0	0	0	1	0	0	0	0	19
Vermont:											
Barre	0	1	0	0	0	0	0	0	0	0	1
Massachusetts:											
Boston	64	87	0	0	0	26	1	0	0	35	302
Fall River	4	8	0	0	0	6	0	0	0	0	34
Springfield	6	18	0	0	0	2	0	0	0	6	40
Worcester	10	5	0	0	0	4	0	0	0	4	67
Rhode Island:											
Pawtucket	1	3	0	0	0	1	0	0	0	1	14
Providence	9	21	0	0	0	6	0	0	0	4	61
Connecticut:											
Bridgeport	11	1	0	0	0	0	0	0	0	2	35
Hartford	5	2	0	0	0	0	0	0	0	5	52
New Haven	8	2	0	0	0	1	0	0	0	18	30
MIDDLE ATLANTIC											
New York:											
Buffalo	19	40	0	0	0	13	0	0	0	26	146
New York	279	372	0	0	0	136	10	4	1	164	1,941
Rochester	15	6	0	0	0	1	0	0	0	5	70
Syracuse	9	10	0	0	0	1	1	0	0	18	60
New Jersey:											
Camden	6	4	0	0	0	2	0	0	0	5	40
Newark	27	48	0	0	0	7	0	0	0	14	119
Trenton	3	2	0	1	0	4	0	0	0	0	44
Pennsylvania:											
Philadelphia	90	89	1	0	0	40	4	2	0	77	603
Pittsburgh	28	27	0	0	0	14	0	2	0	22	216
Reading	3	23	0	0	0	0	0	0	0	6	30
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	20	33	2	3	0	15	1	1	0	13	169
Cleveland	39	22	0	1	0	25	1	1	0	56	231
Columbus	8	8	2	0	0	8	0	0	0	1	104
Toledo	13	2	3	0	0	6	0	0	0	16	91
Indiana:											
Fort Wayne	5	5	2	0	0	3	0	0	0	0	37
Indianapolis	9	16	12	2	0	1	0	0	0	10	109
South Bend	4	1	1	0	0	1	0	0	0	1	23
Terre Haute	3	0	1	2	1	0	0	0	0	3	24
Illinois:											
Chicago	117	77	2	3	0	66	3	2	0	90	880
Springfield	3	12	0	4	0	1	0	0	0	0	21
Michigan:											
Detroit	89	139	2	2	0	27	2	0	1	77	366
Flint	6	8	1	6	0	3	0	0	0	3	39
Grand Rapids	7	3	1	0	0	0	1	0	0	7	56
Wisconsin:											
Kenosha	3	1	1	0	0	1	0	0	0	10	13
Milwaukee	26	49	1	0	0	8	1	1	1	17	167
Racine	4	4	1	0	0	1	0	0	0	0	24
Superior	2	10	1	0	0	1	0	0	0	0	15
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	2	1	0	0	1	0	1	0	3	33
Minneapolis	44	12	5	0	0	3	0	0	0	15	119
St. Paul	24	12	3	1	0	7	0	0	0	30	81
Iowa:											
Davenport	1	3	3	0	----	----	0	0	----	0	----
Des Moines	6	2	2	17	----	----	0	0	----	0	----
Sioux City	2	1	2	1	----	----	0	0	----	1	----
Waterloo	1	5	0	0	----	----	0	0	----	0	----

City reports for week ended May 5, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City	10	34	2	0	0	6	0	0	0	7	100
St. Joseph	3	8	1	3	0	0	0	0	0	1	13
St. Louis	34	19	4	1	0	15	1	0	0	26	265
North Dakota:											
Fargo	2	0	0	0	0	0	0	0	0	5	34
Grand Forks	0	3	0	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	2	0	0	0	----	----	0	0	----	0	----
Nebraska:											
Lincoln	1	17	0	1	0	0	0	0	0	3	25
Omaha	4	8	8	2	0	2	0	0	0	0	59
Kansas:											
Topeka	2	9	1	3	0	1	0	0	0	5	38
Wichita	2	2	1	5	0	0	0	0	0	3	32
SOUTH ATLANTIC											
Delaware:											
Wilmington	5	1	0	0	0	0	1	0	1	1	44
Maryland:											
Baltimore	34	35	0	0	0	15	2	1	0	46	247
Cumberland	1	1	0	0	0	1	0	0	0	0	14
Frederick	0	0	0	0	0	0	0	0	0	0	2
Dist. of Columbia:											
Washington	23	43	1	1	0	12	1	0	0	6	138
Virginia:											
Lynchburg	0	1	0	0	0	1	1	1	0	13	11
Norfolk	1	2	0	0	0	1	0	1	0	4	----
Richmond	4	2	0	0	0	1	0	0	0	0	59
Roanoke	0	0	1	0	0	0	0	0	0	5	20
West Virginia:											
Charleston	2	1	0	0	0	3	0	0	0	0	18
Wheeling	1	0	0	0	0	2	1	0	0	0	20
North Carolina:											
Raleigh	0	2	0	2	0	0	0	0	0	7	13
Wilmington	0	0	0	0	0	0	0	0	0	0	11
Winston-Salem	1	0	5	0	0	0	1	2	0	0	16
South Carolina:											
Charleston	0	0	0	1	0	0	0	0	0	0	16
Columbia	0	1	0	1	0	1	0	0	0	0	10
Greenville	0	1	1	0	0	0	0	1	0	2	9
Georgia:											
Atlanta	3	9	5	2	0	7	0	1	0	2	100
Brunswick	0	0	0	0	0	0	0	0	0	0	5
Savannah	0	0	1	1	0	3	1	1	0	1	29
Florida:											
Miami	0	0	1	0	0	2	1	2	0	0	27
St. Petersburg	0	----	0	----	0	0	0	----	0	----	9
Tampa	1	1	0	0	0	4	1	2	0	0	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	9	0	0	0	0	1	0	0	0	14
Louisville	7	40	1	1	0	10	1	0	0	0	92
Tennessee:											
Memphis	5	9	3	0	0	3	1	0	0	1	51
Nashville	2	0	0	1	0	1	0	0	0	4	50
Alabama:											
Birmingham	1	1	6	1	0	7	1	0	0	7	94
Mobile	0	2	0	0	0	1	0	0	0	0	19
Montgomery	0	0	1	0	----	----	0	0	----	3	----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	----	----	1	0	----	1	----
Little Rock	0	11	0	0	0	0	1	0	0	0	----
Louisiana:											
New Orleans	5	7	0	0	0	13	2	5	0	2	155
Shreveport	0	0	1	1	0	0	1	0	1	2	33

City reports for week ended May 5, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL—con.											
Oklahoma:											
Oklahoma City	1	18	2	17	0	4	0	0	0	0	28
Tulsa	2	16	2	0	----	----	0	0	----	4	----
Texas:											
Dallas	2	17	4	6	0	4	0	0	0	28	58
Fort Worth	1	11	4	8	0	1	0	1	0	0	28
Galveston	0	0	0	0	0	1	1	1	0	0	13
Houston	1	2	1	2	0	5	0	1	0	0	72
San Antonio	1	0	0	0	0	0	0	0	0	0	----
MOUNTAIN											
Montana:											
Billings	1	0	1	0	0	0	0	0	0	5	13
Great Falls	1	0	1	3	0	0	0	0	0	0	7
Helena	0	4	1	2	0	0	0	0	0	0	10
Missoula	1	1	0	0	0	1	0	0	0	0	8
Idaho:											
Boise	1	0	1	0	0	0	0	0	0	3	9
Colorado:											
Denver	12	25	1	1	0	14	0	0	1	32	95
Pueblo	1	0	0	0	0	2	0	0	0	0	6
New Mexico:											
Albuquerque	1	3	0	0	0	2	0	0	0	0	10
Utah:											
Salt Lake City	2	1	1	6	0	1	0	0	0	14	32
Nevada:											
Reno	0	0	1	0	0	0	0	0	0	0	6
PACIFIC											
Washington:											
Seattle	8	8	2	0	----	----	0	2	----	0	----
Spokane	5	3	5	6	----	----	0	0	----	1	----
Tacoma	3	5	4	0	0	0	0	1	0	2	16
California:											
Los Angeles	24	14	6	3	0	21	2	2	0	62	161
Sacramento	1	4	1	0	0	2	0	0	0	1	35
San Francisco	15	26	2	3	0	12	1	1	0	13	161

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	1	0	0	1	1	1	0	0
Rhode Island:									
Providence	0	1	0	0	0	0	0	0	0
Connecticut:									
Bridgeport	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	52	16	5	2	0	0	1	2	0
New Jersey:									
Newark	3	3	1	0	0	0	0	1	0
Trenton	1	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	1	1	0	1	0	1	0	0	0
Pittsburgh	1	0	0	0	0	0	0	0	0

City reports for week ended May 5, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	2	0	0	0	0	0	0	0	0
Cleveland	3	0	0	0	0	0	0	0	0
Columbus	1	1	0	0	0	0	0	0	0
Toledo	3	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis	0	3	0	0	0	0	0	0	0
Illinois:									
Chicago	8	1	1	0	0	0	0	0	0
Michigan:									
Detroit [1]	2	0	1	0	0	0	0	1	0
Wisconsin:									
Racine	0	1	1	1	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	2	0	0	0	0	0	0	0	0
Minneapolis	2	0	1	0	0	0	0	1	0
St. Paul	1	0	0	0	0	0	0	0	0
Iowa:									
Des Moines	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City	4	0	0	0	0	0	0	0	0
St. Louis	6	2	0	0	0	0	0	0	0
North Dakota:									
Fargo	0	1	0	0	0	0	0	0	0
Kansas:									
Topeka	0	0	0	1	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	0	1	0	0	0	0	0
District of Columbia:									
Washington	0	0	1	1	0	0	0	0	0
Virginia:									
Norfolk	0	0	0	0	1	0	0	0	0
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
South Carolina:									
Columbia	0	0	0	0	0	1	0	0	0
Greenville	0	0	0	0	0	1	0	0	0
Georgia:									
Savannah	0	0	0	0	1	0	0	0	0
Florida:									
Miami	0	0	0	0	0	0	0	1	0
Tampa	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham	0	0	0	0	3	3	0	0	0
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans	0	0	0	0	2	0	0	0	0
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City	0	1	0	0	0	0	0	0	0
Tulsa	1	0	0	0	0	0	0	0	0
Texas:									
Houston	0	1	0	0	0	1	0	0	0

[1] Rabies (in man): 1 death at Detroit, Mich.

City reports for week ended May 5, 1928—Continued

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

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended May 5, 1928, compared with those for a like period ended May 7, 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 cities 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, April 1 to May 5, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Apr. 7, 1928	Apr. 9, 1927	Apr. 14, 1928	Apr. 16, 1927	Apr. 21, 1928	Apr. 23, 1927	Apr. 28, 1928	Apr. 30, 1927	May 5, 1928	May 7, 1927
101 cities	132	200	144	174	137	179	[3] 129	171	123	183
New England	126	181	168	105	131	135	133	95	133	130
Middle Atlantic	188	269	209	271	204	270	172	242	170	272
East North Central	121	169	116	135	116	131	[3] 132	137	107	159
West North Central	101	170	101	109	80	141	84	158	78	131
South Atlantic	88	117	82	141	82	135	86	105	88	119
East South Central	25	66	40	86	40	30	[4] 58	76	40	76
West South Central	132	335	160	141	124	124	100	178	80	141
Mountain	44	170	133	108	80	188	133	99	80	152
Pacific	77	125	74	115	102	157	56	188	125	110

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1928 and 1927, respectively.
[2] Superior, Wis., and Louisville, Ky., not included.
[3] Superior, Wis., not included.
[4] Louisville, Ky., not included.

Summary of weekly reports from cities, April 1 to May 5, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued.

MEASLES CASE RATES

	Week ended—									
	Apr. 7, 1928	Apr. 9, 1927	Apr. 14, 1928	Apr. 16, 1927	Apr. 21, 1928	Apr. 23, 1927	Apr. 28, 1928	Apr. 30, 1927	May 5, 1928	May 7, 1927
101 cities	1,277	867	1,340	766	1,362	788	[2] 1,285	638	1,423	696
New England	1,874	270	1,726	223	1,743	295	1,593	323	1,322	270
Middle Atlantic	1,504	159	1,739	172	1,824	145	1,862	231	2,266	212
East North Central	1,034	957	998	885	817	797	[3] 731	637	794	564
West North Central	762	1,300	861	1,314	986	1,552	1,017	1,225	888	1,522
South Atlantic	2,285	936	2,115	1,311	2,358	1,589	1,767	1,017	2,109	1,577
East South Central	958	608	1,117	396	1,536	517	[4] 1,345	375	1,132	517
West South Central	436	2,114	428	1,005	380	1,249	396	922	392	877
Mountain	708	2,788	743	2,080	761	1,793	840	1,542	752	1,632
Pacific	447	3,051	524	2,207	393	2,103	386	1,528	266	1,601

SCARLET FEVER CASE RATES

101 cities	273	394	226	391	264	362	[2] 265	339	258	360
New England	331	367	301	423	264	346	329	402	345	393
Middle Atlantic	366	594	273	581	287	528	312	446	303	540
East North Central	252	272	194	285	272	298	[3] 277	289	254	283
West North Central	263	433	277	396	288	342	275	333	218	271
South Atlantic	179	177	154	150	170	161	214	191	175	128
East South Central	100	177	234	218	200	167	[4] 167	193	304	183
West South Central	148	99	128	50	164	41	108	33	148	58
Mountain	239	941	239	950	212	932	203	950	274	1,004
Pacific	133	243	123	243	151	209	110	198	153	212

SMALLPOX CASE RATES

101 cities	18	26	20	24	22	33	[2] 25	21	14	22
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	24	37	24	32	31	29	[3] 28	33	15	28
West North Central	84	42	49	55	60	40	68	38	31	34
South Atlantic	14	25	11	27	12	65	33	18	14	36
East South Central	10	86	35	96	20	162	[4] 102	66	15	56
West South Central	4	103	16	87	8	95	28	25	36	33
Mountain	106	27	150	27	168	54	150	9	106	36
Pacific	18	55	74	26	59	97	43	65	31	73

TYPHOID FEVER CASE RATES

101 cities	4	8	5	8	6	7	[2] 4	8	6	10
New England	2	7	9	9	7	0	5	5	2	2
Middle Atlantic	1	6	5	5	6	7	3	5	4	10
East North Central	3	5	1	1	3	3	[3] 2	6	3	7
West North Central	6	2	8	12	6	4	6	4	2	2
South Atlantic	12	9	4	13	9	11	7	16	18	18
East South Central	15	35	20	35	15	30	[4] 7	30	0	15
West South Central	16	37	20	17	20	12	24	12	28	37
Mountain	0	0	0	9	0	27	0	9	0	18
Pacific	8	8	3	18	3	10	0	18	15	3

[2] Superior Wis., and Louisville, Ky., not included.
[3] Superior, Wis., not included.
[4] Louisville, Ky., not included.

Summary of weekly reports from cities, April 1 to May 5, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued.

INFLUENZA DEATH RATES

	Week ended—									
	Apr. 7, 1928	Apr. 9, 1927	Apr. 14, 1928	Apr. 16, 1927	Apr. 21, 1928	Apr. 23, 1927	Apr. 28, 1928	Apr. 30, 1927	May 5, 1928	May 7, 1927
95 cities	34	23	30	21	28	18	[2] 32	18	32	13
New England	16	7	9	16	7	12	14	7	21	5
Middle Atlantic	31	26	27	21	26	20	34	21	28	15
East North Central	40	9	27	11	28	11	[3] 30	10	36	7
West North Central	16	17	24	12	41	21	31	12	53	8
South Atlantic	19	40	30	38	16	22	30	29	21	16
East South Central	73	74	84	90	68	58	[4] 55	37	84	43
West South Central	107	51	90	42	45	30	37	47	25	13
Mountain	80	36	53	18	53	0	44	9	35	9
Pacific	7	17	14	14	14	10	17	21	7	21

PNEUMONIA DEATH RATES

95 cities	215	162	207	153	198	159	[2] 198	143	206	131
New England	179	140	177	156	166	151	138	184	189	140
Middle Atlantic	244	198	243	175	242	199	246	168	264	166
East North Central	241	131	199	141	192	135	[3] 214	128	211	121
West North Central	122	137	175	128	155	124	90	56	128	68
South Atlantic	179	150	209	184	181	179	172	153	184	114
East South Central	397	218	183	138	235	160	[4] 226	133	214	149
West South Central	185	140	238	76	197	81	189	123	90	115
Mountain	97	242	186	152	106	161	106	188	159	99
Pacific	105	117	88	117	81	97	125	117	74	79

[2] Superior, Wis., and Louisville, Ky., not included.
[3] Superior, Wis., not included.
[4] Louisville, Ky., 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 reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1928	1927	1928	1927
Total	101	95	31,657,000	31,050,300	30,960,700	30,369,500
New England	12	12	2,274,400	2,242,700	2,274,400	2,242,700
Middle Atlantic	10	10	10,732,400	10,594,700	10,732,400	10,594,700
East North Central	16	16	7,991,400	7,820,700	7,991,400	7,820,700
West North Central	12	10	2,683,500	2,634,500	2,566,400	2,518,500
South Atlantic	21	21	2,981,900	2,890,700	2,981,900	2,890,700
East South Central	7	6	1,048,300	1,028,300	1,000,100	980,700
West South Central	8	7	1,307,600	1,260,700	1,274,100	1,227,800
Mountain	9	9	591,100	581,600	591,100	581,600
Pacific	6	4	2,046,400	1,996,400	1,548,900	1,512,100

FOREIGN AND INSULAR

SMALLPOX ON VESSEL

Steamship "Yarmouth"—At Kingston, Jamaica, from Boston via ports—April 7, 1928.—During the week ended April 7, 1928, the steamship *Yarmouth* from Boston, via Miami, April 2, and Habana, April 4, 1928, arrived at Kingston, Jamaica, with a case of smallpox on board. The *Yarmouth* sailed from Kingston April 7, for New York, arriving April 12, 1928.

THE FAR EAST

Report for the week ended April 21, 1928.—The following report for the week ended April 21, 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

Egypt.—Suez.
Aden Protectorate.—Aden, Perim.
India.—Bassein, Bombay, Rangoon.
Siam.—Bangkok.

CHOLERA

India.—Bassein, Calcutta, Madras, Moulmein, Rangoon, Tuticorin.
French India.—Pondicherry.
Siam.—Bangkok.
French Indo-China.—Saigon.

SMALLPOX

India.—Bombay, Calcutta, Madras, Moulmein, Rangoon, Tuticorin, Vizagapatam.
French India.—Pondicherry.
Straits Settlements.—Singapore.
China.—Shanghai, Hong Kong.
Japan.—Osaka, Shimonoseki.
Kwantung.—Dairen.
South Manchuria.—Changchun.
Manchuria.—Mukden, Antung.
Chosen.—Fusan.

Returns for the week ended April 21 were not received from Samarinda, Dutch East Indies, Basra, Iraq, nor Vladivostok, Union of Soviet Socialist Republics.

CANADA

Provinces—Communicable diseases—Week ended April 28, 1928.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended April 28, 1928, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	19					11		30
Poliomyelitis				3				3
Smallpox				18		15	3	36
Typhoid fever	4	1	26	1	3	1	5	41

Quebec—Communicable diseases—Week ended May 5, 1928.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended May 5, 1928, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	2	Scarlet fever	110
Chicken pox	25	Smallpox	33
Diphtheria	27	Tuberculosis	80
German measles	13	Typhoid fever	12
Influenza	9	Whooping cough	8
Measles	216		

CZECHOSLOVAKIA

Communicable diseases—March, 1928.—During the month of March, 1928, communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	17	12	Rabies	1	1
Diphtheria	908	67	Scarlet fever	1,145	47
Dysentery	10	3	Trachoma	248	----
Malaria	10	----	Typhoid fever	535	43
Paratyphoid fever	5	----	Typhus fever	25	----
Puerperal fever	79	28			

DENMARK

Communicable diseases—February, 1928.—During the month of February, 1928, communicable diseases were reported in the Kingdom of Denmark as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia	2,932	Paratyphoid fever	11
Cerebrospinal meningitis	3	Pneumonia	480
Chicken pox	60	Poliomyelitis	2
Diphtheria	680	Puerperal fever	14
Erysipelas	294	Scarlet fever	242
Influenza	4,934	Tetanus	5
Jaundice	192	Tuberculosis	269
Lethargic encephalitis	12	Typhoid fever	9
Measles	6,694	Whooping cough	1,767
Mumps	752		

Population of Denmark: 3,493,000.

FINLAND

Communicable diseases—February, 1928.—During the month of February, 1928, communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	80	Scarlet fever	199
Influenza	3,702	Smallpox	1
Paratyphoid fever	40	Typhoid fever	49
Poliomyelitis	1		

Population: 3,558,220.

Helsingfors.—During the period under report, cases of communicable diseases were reported in the city of Helsingfors as follows: Diphtheria, 6; influenza, 874; paratyphoid fever, 3; scarlet fever, 54. (Population, 215,829.)

ITALY

Communicable diseases—January 30–February 12, 1928.—During the period January 30 to February 12, 1928, communicable diseases were reported in the Kingdom of Italy as follows:

Disease	Jan. 30–Feb. 5, 1928		Feb. 6–12, 1928,	
	Cases	Communes affected	Cases	Communes affected
Anthrax	16	16	19	18
Cerebrospinal meningitis	6	4	8	8
Chicken pox	312	121	426	126
Diphtheria	439	266	469	288
Dysentery	2	2	6	4
Lethargic encephalitis	4	4	6	6
Measles	2,791	336	2,859	324
Poliomyelitis	5	5	12	12
Scarlet fever	329	139	342	138
Smallpox	2	2	2	2
Typhoid fever	353	189	360	203

JAMAICA

Smallpox (Alastrim)—March 25–April 28, 1928.—During the period March 25 to April 28, 1928, 11 cases of smallpox (alastrim) were reported in the island of Jamaica, occurring in localities not included in the Kingston area.

Communicable diseases.—During the same period other communicable diseases were reported in the island as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Cerebrospinal meningitis	----------	1	Leprosy	----------	1
Chicken pox	3	53	Puerperal fever	----------	1
Dysentery	6	34	Tuberculosis	24	57
Erysipelas	----------	1	Typhoid fever	28	87

Population: Kingston, 62,707; island, 926,000.

MALTA

Communicable diseases—March, 1928.—During the month of March, 1928, communicable diseases were reported in the island of Malta as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia	19	Puerperal fever	3
Cerebrospinal meningitis	1	Scarlet fever	6
Chicken pox	36	Trachoma	41
Diphtheria	4	Tuberculosis	28
Erysipelas	6	Typhoid fever	20
Influenza	28	Undulant (Malta) fever	46
Malaria	[1] 1	Whooping cough	6
Pneumonia	8		

[1] Contracted abroad.

Population, civil, 228,575.

Mortality from communicable diseases—March, 1928.—During the period under report mortality from communicable diseases was reported in the island of Malta as follows: Diphtheria, 1 death; tuberculosis, 13; typhoid fever, 3.

MEXICO

State of Jalisco—Smallpox—March and April, 1928.—An epidemic of smallpox in March and April, 1928, was reported from unofficial sources in the Los Altos region, State of Jalisco, Mexico. The disease is said to have been severe in Tepatitlan.

SYRIA

Beirut and the Lebanon—Smallpox—April 2–15, 1928—Summary.—During the period April 2 to 15, 1928, 8 new cases of smallpox were reported at Beirut, Syria, and 4 cases at other localities in the Lebanon. The total number of cases reported from January 26 to April 17, 1928, was for Beirut 106, and for other localities in the Lebanon 63 cases.

UNION OF SOUTH AFRICA

Orange Free State—Smallpox—Typhus fever.—During the week ended March 31, 1928, fresh outbreaks of smallpox and typhus fever were reported in the Orange Free State, occurring on farms in the Koffefontein and Ladysmith Districts, respectively.

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]

Place		Week ended— July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	January, 1928		February, 1928				March, 1928					April, 1928			
								21	28	4	11	18	25	3	10	17	24	31	7	14	21	28
China:																						
Amoy	C	28	72	16																		
	D	7	3																			
Canton	C	31	36	14	12	1											1	1				
	D	16	25	14	11	1											1	1				
Foochow	C	P	P	P																		
Hong Kong	C	P	1	P																		
Shanghai (settlement and concession)—																						
Foreigners only	C	1	6	3																		
Including natives	D	20	74	7																		
Swatow	C	42	P	P	P																	
	D		P	P	P																	
Tientsin	C	P	15	2	P	1																
Dutch East Indies: Java—Batavia	C				28	3																
	D				18	3																
India	C	45,163	31,390	20,160	23,047	25,139	15,377	3,267	3,097	3,026	3,001	2,865	3,047	3,256	4,068							
	D	22,051	15,895	10,371	12,863	15,026	8,863	1,765	1,739	1,684	1,562	1,529	1,686	1,755	2,312							
Bassein	D									1			1	1			4	25	22	20	6	6
Bombay	C	42	3		2				1						1	1		1				
	D	30	2		2										1	1		1				
Calcutta	C	87	76	101	199	428	176	39	36	70	58		80	99	162	164	190	148				
	D	40	39	64	138	281	125	18	24	38	32	35	42	63	101	94	122	114	112	111	97	105
Madras	C	547	59	14	13	1	1	1			1		3	11			7	1	2	5		
	D	278	48	8	7	2	1		3		1	2	2	7	7		2	1	1	4	5	4
Madras Presidency	C	7,660	3,056	2,050	3,073	3,702	1,864	1,163	1,301	1,305	912	930	839	621	571							
	D	3,513	1,581	1,055	1,736	2,104	984	623	813	726	498	504	457	357	300							
Negapatam	C							4														
	D							4	1		1	2	2							1		
Rangoon	C	1	2	6	2	8	4	4		1	1	10	12	3	4	4	7	8	3			
	D	1	2	5	5	6	3			1	1	8	4	2	4	2	3	6	5	2	7	6
Tuticorin	C			1		8													10	43	45	19
	D			1	37	14										1			8	26	32	10

India (French):																							
Chandernagor	C	1	1		6	10	14	1		5		2	2		1	2							
	D	1			6	10	9			1		2	2		1	1							
Karikal	C	18	1		1	1	8	9	7	8	8	2	2	2									
	D	12	1		1	1	4	5	4	5	5	2	1	2									
Pondicherry	C	12	15		1	25	11	2	3	2	5	17	10	6						1	2	3	
	D	11	15		1	21	12	2	3	2	3	12	4	3						1	2	3	
Indo-China:[1] Saigon	C		1	1			3	1	1		2	1	5	2	8	27	13	21	35	50	28		
	D						1				1	1	1		6	19	8	12	20	37	17		
Iraq [2]																							
Kwangchow-wan [1]																							
Philippine Islands: Manila	C	1																					
Siam	C	77	40	18	110	88	110	50	33	48	69	74	59	84	78	53	88			24			
	D	53	24	11	76	64	80	34	21	42	42	50	38	73	53	39	67			17			
Bangkok	C	2	3	5	4	3	21	11	28	28	34	23	17	12	8	8	12	16	24		30	24	
	D	1	1	3	2	2	11	7	16	26	17	12	11	7	6	5	5	12	11		13	14	
Straits Settlements: Singapore	C				7	5	23	2			1					1	1					1	
	D				5	4	12	1								1	1					1	
On vessel:																							
S. S. Adrastus: At Yokohama, Japan	C	1																					
	D	1																					
S. S. Hawaii Maru at Singapore from Saigon, French Indo-China	C																		P				
S. S. Tabaristan: At Basra, Iraq	C			1																			

[1] See 10-day table below.

[2] From July 19 to Dec. 26, 1927, 1,479 cases of cholera were reported in Iraq, with 1,063 deaths, as follows: Amarah Liwa, 261 cases, 205 deaths; Baghdad Liwa, 80 cases, 60 deaths; Basra Liwa, 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; Muntafiq Liwa, 244 cases, 151 deaths.

Place		July-September, 1927	October, 1927	November, 1927			December, 1927			January, 1928			February, 1928			March, 1928			April, 1928	
				1-10	1-10	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20
Indo-China (French):																				
Annam	C	3,179	226	13	75	38	16	2		79	95	93	23	36	14	18	18	23	17	11
Cambodia	C	251	180	56	1	28	21	12	39	30	9	15	38	22	51	33	22	92	43	102
Cochin-China	C	469	178	21	27	52	17	38	58	46	119	130	178	113	153	206	217	245	277	316
Laos	C	246	67	10																
Tonkin	C	1,297	1			1			2	1									1	4
Kwangchow-Wan	C	16																		

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

PLAGUE

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

Place		Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928				May 4, 1928
							21	28	4	11	18	25	3	10	17	24	31	7	14	21	28	
Algeria: [1] Oran	C	1		2																		
	D	1																				
Arabia: Aden	C					19	13	22	54	89	63	45	77	158	189	148	151	163	108	59	34	
	D					7	8	8	33	55	50	31	26	99	134	135	134	126	97	48	30	
Argentina:																						
Bahia Blanca district	C				3																	
Buenos Aires	C									2												
Cordoba Province	C		P	P	10	2													5			
Firmat	C				1																	
Quilino	C				3																	
Rosario	C				4	5		4			1											
Santiago Province	C										1											
Ucacha	C				1																	
Azores: St. Michaels Island	C	2	3	3	3	2	3	1	2	2	1	1	1		1	1		1		2		
	D	1	1		1	1	1	1	1	1			1		1			1		1		
Brazil:																						
Bahia	C					4	2		2	1	4	4					P	2				
	D					4		1	2	1	2	3										
Porto Alegre	C												2									
Rio de Janeiro	C						1		1	2	1	1		1	2	1						
	D									1	2				2	1						
	D									1	2				2							
British East Africa: [1]																						
Tanganyiki	C		P	P	P	P			2				3									
	D								2				3									
Uganda	C	226	99	99	67	79	16			7	13											
	D	158	88	96	61	64	12			6	10											
Canary Islands:																						
Las Palmas	C		9		3	3	1				1				2		2					
	D				1	1	1				1											
Teneriffe	C						1	3	3	3												
	D						1		3													
Ceylon: Colombo	C	3	1		6	7	1	1	1		3	3	4	1	3		4					
	D	3			6	6	1	1			1	3	1	1	3		2					

China:																							
Hong Kong	C																						1
Tungliao	D		95																				
Dutch East Indies:																							
Balik-Papan	C					1																	
	D					1																	
Celebes—Makassar	C			9	2	6	2	1	1	1		1											
	D			6	2	5	2	1	1	1		1											
Java	D	432	779	829	1,017	754	197	214															
Batavia and West Java	C	68	130	132	154	128	46	37	27	27	31	15	24	33	19	18							
	D	68	129	132	152	128	44	37	27	27	31	15	24	33	19	18							
Cheribon	C				1																		
	D				1																		
East Java and Madura	C	18	17	10	8	7	5	2					1		1	1							
	D	18	17	10	8	7	5	2					1		1	1							
Pasoeroean Residency	C				P																		
Surabaya Residency	C				P														1				
	D																		1				
Surakarta Residency	C			P	P																		
Ecuador: Guayaquil [1]																							
Egypt:																							
Alexandria	C	1			12	5			1		1												
	D				7	2			1		1												
Beni-Souef	C																					4	
	D																					1	
Cairo	C					2																	
	D					2																	
Maghagha District	C																				1		
	D																				1		
Minieh Province	C																				32	9	
	D																				5	4	
Suez	C	1				1	1		3		3	4	3	3		4	7	3			3	2	
	D					1	1		1		3	3	2	1		2	3	4			2	2	
Greece:																							
Athens and Piræus	C	3	1			3																	
	D		1			1																	
Mitylene	C	5	1	3	3																		
Patras	C	2	1	1																			
	D		1	1																			
Hawaii Territory: Hawaii	D										1												
India	C	2,710	3,246	3,600	5,518	7,097	2,544	2,699	3,601	3,808	5,188	5,776	6,136	6,074									
	D	1,428	1,792	2,065	3,269	4,925	1,653	1,661	2,577	2,630	3,585	3,999	4,828	4,586									
Bassein	D	14	8	4	4	17	3	3		2	1	2	4	5	5	5	7	5	4	5	1		
Bombay	C	7	4			3	5	4	2	3	5	14	7	7	4	16	28	21					
	D	5	3			3	2	2	3	2	6	14	7	6	4	11	25	21	15	14	19		
Calcutta	C	18				2																	
	D	10						1											2				
Madras Presidency	C	465	583	470	791	550	107	132	79	134	142	112	64	53									
	D	230	298	282	359	206	63	64	60	69	79	72	34	27									
Rangoon	C	6	11	11	15	17	8	9	7	11	15	16	6	11	5	11	3	11					
	D	6	11	11	15	16	7	7	6	10	12	15	6	10	4	9	5	8	5	1	3		
Indo-China: [1] Saigon	C	2		1																			

[1] See monthly table below.

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

PLAGUE—Continued

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

Place		Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928				May 4, 1928
							21	28	4	11	18	25	3	10	17	24	31	7	14	21	28	
Iraq:																						
Baghdad	C						1	1		2		1	1		2	2	1		1	4		
	D						1			1		1	1		2	2	1		1			
Dulaim Liwa	C								1													
Kwangchow-Wan [1]																						
Madagascar [1]																						
Mauritius [1]																						
Nigeria: [1] Lagos	C			17	13	10	2	3	3	2	2	3	2	1	2		2	3	2			
	D			17	13	8	3	3	3	2	2	3	2	1	2		2	3	1			
Peru [1]																						
Senegal: [2]																						
Baol	C	72	95	P	P																	
	D	33	40																			
Cayor	C	463	176	48																		
	D	233	88	28																		
Dakar	C	20	1																			
	D	12																				
Louga	C	5	8																			
	D	4																				
Rufisque	C	16																				
	D	12																				
Thies and vicinity	C	9	1	1													8					
	D	7															4					
Siam	C		13	1	3	16	5	3	6	6	13	4	11	14	7	8	13			11		
	D		9		2	11	1	1	5	5	10	4	10	12	6	9	10					
Bangkok	C		2			1		1	1		1						1			3	1	
	D			1		1		1	1		1						1			2		
Straits Settlements: Singapore	C			1						1	1	1		1		1						
	D			1						1	1	1				1						
Syria [1]																						
Tunisia [3]																						
Turkey: Constantinople	C	1	1		2																	
	D		1		1																	

Union of South Africa:																								
Cape Province	C			2	2		1																	
	D			2	1		1																	
Orange Free State	C			1	8			2		3	4	1			3	2								
	D			1	6			1		3	1				3	2								
Union of Soviet Socialist Republics:																								
Chita district	C		1																					
	D		1																					
Northern Caucasus	C	14	1																					
	D	10																						
Venezuela: State of Miranda—Tacata and Cua	C													P										
On vessel:																								
At La Plata, from Rosario, Argentina	C					1																		
S. S. Aghios Gerasimos, at Vigo, Spain	C			3																				

[1] See monthly table below.
[2] During January, 1928, 5 cases of plague were reported in interior of Senegal; 17 cases with 13 deaths during last 2 weeks in February; 8 cases and 4 deaths, Mar. 11 to 20, 1928.
[3] 8 cases of plague with 6 deaths were reported in Bengardane region, Tunisia, Mar. 17 to 27, 1928.

Place		July–September, 1927	October–December, 1927	January, 1928	February, 1928	March, 1928	April, 1928
Algeria: Algiers [4]	C		2				
Angola	C		3				
British East Africa: Kenya	C	95	62	26	24		
Ecuador: Guayaquil	C	15	18	4	6	10	
	D		5	4	3	1	
Indo-China (French)	C	14	10	7		5	6
Kwangchow-Wan	C					18	3
Madagascar	C	314	692	427	342		
	D	286	605	388	317		
Ambositra Province	C	7	25	105	67		
	D	7	17	96	66		
Antsirabe Province	C	39	109	117	108		
	D	38	108	117	108		
Itasy Province	C	36	104	33	19		
	D	41	94	29	17		
Madagascar—Continued.							
Moramanga Province	C	12	95	19	25		
	D	12	83	19	24		
Tananarive Province	C	211	408	155	123		
	D	189	354	129	102		
Mauritius	C	1					
Nigeria	C	32	63	16	16		
	D	29	61	16	16		
Peru	C	34	34		41		
	D	19	11		14		
Callao	D	3	3				
Lima	C		7				
	D		3				
Senegal	C			5	17	8	81
	D				13	4	40
Syria: Beirut	C		2				

[4] 1 case of plague at Algiers May 2, 1928.

PLAGUE RATS ON VESSELS

S. S. *Modemi* at Goteborg, Sweden, from Bahia and Buenos Aires via Cape Verde Islands, December 22, 1927.
S. S. *Gydavore* at Landskrona, Sweden, from Rosario via Canary Islands, January 22, 1928.
S. S. *Dryden* at Liverpool from La Plata River ports, January 20, 1928.

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

SMALLPOX

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Week ended— February, 1928		March, 1928					April, 1928				May 4, 1928
									18	25	3	10	17	24	31	7	14	21	28	
Algeria [1]	C	459	382	683	661	170	129	71	30	------	28	14	3	------	------	------	12	------	------	------
Algiers	C	------	------	------	------	3	9	15	4	------	5	1	------	2	2	1	------	2	------	------
Oran	C	9	16	11	20	39	29	11	1	------	2	2	------	2	10	------	3	1	------	------
Angola: [1]																				
Arabia: Aden	C	------	------	------	1	3	1	------	1	------	------	------	------	------	------	------	------	------	------	------
Brazil: [1]																				
Para	C	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Rio de Janeiro	C	6	10	------	1	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------
	D	4	9	------	1	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------
British East Africa [1]																				
Kenya—Mombasa	C	------	------	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------
Tanganyiki	D	21	8	P	P	P	8	5	------	------	------	------	------	------	------	------	------	------	------	------
British South Africa:																				
Northern Rhodesia	C	55	39	164	185	252	236	233	79	117	38	63	------	54	8	------	------	------	------	------
	D	1	2	11	64	62	31	23	5	32	2	3	------	9	------	------	------	------	------	------
Southern Rhodesia	C	------	------	------	3	2	1	3	2	4	P	3	4	1	2	------	------	------	------	------
	D	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------
Canada:																				
Alberta	C	17	17	23	10	10	11	27	------	3	------	7	7	20	7	13	4	2	3	------
Calgary	C	1	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------
Edmonton	C	------	------	1	1	8	5	3	1	------	11	1	1	11	1	7	2	------	------	------
British Columbia: Vancouver	C	------	2	------	------	4	8	26	2	1	3	4	2	5	6	4	11	------	------	------
Manitoba	C	13	9	7	19	7	11	1	------	------	------	------	------	------	------	------	------	------	------	------
Winnipeg	C	5	4	2	2	2	2	2	------	------	------	------	------	------	------	------	------	------	------	------
New Brunswick	C	------	------	------	------	------	1	------	------	1	------	------	------	------	------	------	------	------	------	------
Nova Scotia	C	------	2	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Halifax	C	------	1	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Ontario	C	60	22	96	264	347	212	243	40	51	36	20	19	35	20	9	6	18	18	------
Hamilton	C	------	------	------	------	2	------	------	------	------	------	------	2	------	------	------	------	------	------	------
Kingston	C	------	------	------	1	------	1	1	------	------	------	------	------	------	------	------	2	------	1	------
Ottawa	C	27	40	67	134	63	60	68	11	3	1	7	6	8	10	2	------	3	1	------
Toronto	C	------	2	10	34	39	28	20	4	4	2	4	2	3	3	1	2	4	4	1
Windsor	C	------	------	9	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Quebec	C	1		8	25	16	44	26	11	13		18	22	40	35	15	20	25		33
Montreal	C				1		8	8	5	1	3		6	3				6	2	1
Quebec	C					4	5	5		2	5	4	3	4	4	5	4			9
Riviere du Loup	C				3															
Sherbrooke	C														3					
Saskatchewan	C	14	68	31	34	58	52	97	7	8		7	14	7		12	2	23	15	
Moose Jaw	C	10	16	3		1	4	11		2	6	5	2	5			3			
Regina	C	8		5	1	1									1	2	3	2		3
Saskatoon	C					2	4	15		2										
Ceylon: Colombo	C	1			1	2		4	2	1	3					1				
	D	1				1		1						1						
China:																				
Amoy	C											1	1	2	1					
Antung	C						1											1		
Canton	C		1									2	3	2		2	1			
	D		1																	
Chefoo	C		1	P		P							P							
	D		1								1									
Foochow	C	P	P	P	P	P	P	P		P		P								
Hong Kong	C	1	2				1	2	1	3		3	5	7	10	10	4	4	9	
	D	1	2				1	2		1	1	2		2	5	12	7	2	10	
Manchuria—																				
Changchun	C					1		4									2			
Dairen	C			1	2	1	5	15	3	4	6		1	3	5	6	7	3		
	D			1				8	4	2	1			3	5					
Fushun	C		1		1															
Harbin	C					2	1	5	2	1	3	1	2	3						
Mukden	C			2	1			4	18		3				1			3		
Pensihu	C			1																
Shanghai—																				
Foreigners only	C							5	1	1	1	3	1	1	3	2				
Including natives	D							11	5	4	4	6	2	1	3	3	3	1	3	
Tientsin	C		4	13	8	9	8	48	5	2	2	11	4	3	3	3				
Chosen [1]																				
Curacao (alastrim)	C							2	3											
Dominican Republic: Santo Domingo	C												2							
Dutch East Indies:																				
Borneo—																				
Pontianak	C									1										
Samarinda district	C				P															
South and East Borneo Residency	C	P																		
Java—																				
Batavia and West Java	C	4		4	25			4		1		1	4							
	D				15															
East Java and Madura	C	4	22	8	9	9	5	2			8	1								
	D			1								1								
Sumatra—Medan	C					3	9	23	7	3	1	3	6			1				
	D					2	3	11				2	4			1				

[1] See 10-day and monthly tables below.

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

SMALLPOX—Continued

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Week ended— February, 1928		March, 1928					April, 1928				May 4, 1928
									18	25	3	10	17	24	31	7	14	21	28	
Ecuador [1]																				
Egypt	C		3			4	4	1		1	1					52	11			
	D		1	1		1										33	6			
Cairo	C					2														
France.[1]																				
Gold Coast.[1]																				
Great Britain:																				
England and Wales	C	568	508	473	902	1,041	1,175	1,530	369	392	365	347	359	342	322	318	321	326	376	
Birmingham	C	1		1				44	1		2		1				1			
Bradford	C				11	19	32	24	7	1		4	9		5	5	3	2	7	
Bristol	C			6	4	8		3			1	3		2	8	2	1	10	1	
Cardiff	C				1		1								5				1	
Castleford	C									1	1	2	2	16	7	11	27	11	20	
Leeds	C	5	3	7	5	16	11	3	1	2	4	2	3	5	3	3	2	2	1	
Liverpool	C						1					1								
London	C							4	10	1	2	1	10	5	1	1	7	5	3	
Manchester	C			3	6	25	5	25	1	4	1	2	4	3	3	4	2	4	2	
Newcastle on Tyne	C	1	2	6	9	55	22	27	4	1	4	3	3	4		2			4	
Nottingham	C						13	27	6	1	3	1	5	1	6	1	4	4	6	
Sheffield	C	2	1	10	6	9	14	8	1	2	2	1				1		10	2	
Stoke on Trent	C	1					4	1	2	4	3	6	11			1	4	10	5	
Greece:[1] Saloniki	D	2																		
India	C	5,011	4,398	3,153	4,052	6,731	10,676	17,777	4,567	4,220	5,251	4,812								
	D	1,668	1,120	715	927	1,650	2,429	3,709	1,073	938	949	866								
Bassein	C	1						1												
	D	1																		
Bombay	C	33	12	10	4	9	14	61	29	23	46	51	49	58	62	49	56	57	54	
	D	19	8	2	3	2		24	15	13	23	22	24	33	36	27	32	34	27	
Calcutta	C	27	22	5	5	25	36	58	9	18	14	30	20	29	45	40	49	51	31	
	D	25		6	2	11	27	34	5	11	10	24	15	21	33	35	32	42	21	
Karachi	C											1	1							
	D											1								
Madras	C	6	7	8	7	11	21	74	15	33	21	31	30	27	45	81	49	36	60	
	D		2		2	3	6	8	3	3	3	10	5	3	6	15	16	8	7	

Negapatam	C	3	1				5	8	1		1	1					1		5	
	D	2	1				3	3									1		2	
Rangoon	C	14	9	17	6	14	136	275	68	82	132	95	96	82	92	50	62	45	37	
	D	3	2	3	1	4	31	64	22	24	26	32	28	17	34	23	24	17	12	
Vizagapatam	C		3				3	10		1		1			3			2		
	D		2					8												
India (French):																				
Karikal	C	3	1	2	P															
	D	3	1	2																
Pondicherry	C	39	37	38	42	41	65	47			6	3		6	5	7	12		15	
	D	31	37	38	42	41	50	47			6	3		6	5	7	12		15	
Indo-China: [1] Saigon	C	1	1			1	3			2		1								
Iraq:																				
Bagdad	C		1	7	5	25	23	19	2		3	2	3	1		1				
	D		1	4	4	14	12	11	1		1	2	3	1						
Basra	C	1	4	2	3	4	2	1	1		2	4	4	1						
	D	1	4	2	1	3	1						1	1						
Italy:																				
Leghorn	C										1		1							
Palermo	C														3	2	1	3		
Rome and vicinity	C		1					3												
Jamaica (outside Kingston) (alastrim)	C	6	9	9	7	3	2	5	1	3		6	3	2	1	7		1	2	
Kingston (alastrim)	C		3	2																
Japan:																				
Nagasaki	C	2																		
	D	1																		
Tokyo	C							4		1		3	1	3	1	10				
	D							1			1	1				1				
Tokyo Prefecture	C													17	5	2	1			
Latvia [1]																				
Mauretania	C								P	P										
Mexico: [1]																				
Acapulco	C		2		1															
	D		2		1															
Chihuahua	D						1													
Jalisco (State)	C										P	P	P	P	P	P	P	P	P	
Guadalajara	D					2					1					2	2	1	4	5
Manzanillo	D						1						1							
Mexico City and surrounding territory	C					4		2	2											
San Luis Potosi	D	1																		
Tampico	C									1										
Torreon	D	1		2																
Morocco [1]																				
Nigeria: [1] Southern Province	C										7			40	26					
Palestine: Jerusalem	C					1		1						28	1					
	D							1												
Persia [1]																				
Poland	C	2				1	6	3	1				1							
	D	1																		

[1] See 10-day and monthly tables below.

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

SMALLPOX—Continued

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Week ended— February, 1928		March, 1928					April, 1928				May 4, 1928
									18	25	3	10	17	24	31	7	14	21	28	
Portugal: [1]																				
Lisbon	C	------	3	8	4	10	12	12	3	9	4	4	-----	2	3	----	----	----	----	------
	D	------	------	------	------	1	------	------	------	------	------	1	-----	----	----	----	----	----	----	------
Oporto	C	------	1	------	------	------	------	------	------	------	------	------	-----	----	----	----	----	1	----	------
Senegal: Dakar	C	------	------	------	------	------	------	------	------	8	------	26	17	----	----	----	----	----	----	------
	D	------	------	------	------	------	------	------	------	------	------	------	12	----	----	----	----	----	----	------
Siam	C	51	27	6	1	9	23	35	1	7	1	3	-----	2	14	----	----	----	----	------
	D	10	15	------	------	1	2	4	1	1	------	1	-----	----	4	----	----	----	----	------
Bangkok	C	------	3	------	1	1	3	------	------	------	------	------	-----	----	----	----	----	----	----	------
	D	------	1	------	------	------	1	------	------	------	------	------	-----	----	----	----	----	----	----	------
Spain: [1]																				
Malaga	D	------	------	------	1	1	------	------	------	------	------	------	-----	----	----	----	----	----	----	------
Seville	C	------	------	------	------	------	1	------	------	------	------	------	-----	----	----	----	----	----	----	------
Valencia	C	------	------	1	------	------	2	------	------	------	------	1	-----	1	1	----	----	----	----	------
Straits Settlements: Singapore	C	------	------	------	1	------	------	1	1	------	------	------	1	----	----	----	----	1	----	------
Switzerland	C	------	------	------	------	------	2	------	------	------	------	------	-----	----	----	----	----	----	----	------
Syria [1]		------	------	------	------	------	------	------	------	------	------	------	-----	----	----	----	----	----	----	------
Tunisia: Tunis	C	------	------	------	------	------	4	3	2	4	2	6	1	----	1	2	----	----	----	------
Union of South Africa:																				
Cape Province	C	P	------	P	------	------	------	P	------	------	------	------	-----	----	----	----	----	----	----	------
Natal	C	------	------	------	------	------	------	P	P	------	------	P	P	----	----	----	----	----	----	------
Orange Free State	C	P	------	------	P	P	P	P	------	------	------	------	-----	----	----	----	----	----	----	------
Transvaal	C	------	------	P	7	------	------	------	------	------	------	------	-----	----	----	----	----	----	----	------
Upper Volta	C	------	------	------	------	------	------	------	2	3	------	------	-----	2	----	----	P	----	----	------
Union of Soviet Socialist Republics [1]		------	------	------	------	------	------	------	------	------	------	------	-----	----	----	----	----	----	----	------
Venezuela:																				
Maracaibo	D	------	2	1	------	------	------	1	------	------	------	1	-----	----	----	----	----	----	----	------
On vessel:																				
S. S. Arendskerk at Singapore from Amoy, China	C	------	------	------	------	------	------	------	------	------	------	------	-----	----	P	----	----	----	----	------
S. S. Yarmouth at Kingston, Jamaica, from Habana, Cuba	C	------	------	------	------	------	------	------	------	------	------	------	-----	----	1	----	----	----	----	------

[1] See 10-day and monthly tables below.

Place		July, 1927	August, 1927	September, 1927	October, 1927	November, 1927	December, 1927	January, 1928			February, 1928			March, 1928			April, 1928	
								1-10	11-20	21-31	1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20
Algeria	C	376	459	382	682													
Oran	C	14	10	16	11													
Indo-China (French)	C	19	3	21	25	38	34		40	18	50	31	90	57	71	69		
Syria:																		
Aleppo	C						1		1									
Beirut	C						2			15	11	26		12	7	4	3	5
	D															2	1	
Damascus	C		3	5	22	13	12	11	2						1			

Place		July-September, 1927	October, 1927	November, 1927	December, 1927	January, 1928	February, 1928	March, 1928
Angola	C	51	73	71	7	10		
	D		2					
Congo	C	5	77					
Cuanza-Norte	C	1						
Cuanza-Sul	C		2		7	10		
Loanda	C	1						
Zaire	C	3	4	1				
Brazil: Porto Alegre	C	11	4	1			1	
British East Africa: Zanzibar	C		2					
	D		1					
Chosen	C	21	2	2		4	21	
	D	6		1		2	8	
Ecuador: Guayaquil	C	4	1	1	4	2	9	24
	D							1
France	C	37	7	4	14	11	10	13
Gold Coast	C	7	4				1	
Greece	C	10	4		5	6	11	19
	D						2	2

Place		July-September, 1927	October, 1927	November, 1927	December, 1927	January, 1928	February, 1928	March, 1928
Latvia	C		2				1	
	D	221	132	157	157			
Mexico	C	180	81	140	401	55	47	30
Morocco	C	820	223	93		275		
Nigeria	C	173	51	30		39		
	D			2		7		
Persia	D					143	115	
Portugal	C					22	8	
	D			1				
Spain: Madrid	D							
U. S. S. R.:								
Railways, etc	C	26	7	11	15	18		
Other territories in Europe	C	366	220	471	565			
Transcaucasus, Siberia, and Central Asia	C	80	40	21	20			
Ukraine	C	27	11	20	17	6		

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

TYPHUS FEVER

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928		
								21	28	4	11	18	25	3	10	17	24	31	7	14	21
Algeria:																					
Algeria	C								1					1	2	1	1	2	5	1	3
	D													1							2
Oran	C						4		2			2	1	6	1	1		2	1	1	6
Argentina [1]																					
Austria: Vienna	C									1											
Bulgaria: [1] Sofia	C			17	6	1	6	1								3		3	14		
	D				1																
Chile:																					
Antofagasta	D			1																	
Talcahuano	D		1														1				
Valparaiso	C		1		1	2	1							1							
	D	2	1		2																
China: [1]																					
Manchuria—																					
Dairen	C																			7	
Harbin	C	2			1																
Tientsin	C		2																		
Chosen [1]																					
Czechoslovakia [1]																					
Egypt	C	2		12	4	14	8	2	6		1		13	3	1		1	1		2	1
	D	3		5		8	4		2				5	3			1				
Cairo	C					3															
	D					3															
Port Said	C			1		1															
Greece [1]																					
Ireland (Irish Free State)	C									1										1	
Cork County	C					3	1														
Donegal County, Letterkenny	C			4																	
Japan [1]																					
Latvia [1]																					
Lithuania [1]																					

Mexico:																					
Guadalajara	D					1															
Mexico City, including municipalities in Federal District	C	17	19	18	28	17	15	2	1		2	1		4	3	6	6				
	D				2	1	5							3	1		3				
Monterey	D																1				
Morocco [1]	C						342	257	214	370	210	141			175	172	167	219	190	186	167
Palestine	C	11	1	5	3	9	8		2	2	1	1	2	6	1	5			2	3	
Peru [1]																					
Poland	C	50	35	19	64	93	195	101	92	87	66	57	62	57	89	90	90	125	77		
	D	6	2	4	11	10	16	4	3	5	7	10	3	7	6	5	6	7	7		
Portugal: [1] Oporto	C	1			1						1										
Rumania	C	36	16	17	22	35	68			15	24		14	26	28	29					
	D	1		2			3			2	7			4	1	2					
Syria: [1] Aleppo	C		2				2														
Tunisia	C	14		3	1	1	6	4				1				13		5			2
Union of South Africa:																					
Cape Province	C	P	P	P	P	P	1	P	P	1	P	P	P				P				
Natal	C	P	P	P	P	2	3		P		1	P	P		2	P	P				
Orange Free State	C			P		P				P	P	P	P				P				
Transvaal	C	1		5	P	P											P				
Union of Soviet Socialist Republics [1]																					
Yugoslavia [1]																					
On vessel: S. S. Gaika at Durban, Natal—from Mauritius	C													1							

[1] See 10-day and monthly tables below.

Place		1927				November, 1927			December, 1927			January, 1928			February, 1928		
		July	August	September	October	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-29
Algeria	C	67	33	10	12												
	D	13			1												
Algiers	C	2	2	6	2												
Bulgaria	C	12	24	7	2						2	7	6		8	12	6
	D		1	2	1						1		1		1	2	2
Morocco	C	148	76	7	11	5	14	7	5	6	75						

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

TYPHUS FEVER—Continued

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

Place		July–September, 1927	October, 1927	November, 1927	December, 1927	January, 1928	February, 1928	March, 1928
Argentina: Rosario	C			1				
	D				1	1		
China: Shanghai	D			1				
Chosen	C	90	16	26	38	183	400	
	D	8	1	2	3	19	44	
Chemulpo	C	3				1		
Gensan	C	2				1		
	D					1		
Seoul	C	5	2					
	D	1	1					
Czechoslovakia	C	12	1		6			23
Greece: Athens	C	3			1	2	2	
Japan	C	1		1				
Latvia	C	6					1	
Lithuania	C	69	9	18	27	86	137	
	D	14	1	1	1	10	12	
Mexico	D	64	36	29	33			
Peru:								
Arequipa	D	3	2		1	2		
La Oroya	C					P	P	P
Lima	C	8						
Turkey	C						17	
	D						1	
U. S. S. R.:								
Railways, etc	C	77	23	33	46	41		
Transcaucasus, Siberia, and Central Asia	C	208	61	49	80	7		
Ukraine	C	295	151	198	282	533		
Other territories in Europe	C	1,839	521		1,403			
Yugoslavia	C	20	1	1		7	24	3
	D	5				3		

YELLOW FEVER

Place		July 3–30, 1927	July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Week ended— Nov. 26, 1927	December, 1927					January, 1928				February, 1928			
								3	10	17	24	31	7	14	21	28	4	11	18	25
Belgian Congo:																				
Boma	C											3								
	D											2								
Matadi	C											6	12	11	1	5	8			1
	D											2	6	8	2	5	6			

Place																				
Dahomey:																				
Grand Popo	C						1													
	D						1													
Porto Novo	C	1																		
	D	1																		
Gold Coast: [1]																				
Ashanti—Obuasi	C		1																	
	D		1																	
Ivory Coast	C	1									1									
	D	1									1									
Liberia: Monrovia	C			1																
Nigeria	C			2																
	D			2																
Senegal	C	3	10	21	31	38														
	D	3	9	21	31	28														
Dakar	C	1			12	14	2	1	4			1	1							
	D				7	10	2	1	4			1	1							
Togoland	C		1																	
	D		1																	

[1] See monthly table below.

Place		July	August	September	October
Gold Coast	C	15	2	6	
	D	4	2	4	