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## PUBLIC HEALTH REPORTS

## MENINGOCOCCUS MENINGITIS IN THE UNITED STATES

An increase in the number of cases of meningococcus meningitis this year over the corresponding period of last year has been noted in the Public Health Reports (issues of April 6, 1928, p. 807, and April 27, 1928, p. 999).

During the eight weeks from March 4 to April 28, 1928, and the corresponding eight weeks of 1926 and 1927, forty-two States reported cases of meningococcus meningitis as follows:

| 1926 | $\begin{gathered} \text { Cases } \\ 438 \end{gathered}$ |
| :---: | :---: |
| 1927 | 477 |
| 1928 | 1, 036 |

These States had an estimated population of more than $104,000,000$ in 1927.

The disease appears to be decreasing in the Mountain States, which have reported the highest case rates.

Reports of deaths for the year 1928 are available only from cities. The following table shows the numbers of cases of meningococcus meningitis and deaths from this disease reported by 7 large cities for the first 17 weeks of 1927 and 1928. The cities were selected for the reason that they reported a considerable number of cases.

Meningococcus meningitis cases and deaths reported by certain cities, January 1 to April 28, 1988, and corresponding period of 1987.

|  | 1927 |  | 1928 |  |  | 1927 |  | 1928 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Cases | Deaths | Cases | Deaths |  | Cases | Deaths | Cases | Deaths |
| Chicago <br> Cleveland | ${ }_{8}^{50}$ | $\begin{array}{r}23 \\ 3 \\ \hline\end{array}$ | 133 29 | ${ }_{9}^{66}$ | New York City. St. Louis | $\begin{aligned} & 77 \\ & 14 \end{aligned}$ | $46$ | $284$ | 148 16 |
| Kansas City, Mo Milwaukee | $\begin{array}{r}5 \\ 7 \\ \hline\end{array}$ | 3 34 3 | 34 41 | 16 25 | Total.-..- | 242 | 125 | 587 | 304 |

It should be noted that, while the increase over preceding years is considerable, the number of cases is not large in proportion to the population.

$$
\begin{equation*}
98247^{\circ}-28^{\circ}-1 \tag{1123}
\end{equation*}
$$

# THE INCIDENCE OF VARIOUS DISEASES ACCORDING TO AGE ${ }^{1}$ 

Hagerstown Morbidity Studies No. VIII ${ }^{2}$

By Edgar Sydenstricker, Statistician, United States Public Healih Service

In this report it is proposed to place on record in some detail the results of the morbidity study in Hagerstown, Md., which bear upon the incidence of various diseases and conditions at different ages.

The data are too voluminous to permit of a detailed discussion of each disease or a comparison with other morbidity records in a short paper. It is believed, however, that they will be of interest as they stand, not merely for the reason that they add to our morbidity experience, but also, and perhaps especially, because they are the results of the first study, of which we are aware, of the incidence of illness and disease during a period as long as 28 months in a general population group composed of persons as found in their homes-that is, of both sexes, all ages, engaged in the ordinary occupations of life, in a fairly typical inland small city in the eastern section of the United States.

## I. Scope and Method of the Study and Definition of Illness and Disease

The scope and method of the study have been discussed in detail in the first paper of this series and need not be repeated here except in so far as they may affect some particular phase of the results here presented. For proper interpretation of the data, however, it may be well to invite attention to certain definitions and procedures, as follows:

1. For every case of illness recorded, an attempt was made to obtain as complete a statement as possible of the specific disease or diseases responsible for it or of the condition which most accurately described it. Only 170 , or less than one per cent, of the 17,847 illnesses had to be classified as "ill-defined and unknown." Of the total number $(17,217)$ for which information as to medical and other service was avialable, 7,953 , or 46 per cent, were attended by physicians, and in practically

[^0]all of these cases the diagnosis given by the informant at the home was reviewed by the attending physician shortly after the visit was made. If we omit "colds" and minor digestive disturbances, which numbered about $7,500,65$ per cent of the illnesses were attended and the diagnoses were reviewed by physicians. The facts that repeated visits were made to the same households and that 67 per cent of the total population enumerated were observed for at least 24 of the 28 months, are evidence, we believe, of a real attempt to ascertain not only the incidence, but also the cause of illness. ${ }^{3}$
2. In the interpretation of the data presented in this paper it is essential to keep in mind the following qualification: The measure of the incidence of any specific disease was the extent to which it manifested itself in illness. If it did not manifest itself in illness, it was not observed and, therefore, was not recorded. It follows, of course, that our results are not comparable with the results of intensive medical or physical examinations, and that defects and conditions indicative of ill health are not revealed unless they were major causes of illnesses recorded. Similarly, those morbid conditions which ordinarily are described as "below par," "not feeling very well," etc., or were of short duration and occasioned little discomfort, were not recorded. For example, many minor respiratory attacks were not reported. Less than 5 per cent of the illnesses for which exact durations were stated were one day or less in duration. Comparisons of our results with other morbidity records indicate that, in general, the illnesses we recorded were those which lasted over two days.

Thus the definition of "illness" employed in this study was not, as we have already pointed out, rigidly precise. The records obtained were of illnesses as reported by the household informant (usually the wife), either as experienced by herself or as she observed them in her family; thus the definition of the term can not be refined any further than the common understanding of the word. Furthermore, the records as obtained were of attacks, rather than illness in

[^1]| Number of months under observation | Persons under observation specified number of months |  |
| :---: | :---: | :---: |
|  | Number | Per cent of total |
| 28 months. | 3,202 | 37.3 |
| 26 months or more. | 5,140 | 49.8 |
| 24 months or more...--.-. | 5,787 | 67.4 |
| 18 months or more. | 6,824 | 79.5 |
| 14 months or more- | 7,528 | 87.7 |
| 12 months or more. | 7,794 | 90.8 |
| 9 months or more. | 8,085 | 94.2 |
| 6 months or more........- | 8,340 | 97.1 |
| 4 months or more........ | 8,431 | 98.2 |

the sense of ill health. As already emphasized, of those persons affected with some chronic condition, only those who suffered ill effects of this condition during the period came to notice. "Normal" reactions of the individual, considered by some as not symptoms of disease, although accompanied by some discomfort, may be said to be unrecorded. Although the reader is cautioned against putting too fine a point on this definition of ilness, we believe that the illness recorded undoubtedly was a fairly accurate indication of disease incidence.
3. In only 660 , or 3.7 per cent, of the total illnesses was more than one cause or condition recorded. One reason for the comparatively small number of cases with "contributory" and "joint" causes was the method used in classification. Sometimes the informant mentioned more than one condition in telling about an illness; but when these conditions were in the nature of symptoms which simply amplified the information as regards a single cause of illness, they were not tabulated as complications or contributory causes. For example, a person may have reported "indigestion" and a "headache" as the cause of illness, but only the "indigestion" was used to denote the condition. In other words, symptoms were not made contributory causes unless it seemed quite certain that they apparently represented a condition separate and distinct from the primary diagnosis. In such cases, symptomatic indications were tabulated as disease entities, even though they were sometimes complications of the primary disease. Thus, in the case of "colds" and "indigestion," the cold was made primary, but the indigestion was tabulated as a complication.

In the tables on the incidence of specific diseases which are presented in this paper, both primary and contributory causes are given as distinct diseases or conditions. Thus, in the foregoing instance, the "cold" is included under its appropriate title and "indigestion" under its appropriate title also.

The age groupings were chosen with the primary purpose of exhibiting the characteristic age curves of the various diseases. This was a rather difficult thing to do, and in some instances the groupings are probably not the best suited. It was thought best to retain one age classification throughout, however, except for a few diseases for which additional tables and graphs are given.

## II. The Record of Diseases and Conditions

The basic data used in this report are given in Table A, entitled "Number of illnesses, by age groups, in which specified diseases or conditions were the sole or primary or contributory cause in a group of white persons in Hagerstown, Md., observed from December 1, 1921, to April 1, 1924."

The data are presented in considerable detail in order that they may be available to those who wish to use the statistics in various ways. For several diseases the numbers according to age groups are too small to yield dependable indications of age variations, but they are given for what they are worth in themselves, as well as to enable the student to make combinations to suit his particular purpose.

Table A.-Number of illnesses, by age groups, in which specified diseases or conditions were the sole or primary or contributory cause in a group of white persons observed in Hagerstown, Md., December 1, 1921-March 11, 1924


[^2]Table A.-Number of ilnesses, by age groups, in which specified diseases or conditions were the sole or primary or contributory cause in a group of white persons observed in Hagerstown, Md., December 1, 1921-March 31, 1924-Continued


${ }^{2}$ This record covers the period Feb. 1, 1923-Mar. 31, 1924, and relates to the following years of observations: 0-4, 972; 5-9, 1,054; 10-14, 860; 15-24, 1,233; 25-44, 2,287; 45-64, 1,267; 65+, 384; total, 8,248.

Table A.-Number of illnesses, by age groups, in which specified diseases or conditions were the sole or primary or contributory cause in a group of white persons observed in Hagerstown, Md., December 1, 1921-March 31, 1924-Continued


## III. Incidence Rates of Specific Diseases at Different Ages

In the following series of tables the age specific rates of the different diseases are given on an annual basis. The discussion is confined largely to brief explanatory comment and, in some instances, contains supplementary details; but we have relied upon the graphs to depict the principal results and indications that the data appear to yield. The number of cases and "years of life observed" upon which any rate is computed may be found by reference to Table A.

1. EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES
(Int. List. Nos. 1-42, except 11 and 31)
Table 1

| Diseases and conditions | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total. | 88.7 | 353.4 | 293.7 | 50.8 | 15.8 | 11.4 | 10.1 | 9.9 |
| Typhoid | 1.2 | . 6 | 1.9 | 2.9 | 1.2 | . 6 | . 8 | 1.2 |
| Measles. | 34.4 | 153.6 | 124.0 | 16.3 | 1.6 | . 4 |  | ....... |
| Scarlet fever-..-- | 2.1 | 5.1 | 7.6 | 4.1 | ${ }^{.8}$ |  |  |  |
| Whooping cough. | 226 22 | 117.6 | 67.5 8.6 | 7.0 | 1.2 | 1.1 | 1.2 |  |
| Diphtheria | 2.7 2.2 | 6.2 .6 | $\begin{array}{r}8.6 \\ \hline .5\end{array}$ | 4.1 2.3 | .8 2.0 | 1.1 | .8 4.3 | - 3.7 |
| Chicken pox... | 4.0 | 59.7 | 54.6 | 5.8 |  | . 2 |  |  |
| German measles. | 1.1 | 1.7 | 5.7 | 1.2 |  | . 2 |  |  |
| Tuberculosis, nonpulmonary | 1.8 |  | . 5 | . 6 | 1.2 | 1.9 |  |  |

Of the total 1,465 cases included under the above heading, 1,174 were measles, whooping cough, and chicken pox, so that the age curve for the total for the group is influenced largely by these three diseases. The number of cases of the other diseases are too small to yield dependable indications according to age although some of the rates are interesting from the viewpoint of interepidemic incidence.

In view of the fact that measles, whooping cough, and chicken pox were quite prevalent during the period of study, their actual incidence (as contrasted with the incompletely reported incidence usually available ${ }^{4}$ ) according to age is not without significance. The accom-

\footnotetext{
${ }^{4}$ The annual rates based on our records and annual rates based on reports of physicians to the local health department aro compared below:
Observed and reported incidence of measles, whooping cough, and chicken pox in Hagerstown Md. December 1, 1921-March 31, 1924

| Disease | $\begin{aligned} & \text { Annual incidence } \\ & \text { per } 1,000 \text { as- } \end{aligned}$ |  |
| :---: | :---: | :---: |
|  | Observed <br> in home visits | Reported by physicians |
| Measles. | 34.4 | 9.0 |
| Whooping cough | 22.6 | 3.3 |
| Chicken pox..-- | 14.0 | 2.2 |

See Hagerstown Morbidity Studies No. II.


Fig. 1.-Monthly incidence of measles, whooping cough, and chicken pox, from December 1 , 1921-March 31, 1924, in a white population group in Hagerstown, Md.
panying diagrams (fig. 1) exhibit the monthly numbers of cases and reveal a definitely epidemic prevalence of measles and whooping cough and perhaps of chicken pox. ${ }^{5}$ For each of these diseases a more detailed tabulation according to age was made as follows:

Table 1a.-Measles, whooping cough, and chicken pox


These rates have been plotted in Figure 2 and tell their own stories. The dotted lines were drawn by inspection and serve merely to suggest what the age curves might be if the irregularities due to small numbers were smoothed out.

> 2. "GENERAL" DISEASES
(Int. List Nos. 43-69)
Table 2

| Diseases | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underset{\text { all }}{\text { All }}$ | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total | 23.1 | 3.4 | 7.1 | 8.2 | 8.7 | 22.2 | 58.2 | 77.7 |
| Cancer | 1.3 |  |  |  |  | 1.3 | 3.9 | 6.2 |
| Rheumatism. | 17.6 | . 6 | 5. 2 | 6.4 | 6.7 | 16.2 | 44.3 | 67.9 |
| Diabetes...- | 1.0 |  |  |  |  | .$^{2}$ | 5. 4 | 1.2 |
| Others. | 3.2 | 2.8 | 1.9 | 1.8 | 2.0 | 4.5 | 4.7 | 2.5 |

The true prevalence of all diseases classifiable under this heading is not, of course, revealed by a record of the illnesses that they cause during a period of 28 months. The prevalence of acute rheumatism, which forms a large proportion of the total, is probably adequately

[^3]

Fig. 2.-Incidence of measles, chicken pox, and whooping cough, among
persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1921. The dotted, smooth lines were drawn by inspection
recorded, but certainly this can not be said of diabetes or cancer. Our record of cancer and diabetes may be interpreted as indicating the prevalence of cases severe enough to require a physician's attendance, since every case recorded was attended by a physician. (See fig. 3.)


Fig. 3.-Incidence of "general diseases" manifested in illness among persons of different ages in a white population group in Hagerstown , Md., December 1, 1921-March 31, 1924
3. DISEASES OF THE NERVOUS SYSTEM

- (Int. List. Nos. 70-84; part of 205)

Table 3

| Disease | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total | 48.56 | 6.19 | 22.33 | 51.96 | 28.51 | 57.94 | 87.37 | 88.86 |
| Apoplexy and cerebral hemorrhage. | . 91 | . 56 |  |  |  | . 43 | 1. 16 | 9.87 |
| Epilepsy. | . 67 | . 56 |  | 2.38 | . 79 | - 65 | 3.39 | 19.75 |
| Chorea | 1.21 | 6 | 1.43 | 8.17 | . 79 | . 65 | . 39 |  |
| Neuralgia. | 7.33 | . 56 | 1.43 | 234 | 3.56 | 11.20 | 13.98 | 14.81 |
| Neuritis and sciatica. | 5. 75 |  |  |  | 1.19 | 8.40 | 15.92 | 11.11 |
| Neurasthenia and nervous exhaustio | 13.08 | 1.69 | 3.33 | 5.84 | 9.90 | 17.02 | 26.79 | 20.88 |
| Headache. | 15. 20 | 1.13 | 14. 73 | 30.36 | 7.13 | 17.23 | 22.91 | 8. 64 |
| Other nervous conditions. | 2.78 | 1.69 | 1.43 | 2.34 | 5.15 | 2.80 | 2.72 | 3.70 |

The fact that "headache" is a symptom that characterizes no particular syndrome makes its inclusion under diseases of the nervous system rather doubtful. One has the choice of classifying illnesses described as "headaches" under "jll-defined and unknown" or of including them under some other group titles preferably (perhaps) the nervous system. We adopted the latter course after excluding, however, from the foregoing table all headaches that were reported as occurring in conjunction with a disease or condition of which headache may be a symptom. The rates given above are based on those indispositions and illnesses which were reported as "headache" without any other related condition, and the reader can reclassify them as he pleases. The other conditions specified in the table seem to be fairly definite from the diagnostic point of view, either because they are commonly recognized, as in the case of neuralgia or sciatica, or for the reason that the attending physician's diagnosis was recorded. The extent to which the specific conditions were attended by physicians is shown below:
Table 3a.-Extent to which cases of nervous diseases and conditions resulting in illness were attended by physicians

| Disease or condition | Number of cases | Per cent attended by physicians |
| :---: | :---: | :---: |
| Apoplexy and cerebral hemorrhage... | 23 | 100 |
| Paralysis........- | 23 9 | 96 56 |
| Chorea- | 19 | 89 |
| Neuralgia. | 100 | 38 |
| Neuritis and sciatica.. | 86 | 58 |
| Neurasthenia and nervous exhaustion | 164 | 80 |
| Headache .-............... | 237 39 | ${ }_{67}$ |

The age incidence of these conditions is shown graphically in Figure 4 and needs no further comment except on one or two details.

The high incidence of headache in the age group 10 to 14 is undoubtedly significant, although we are not able to say what specific condition it is directly associated with. It is corroborated by the more extensive records of absences due to "headaches" in the Hagerstown schools. ${ }^{6}$

[^4]Whether or not all of the chorea was true chorea, it is impossible to say; all except two of the 19 cases were diagnosed by attending physicians, and all of the attacks were severe enough to result in illness. While 80 per cent of the cases recorded as "neurasthenia" and "nervous exhaustion" were so diagnosed by attending physicians, it is probable that this diagnosis was not infrequently used as a generic or vague term to designate a condition due to more specific causes. The higher incidence of paralysis than of apoplexy and cerebral


Fig. 4.-Incidence of certain diseases and conditions of the nervous system manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924
hemorrhage is due, of course, to the fact that the former included conditions continuing from lesions that occurred before our study was made, whereas the latter occurred during the 28 months of observation.

Lumbago and myalgia, in accordance with the International List of Causes of Death, are classified under "Diseases of the bones and organs of locomotion," but obviously belong with diseases of the nervous system. They are given immediately below.
4. DISEASES OF THE BONES AND ORGANS OF LOCOMOTION
(Int. List Nos. 155-158; part of205)
Table 4

| Disease | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | $65 \text { and }$ over |
| Total. | 7.02 | 1. 13 | 2.38 | 2.92 | 1.98 | 10.55 | 13. 59 | 16.04 |
| Lumbago, myalgia, myosit Backache (part of 205) ... | 3.15 | . 56 | 1.43 | $\begin{array}{r}1.17 \\ . \\ \hline 8\end{array}$ | . 79 | 4.74 4.09 | 7.38 3.49 | 6.17 |

[^5]5. DISEASES AND CONDITIONS OF THE EYE AND ANNEXA
(Int. List No. 85)
Table 5

| Disease | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All <br> ages | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total | 8.42 | 8.44 | 16. 16 | 16.93 | 4.36 | 5.35 | 6.60 | 7.40 |
| Conjunctivitis, bacillary (pink eye) | 2. 00 | 2.25 | 4.28 | 5.25 | . 79 | 1.08 | 1.16 |  |
| Conjunctivitis, other and "sore eye" | 3. 57 | 3.94 | 8.08 | 6.42 | 1.52 | 1.94 | 3.88 | 1.23 |
| Other "eye trouble" | 1.70 | $\underline{.} 56$ | 1.90 | 3. 50 | 1. 19 | 1.08 | 1.55 | 6.17 |

In the absence of adequate eye examinations, it is impossible of course to interpret the rates given above except in a very general way. Most of the conditions classified under "other eye trouble" were attended by physicians and were eye defects rather than acute attacks of disease. We may, therefore, roughly divide the incidence of the eye conditions recorded into two categories: (a) Those of an acute nature due principally to infections, such as sties, pink eye, and other forms of conjunctivitis, and (b) those due to defects. The rates for these two groups have been plotted in Fig. 5, as well as the curve for markedly defective vision ( $20 / 50$ or worse in one or both eyes) which has been published for a large group by Collins and Britten (2). A comparison of the curve for defective vision with that for "other eye trouble" suggests that the conditions classified under the latter were due principally to defects. Although some of them occurred among children of school age, the "other eye troubles" increased with age; the incidence of acute disabilities, due princi-
pally to infections, on the other hand, occurred chiefly among children. The incidence of specific conditions in the latter group is shown graphically in Figure 6.


Fig. 5.-Incidence of certain eye conditions among persons of different ages in a white population group in Hagerstown, Md., and of markedly defective (20/50 or worse) vision according to Britten and Collins
6. DISEASES OF THE EAR AND MASTOID PROCESS
(Int. List No. 86)
Table 6

| Disease | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { All } \\ & \text { ages } \end{aligned}$ | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total. | 15.01 | 40.52 | 37.06 | 26.27 | 7.92 | 5.17 | 2.33 | 2.47 |
| Otitis media | 10. 05 | 35.46 | 20.91 | 15.76 | 2.77 | 4.31 | 1.55 | 1.23 |
| Earache.------ | 3.21 | 3.94 | 12.35 | 8.17 | 1.58 | . 3 |  | 1.23 |

The fact that diseases of the ear so far as they are manifested in illness are largely confined to children is clearly apparent.

The record of absences in the Hagerstown schools due to "earache and ear diseases" (1) exhibits the same curve in greater detail for children of school age.


Fif. 6.-Incidence of certain diseases and conditions of the cye manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921March 31, 1924

Table 6a.-Absences due to "earache and ear diseases" in Hagerstown schools December, 1921-May, 1925

| Age | Earache and ear diseases |  | Earache |  | Ear diseases |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number of cases | $\begin{aligned} & \text { Rate per } \\ & 1,000 \end{aligned}$ | Number of cases | $\begin{aligned} & \text { Rate per } \\ & 1,000 \text {. } \end{aligned}$ | Number of cases | Rate per 1,000 |
| 6. | 88 | 102 | 71 | 82 | 17 | 19.8 |
| 7. | 131 | 76 | 116 | 67 | 15 | 8.7 |
| 8. | 128 | 73 | 112 | 64 | 16 | 9.1 |
| 9 | 107 | 66 | 93 | 57 | 14 | 8.7 |
| 10. | 69 | 43 | 54 | 33 | 15 | 9.3 |
| 11. | 69 | 46 | 52 | 35 | 17 | 11.4 |
| 12 | 63 | 49 | 54 | 42 | 9 | 7.0 |
| 13. | 40 | 34 | 32 | 27 | 8 | 6.8 |
| 14. | 33 | 33 | 24 | 24 | 9 | 9.1 |
| 15. | 16 | 23 | 11 | 16 | 5 | 7.3 |
| 16-18.. | 13 | 13 | 6 | 6 | 7 | 7.1 |

[^6]Otitis media was shown quite definitely to be a disease of children, and followed closely the curve of infectious diseases (fig. 7). The number of cases of mastoiditis is too small to offer any evidence as to variations in incidence according to age. "Earache" must be regarded as a symptomatic term under the general title of ear diseases and conditions. Its relatively infrequent occurrence among children under 5 years of age as compared with its higher incidence in the age


Fig. 7.-Incidence of certain diseases and conditions of the ear manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924
period 5 to 9 years is probably more apparent than real; it is doubtless due in part to the fact that it is a subjective rather than an objective symptom and in part probably to a tendency to call in a physician in cases of earache more frequently for younger children than for older. This possibly increases the recorded incidence of otitis media among young children.

## 7. DIBEASES OF THE CIRCULATORY SYSTEM

(Int. List Nos. 87-96)
Table 7

| Diseases and conditions | Annual rate per 1.000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underset{\text { ages }}{\text { All }}$ | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | $\begin{gathered} 65 \text { and } \\ \text { over } \end{gathered}$ |
| Total | 24.04 | 12.38 | 10.93 | 18.10 | 11.09 | 15. 72 | 43.88 | 117.24 |
| Diseases of the heart | 13.44 |  | 2.38 | 9.92 | 7.13 | 9.69 | 25.24 | 74.05 |
| Arteriosclerosis. | 1.94 |  |  |  |  |  | 1.55 | 34. 56 |
| High blood pressure | 1.82 |  |  |  | . 40 | . 86 | 8.15 | 4.94 |
| Hemorrhoids.-..... | 1.09 |  |  |  | . 40 | 1.94 | 3.11 |  |
| Adenitis.....-......- | 3.45 1 | 11.82 | 6. 18 | 6. 42 | 2. 38 | . 86 | .78 28 |  |
| Nosebleed and other hemorrha | 1.03 1.27 | . 56 | 1.90 .48 | .58 1.17 | .40 .40 |  | 2.72 2.33 | 3.70 |
|  | 1.27 |  | . 48 | 1.17 | . 40 | 2.37 | 2.33 |  |

The caution already emphasized, that our data are not records of defects as discovered by medical examination and clinical observation but records of illness due to more or less specific conditions, is particularly pertinent in interpreting the age incidence of illnesses


Fig. 8.-Incidence of diseases of the circulatory system manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924
due to circulatory diseases. Yet, for the most part, these illnesses were real disabilities, and 83 per cent of the 287 cases were attended by physicians.

The incidence of illness due to circulatory diseases and conditions among children and adolescents was due in part to glandular inflammation, especially in the ages under 10 years. (Fig. 8.) Diseases of the heart were relatively more frequent causes of illness in the age period $10-14$ than at younger ages or until adult life, an indication
which is reflected in the age specific mortality rate for this group of causes. This indication appeared also in the records of absences due to heart conditions among the Hagerstown school children during (1) the period 1921-1925. Although the number of cases (60) is small, a variation according to age seems to be manifested within the school-age period, as follows:

Table 7a.-Absences due to heart conditions in the Hagerstown schools, December, 1921, to May, 1925

| Age | Rate per <br> $1,000 \cdot$ | Number <br> of cases | Age | Rate per <br> $1,000 \cdot$ | Number <br> of cases |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 6 | 3.5 | 3 | 12 | 7.7 | 10 |
| 7 | 1.2 | 2 | 13 | 5.1 | 6 |
| 8 | 2.8 | 5 | 14 | 7.0 | 7 |
| 9 | 1.9 | 3 | 15 | 2.9 | 2 |
| 10 | 5.6 | 9 | $16-18$ | 3.0 | 3 |
| 11 | 6.7 | 10 |  |  |  |

- Rate per $\mathbf{1 , 0 0 0}$ children per school year of 180 school days.

The familiar rise in prevalence of heart disease in middle and old age is evidenced in these morbidity records as well as in mortality experience, but the rise of mortality from heart disease as age advances is at a much more rapid rate than that of the morbidity rate. If we compare the curve shown in Figure 8 with the mortality curve, for example, in the original registration States for 1920, the ratio of illnesses to deaths is about 30 at 15-24 years, 20 at 25-44, 8 at 45-64, and only 2 after 64 years.

## 8. RESPIRATORY DISEASES

(Int. List Nos. 11, 31, 97-107, 109)
Table 8

| Disease or condition | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { All } \\ & \text { ages } \end{aligned}$ | $\begin{aligned} & \text { Un- } \\ & \text { der } 5 \end{aligned}$ | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total | 664.5 | 929.2 | 913.8 | 779.9 | 496. 9 | 568.8 | 593.7 | 597.3 |
| Influenza and grippe | 114.2 | 115.9 | 163.0 | 162.3 | 107. 7 | 162.6 | 149. 5 | 132.0 |
| Pneumonia_ | 8.7 | 40.0 | 9.5 | 7.0 | 2.0 | 3.0 | 5.4 | 9.9 |
| Pleurisy-- | 23 | 1.1 | 1.9 | 6 | 2.4 | 2.2 | 4.7 | 3.7 |
| Diseases of the pharyn | 68.7 | 44.5 | 153.0 | 155. 3 | 69.3 | 39.0 | 20.6 | 11.1 |
| Tonsillitis. | 28.6 | 31.0 | 56.1 | 61.9 | 32.9 | 18.7 | 7.0 | 3.7 |
| Sore throat | 26.1 | 8.4 | 78.9 | 75.3 | 21.8 | 9.0 | 6.6 | 4.9 |
| Quinsy | 8. 3 |  | 1.9 | 2.9 | 5.1 | 5.0 | 1.6 |  |
| Other pharynx | 8.7 | 5.1 | 16.2 | 15. 2 | 9.5 | 6.2 | 5.4 | 2.5 |
| Diseases of the larynx | 11.4 | 20.3 | 24.7 | 8.8 | 4.4 | 7.8 | 12.4 | 6.2 |
| Croup.- | 5.3 | 18.0 | 20.9 | 5.3 | . 4 | $\cdot 2$ | . 4 |  |
| Laryngitis | 5.1 | 2.3 | 3.8 | 2.3 | 2.8 | 6.7 | 9.7 | 6.2 |
| Other diseases of the larynx | 1.0 |  |  | 1.2 | 1.2 | $\stackrel{.9}{9}$ | 2.3 |  |
| Hay fever-. | 2. 0 |  |  |  | 2.8 | 2.4 | 3. 5 | 6.2 |
| Asthma...--............. | 4.1 |  | . 5 | 5.3 | 2.8 | 5.2 | 5.4 | 12.3 |
| Pulmonary tuberculosis .......-..........-.-. | 3.3 |  |  |  | 5. 5 | 5.4 | 3.1 | 1.2 |
| Other diseases of the respiratory system (including head colds, chest, and bronchial conditions) | 421.9 | 707.5 | 560.7 | 440.2 | 300.1 | 341.4 | 389.1 | 414.7 |
| Coryza :---..- | 217.1 | 362.2 | 271.5 | 232.6 | 146.0 | 202.0 | 169.7 | 174. 7 |
| Bronchitis (acute and chronic)s | 123.5 | 269.6 | 181.3 | 94.2 | 56.0 | 87.0 | 115.2 | 161.7 |
| Chest colds, coughs, and bronchial conditions a | 53.3 | 89.5 | 75.0 | 48.9 | 28. | 43.3 | 56.8 | 65.2 |
| Tonsillectomy and (or) adenoidectomy.....- | 7.3 | 7.3 | 31.4 | 9.9 | $5.1{ }^{\prime \prime}$ | 2.2 | . 4 |  |
| Other operations of nasal fossae.------....--- | . 5 |  | ----- |  | 1.6 | . 4 | . 4 |  |



Fig. 9.-Monthly incidence of certain respiratory diseases and conditions in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924

Many minor respiratory affections were not included in the records we obtained. This was evident at the time the study was made, and is also shown to be true by later studies of the United States Public Health Service, which, by obtaining reports at much shorter intervals, showed the respiratory rate to be much higher than that recorded for the Hagerstown group. ${ }^{7}$ Again, attention may be invited to the fact that nearly all the cases recorded in the Hagerstown study were illnesses in the common understanding of the term and, therefore, excluded respiratory attacks which, however definite they may have been clinically, were not accompanied by that degree of malaise which ordinarily is denoted as illness.

Since only 34 per cent of the respiratory cases recorded were attended by physicians, it was difficult to designate many of them by a more specific diagnostic term than that which the lay informant would ordinarily use. During the first half of the study we obtained information that was specific enough to make a rough classification into (1) influenza and grippe, (2) pneumonia, (3) pleurisy, (4) tonsillitis, (5) sore throat, (6) quinsy, (7) other diseases of the pharynx, (8) hay fever, (9) asthma, and (10) pulmonary tuberculosis. The remainder were grouped under a general heading (11) "Other diseases of the respiratory system" which included bronchitis, "bronchial colds and coughs," "chest colds," etc. In the second half of the study an attempt was made to obtain more specific information with the result that we were able to refine our classification and add the following: (12) Coryza and rhinitis, (13) bronchitis, and (14) "chest colds," "cough," and "bronchial conditions." This refinement probably had the additional effect of increasing the number of specific tonsil and throat conditions in the second 14 months of our study over what would have been recorded had no change in method of inquiry been made.

As the classification finally stands, however, we feel that the differentiations are roughly accurate from the point of view of present clinical knowledge. Obviously the distinction between "colds" and "influenza and grippe" is not clear, as the accompanying graphs of their monthly incidence suggest (fig. 9), since peaks in "colds" occur simultaneously with peaks in influenza. The age curves for the two conditions (fig. 10) are also quite similar, except for children under 5 years of age-an exception that can be accounted for by the inability of small children to tell the subjective symptoms ordinarily associated with influenza or grippe. But the other classes or kinds of

[^7]

Fig. 10.--Incidence of respiratory diseases and conditions manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924
respiratory affections and diseases seem to be fairly well differentiated. In the first place, a considerable proportion of each were diagnosed by attending physicians, as the following table shows:

Table Sa.-Proportion of cases of various respiratory diseases that were attended by physicians

| Disease or condition | Number of cases | Per cent attended by physicians |
| :---: | :---: | :---: |
| Pulmonary tuberculosis. | 48 | 98 |
| Pneumonia. | 111 | 97 |
| Pleurisy | 33 | 88 |
| Tonsillitis. | 465 | 73 |
| Influenza and grippe. | 2,317 | 67 |
| Other diseases of the pharynx | 99 | 65 |
| Hay fever and asthma. | 86 | 47 |
| Laryngitis. | 92 | 36 |
| Croup... | 86 | 33 |
| Sore throat......... | 497 | 21 |
| Colds, unqualified | 828 1.780 | 14 |
| Coryza.. | 1, | 7 |

In the second place, the age curves suggest fairly definite differences. Referring first to Figure 10, bronchitis is in clear distinction to coryza and to influenza on the one hand, and to diseases of the pharynx and larynx on the other hand. Considering tonsil and throat conditions (fig. 11), the age curves for pharyngeal conditions is quite different from those for laryngitis and also for croup. ${ }^{8}$

The number of cases of asthma, hay fever, pleurisy, and tuberculosis is perhaps too small to be of general interest, but the rates


Fig. 11.-Incidence of throat and tonsil conditions manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924
are plotted in Figure 12 as a record of our experience. In general, they conform to the indications afforded by such other morbidity data as are available. With respect to tuberculosis, it may be pointed out that only active cases resulting in some degree of disability during the period of observation were recorded.

[^8]
## 9. diseases of teeth and gums

(Int. List No., Part of 108)
Table 9

| Disoese or condition | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { All } \\ \text { ages } \end{gathered}$ | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total. | 8.23 | 1.13 | 9.98 | 18.68 | 8.31 | 9.05 | 6.21 | 247 |
| Abscosses. | 3. 21 | 0.56 | 1.90 | 6. 42 | 4.75 | 3. 66 | 3.11 | ---0* |
| Toothache. | 2.91 | 0.56 | 5.70 | 10.51 | 2.38 |  |  | $\cdots$ |



Fig. 12.-Incidence of certain respiratory diseases and conditions manifested in iliness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921March 31, 1924

This record can not, of course, be interpreted as indicating the prevalence of defective teeth and diseased gums. It indicates nothing more than the incidence of diseases and conditions that manifested themselves in abscesses and in pain severe enough to result in temporary disablement. About 60 per cent of these cases caused the patient to go to a dentist or a physician.

In so far as this record is suggestive, it indicates a relatively high incidence of dental and gum conditions in the age periods $10-14$ and 15-24 after the permanent teeth have developed. This indication is also given by the larger number of records for the school ages collected by Collins (1) from the Hagerstown schools.
10. DISEASES AND DISORDERS OF THE DIGESTIVE SYSTEM
(Int. List Nos. 110-12; ; part of 108 and of 205)
Table 10

| Disease | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | All | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total. | 102.01 | 158.71 | 148.25 | 130.18 | 61.76 | 71.29 | 109.11 | 101.20 |
| Uleers of stomach and duodenum. | . 73 |  |  |  | . 40 | 1.08 | 2.33 |  |
| Indigestion and upset stomach and nervous indigestion | 44.74 | 69.23 | 77.93 | 58.96 | 24. 35 | 28.65 | 44. 26 | 48.13 |
| Stomach trouble and nausea. | 8. 29 | 7.32 | 19.01 | 14. 01 | 2.77 | 5.38 | 7.38 | 9.87 |
| Diarrhea | 13. 26 | 58. 53 | 7.60 | 9.92 | 6.33 | 8.18 | 8.15 | 7.40 |
| Intestinal parasites. | 1.39 | 7.32 | 3.33 | 1.17 |  | . 22 |  |  |
| Appendicitis | 5.99 | . 56 | 4.28 | 7.59 | 12. 27 | 5.38 | 6.21 |  |
| Hernia | 1.63 | . 56 | . 48 | . 58 | . 40 | 1.72 | 4.66 | 3. 70 |
| Constipation | . 85 | 1.13 |  |  |  | 1.29 | 1.16 | 3. 70 |
| Other intestinal, including obstructions | 1.51 | 1.13 | . 95 | 2.92 | . 79 | . 86 | 3.49 | 1. 23 |
| Biliary calculi | 4.36 |  |  | . 58 | 2.38 | 7.97 | 7.77 | 2. 47 |
| Cholecystitis.. | 1.94 |  | . 48 | + 58 |  | 1.72 | 6. 21 | 3.70 |
| Jaundice.... | 2.72 | 3.94 56 | 9.98 98 | 3.50 1.17 | $\begin{array}{r}1.98 \\ \hline 80\end{array}$ | . 65 | 1.16 |  |
| "ther liver-.-: | 10.41 | .56 4.50 | .95 20.91 | 1.17 | 8.71 | $\begin{array}{r}\text { +65 } \\ \hline 4.31\end{array}$ | 6.21 8.54 | 11.11 |

Since only 58 per cent of illnesses reported as due to digestive disorders and diseases were attended by physicians, anything approaching diagnostic exactness for every case was impossible in this group. In the foregoing table, the classification has followed rather closely the terminology of the information as given, excepting cases under the following titles, nearly all of which were attended by physicians: Ulcers of stomach and duodenum, diarrhea (under 2 years of age), appendicitis, hernia, biliary calculi, cholecystitis, and jaundice. For the other cases, perhaps a very broad classification may be attempted, as follows: (a) Indigestion, upset stomach, nervous indigestion, stomach trouble, nausea (when not a symptom of some disorder specifically stated) which we may designate as "indigestion and upset stomach"; (b) "biliousness," with which may be placed "other liver conditions"; and (c) diarrhea. The classification is made partly on grounds that are apparent and partly by reason of similarity and dissimilarity of age curves, so that, as shown in Figure 13, diarrhea exhibits a definitely high incidence among children under 5 years of age, and thereafter does not vary greatly according to age; "indigestion and upset stomach"-some of which may have been attended by diarrhea, it is true-had a high incidence among children under 15 , with its peak between 5 and 10
years; "biliousness" was less commonly reported, but was relatively frequent in the age period 5 to 9 years and was most frequent in the 10 to 14 years period. The incidence of illnesses classified under the last two headings was lowest in the young adult period, but rose gradually as age advanced.

The age curves of jaundice, appendicitis, biliary calculi, cholecystitis, and hernia have been plotted in Figure 14 and are in general accord with textbook observations. It is beliered that they are


Fig. 13.-Incidence of digestive disorders manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924
especially interesting for the reason that, so far as we are aware, they are based on a record of recognized cases (i. e., resulting in illness and attended by physicians) in a definitely enumerated general population group.

> 11. DISEASES OF THE KIDNEY AND ANNEXA
> (Int. List Nos. 128-134)

Table 11

| Disease or condition |
| :--- |

The rates in the table above, it may be emphasized, can not be interpreted as revealing the true prevalence of the diseases and conditions specified; they merely show the frequency of illnesses in which these diseases and conditions were stated to be causes during the period of the study. Of the 175 cases in which they were so recorded, 86 per cent were attended by physicians, and on approximately that proportion the attending physicians recorded the diagnoses as reported. The remaining 14 per cent consisted chiefly of cases reported as "kidney trouble."


Fig. 14.-Incidence of certain diseases of the digestive system manifested in illness among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924

Except for some prevalence of a condition or conditions vaguely reported and diagnosed as "kidney trouble" in children and in the younger adult ages, it is quite evident that diseases and conditions in this group caused illness in middle and old age, especially in old age, to a greater extent than at younger ages.

The age curve of illness from nephritis is generally similar to that for mortality from acute nephritis and Bright's disease, but the ratio of cases to deaths decreases rapidly with age. Even if we include all illnesses from kidney conditions, such a ratio of cases to deaths would show a marked decline. Using the 1920 mortality rates for
the registration area, the ratio of the Hagerstown illnesses rate (assuming it to be representative in some degree) to the death rate declined from about 70 under 15, to 40 at 15-25, 20 at 25-44, 10 at $45-64$, and 5 at 65 and over. The morbidity rates and these ratios mean nothing more, of course, than that as age advances, not only does the incidence of the disease increase but its fatality does also. Our record of cases and deaths in the population observed is too scanty and too brief to permit of any attempt to ascertain or estimate fatality rates.

## 12. NONVENEREAL DISEASES OF THE GENITO-URINARY SYSTEM

(Int. List Nos. 135-142)
Table 12

| Disease or condition | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underset{\text { ages }}{\text { All }}$ | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total ${ }^{\text {a }}$ | 12.02 | 1.13 | 1.43 | 8.17 | 17.02 | 21. 11 | 17. 47 | 7.40 |
| Diseasas of malc argans ${ }^{\text {b }}$ | 1.50 | 2.12 | 1.83 | 1.18 | . 83 | . 46 | . 80 | 11.56 |
| Salpingitis -..----..... | 247 |  | . 99 |  | 4.53 | 4. 84 | 1. 51 |  |
| Tumor and cysts of ovary and | 2.11 |  |  |  | 15.85 | 4.44 5.25 | 1. 51 | 215 |
| "Menstrual trouble" <br> Menopause e | 6.11 4.81 |  |  | 13. 84 | 15.85 | 5.25 6.05 | 4.52 18.09 |  |
| Others of female genital organs | 8.34 |  |  | 1.15 | 9.06 | 18. 56 | 7.54 | 2.15 |

- Rates computed on males and females. - Rates computed on males. - Rates computed on fomales.

The rates given above are probably based on too few cases to be in any degree typical, but they are not without interest. With the exception of 22 of the 47 cases of "menstrual troubles," practically all of the cases in this group were attended by physicians. The data represent, therefore, the prevalence of these conditions in our population to the extent that they come to the attention of physicians by reason of illness.
13. THE PUERPERAL STATE
(Int. List Nos. 143-150)
Table 13

| Condition | Annual rate per 1,000 females |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 10-14 | 15-24 | 25-44 | 45-64 |
| Total | 2.31 | 84.55 | 110.98 | 228 |
| Abortion and stillbirth. | 1.15 | 3.02 | 11.30 | ---..- |
| Confinements. |  | 74. 73 | 87.17 |  |
| Other puerperal conditions. | 1.15 | 6.79 | 12.51 | 226 |

The annual birth rate for our population was 19.6. Based on females aged 15-44, the birth rate was 65.2. The stillbirth (and abortion) ratio was 10.2 per 100 live births-an extremely high ratio when compared with records ordinarily published in vital statistics.? Obviously this can not be taken to indicate the occurrence of an unusual frequency of stillbirths as there was every reason to believe that the ratio for the population studied would not be higher than the average. Rather, the reason lies in the fact that we were able to secure a record of a larger proportion of stillbirths than is ordinarily reported and, in addition, a partial record of abortions. Our record is, we believe, probably not far wrong, since the field assistants made repeated visits to the same households.

## 14. DISEASES OF THE SKIN AND CELLULAR TISSUE

(Int. List Nos. 151-154; part of 205)
Table 14

| Disease | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ages | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65 and over |
| Total | 19. 43 | 39.06 | 40.39 | 33.27 | 10.69 | 10.34 | 7.38 | 14.81 |
| Furuncle. | 4.66 | 3.38 | 9.03 | 6.42 | 4.75 | 4.31 | 233 | 2.47 |
| Abscess...-.-. | 1.88 | 1.69 | 1.90 | 1.75 | 1.58 | 280 | . 78 | 1. 23 |
| Scabies and itch.... | 1.45 | 3.38 3.94 | 3.80 4.88 | 5.84 |  |  |  |  |
| "mpotigo contagiosa | 1.51 4.06 | 3.94 15.20 | 4.28 10.93 | 2.34 | 1.19 .40 | . 43 |  |  |
| Hives and rash... | 2.91 | 7.88 | 6. 18 | 3. 50 | 1. 98 | . 88 | 1.94 | 1. 23 |
| Other and unqualified skin. | 2.97 | 4. 50 | 4.28 | 5.25 | . 79 | 1.51 | 2.33 | 9.87 |

It was difficult to classify the various skin affections that were recorded except in those instances in which a physician's diagnosis was obtained. Hence the incidence of specific diseases included in the above table has probably been understated, although their variations according to age are roughly indicated. The percentages of the cases, as classified above, which were attended by physicians were as follows: Furuncle, 48 per cent; abscess, 82; impetigo, 71; scabies and itch, 52 ; rash, 39 ; hives, 47 ; "sores" on body, 28; other, 89 ; total 55 . The incidence of rash, impetigo contagiosa, and "sores" was greatest among children under 10 years of age; of scabies in the age period 10-14; of furuncles and abscesses under 45 years of age, with its peak in the 5-9 age period. Some of the more specific diseases have been plotted on Figure 15.

[^9]

Fig. 15.-Incidence of diseases of the skin and cellular tissue manifested in illness among persons of differant ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924
15. CONGENITAL MALFORMATIONS AND EARLY INFANCY, SENILITY, AND ILL-DEFINED AND UNKNOWN CAUSES
(Int. List Nos. 159-163, 164, 205)
Table 15

| Cause | Annual rate per 1,000 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underset{\text { ages }}{\text { All }}$ | 0-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | $\begin{gathered} 65 \text { and } \\ \text { over } \end{gathered}$ |
| Congenital malformations and "early intancy". | 1.15 | 7.32 | 0.95 | 1.75 |  |  |  |  |
| 11-defined and unknown... | 10.29 | 20.45 | 8. 5.5 | 9.34 | 4.36 | 7.75 | 10.48 | 13. 58 |

The foregoing table requires little comment. The largest proportions of ill-defined or unknown causes of illness were, as might be expected, for young children and old persons. The senility rate of 17 is based on 14 persons, which is lower than we anticipated. However, since emphasis was laid on ascertaining the cause of every illness and
disability or the condition by which it might be described, this senility rate, plus the rate for ill-defined and unknown causes in ages over 64, represents the disability rate among persons whose chief trouble was their age.

## 16. external causes

(Int. List Nos. 165-203)
Table 16


It will be noted that practically all of the disabilities resulting from extcrnal causes were accidents.

Since practically all of the accidents recorded resulted in some degree of disability, our data include the relatively more serious ones only. "Mere scratches," thumb bruised by hammers, bumps, falls without injury, and the like are not included. The age curve shown in Figure 16 indicates two periods of life in which these disabilities are most frequent-5-14 years of age and in middle age. This is in marked contrast to the usual age curve for mortality from violent causes which is higher among children under 5 years of age than in any age period until old age when it rises precipitately; the frequency of fatal accidents is thus clearly indicated to be greatest at the extremes of life.

It was not practicable to find out sufficient details about each accident to classify all under more refined headings than those given in the table, but the rates for such specific kinds of accidents as burns, cuts, falls, automobile and street-railway accidents are fairly accurate, and are plotted in Figure 17. Cuts and burns are, of course, concomitants of childhood, but they were most frequent in the age period 10-14 years. Falls were also most frequent in that age period, except in the older ages. Three ages of high incidence of automobile accidents are indicated-children $5-9$, the age period $15-24$, and persons of middle age (45-64), in which age group the highest incidence occurred. Although Hagerstown is a small city ( 30,000 population in 1922-23), the automobile and strect-railway accident rate was 3.4 per 1,000 annually in the population studied.


Fig. 16.-Incidence of disabilities from external causes among persons of different ages in a white population group in Hagerstown, Md., December 1, 1921-March 31, 1924


Fig. 17.-Incidence of certain kinds of accidents among persons of diferent ages in a white popuiation group in Hagerstown, Md., December 1, 1921-Marci 3!, 1921

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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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## PUBLIC HEALTH ENGINEERING ABSTRACTS

Chara Fragilis and Mosquito Development. Robert Matheson and G. H. Hinman. American Journal of Hygiene, vol. 8, No. 2, March, 1928, pp. 279-292. (Abstract by L. L. Williams, jr.)

This article records observations made in central New York State from 1923 to 1927. Lake Dryden produced mosquitocs freely, whereas a spring-fed pool, cut off from the lake, did not produce mosquitoes. The pool contained much Chara fragilis.

For experimental purposes wooden pails were sunk in the ground, filled with rain water, and baited with dead leaves. Culex territans and Anopheles punctipennis laid eggs freely in the pails, and the resulting larvæ came through to emergence. Similar pails among the above, but containing Chara fragilis, showed some eggs and young larvæ, but none lived to pupate. In one such pail the Chara died and subsequently Anopheles punctipennis appeared and came through to emergence. The Chara apparently controlled breeding as long as it was alive.

Experiments were then conducted using known numbers of Anopheles punctipennis, Aëdes vexans, and Culex pipiens and territans.

Glass aquaria were stocked with earth and stream water and proved excellent rearing pools for mosquito larvæ. Similar aquaria were prepared, but with the addition of Chara fragilis. In the Chara aquaria nearly all mosquito larve died within two days of their introduction therein. All young larve died; emergences were only from the pupæ or fourth stage larvæ introduced.

At the beginning of the experiment the water was practically neutral, having a hydrogen ion concentration of pH 7 . Soon after the introduction of the Chara it rose to pH 7.6 and fluctuated (depending on time of day) between pH 7.6 and pH 9.8 . The pH value was lowest between 3 and $5 \mathrm{a} . \mathrm{m}$., and highest between 3 and $4 \mathrm{p} . \mathrm{m}$.

Net cages containing large numbers of larvæ of Culex pipiens were placed in the natural Chara pool. In all, about twelve hundred larve were so placed. Four adults emerged; all of the remaining died.

Dried Chara fragilis, in concentration of two to four grams per liter, had a marked effect on larval development. When young larve were introduced, they all died within four days. When fourth stage larvæ were introduced into the solution, a few emerged, all being undersized adults; most of them died.

If larvæ are introduced into the Chara pool when the pH value is at its highest, the young larvæ are almost immediately paralyzed and death is relatively quick. However, in other aquaria, if the pH value be raised high-not with Chara, but with Oedogonium-the same pH values can be obtained; but there is no effect on mosquito larvæ, all coming through to emergence. In addition, if water of high pH value be taken from the Chara aquaria and put in a separate jar, larvæ added thereto are not disturbed. The authors believe that there is an unstable toxic substance in Chara, and that the toxic action is greatest when the pH value is at its highest.

Can B. Coli be Used as an Index of the Proper Pasteurization of Milk? J. C. Swenarton. Journal of Bacteriology (1927), v. 13, 419-29. Abstract by W. G. Savage in Bulletin of Hygiene, vol. 3, No. 1, January, 1928, p. 20.
"Sixteen Pasteurizing plants were studied with respect to the B. coli contents of the Pasteurized milk. The Pasteurizing temperature adopted as satisfactory is $143^{\circ} \mathrm{F}$. for 30 minutes with prompt cooling to $40^{\circ} \mathrm{F}$. The term $B$. coli is used broadly for lactose-fermenting (with gas), nonsporing aerobes. The test was found to be very helpful in checking up the performances of the different plants.
"The author suggests the following standard: Five quantities, each of 0.1 c. c., to be examined, and of these not more than 20 per cent to show the presence of organisms of the $B$. coli group. Apparently to guard against inequalities of sampling, etc., he adds: 'Occasionally three or more of the five equal 0.1 c. c. portions constituting a single sample may show the presence of $B$. coli. This shall not be allowable if it occurs in more than (a) $\mathbf{1 0}$ per cent of the standard samples when 10 or more samples have been examined; or in (b) one standard sample when less than 10 samples have been examined.' This standard is a more or less arbitrary one, based on the findings from the best plants examined."

Sanitary Production of Ice Cream. R. C. Fisher. Milk Plant Monthly, vol 16, No. 3, March, 1927, pp. 98-104. (Abstract by Harriet S. Ryan.)

This paper, which was read at the convention of National Association of Ice Cream Manufacturers, discusses the essential factors in sanitary production of ice cream.

It is the desire of all responsible ice-cream manufacturers to make an ice cream that meets all requirements from a health and sanitary standpoint. There is, however, difference of opinion as to just what is necessary to produce a product that is safe. Some have gone to extremes in taking sanitary precautions, while others have failed to appreciate the importance of certain processes of manufacture. The bacterial content of ice cream is a more valuable measuring stick
of the Pasteurizing process and the sanitary conditions prevailing in the plant than it is in the case of milk. There is some chance for bacterial growth after milk reaches the final package, but no such conditions prevail in the manufacture of ice cream, which is kept in a frozen condition from the time it reaches the can until it is consumed.

The essentials in sanitary production, which are treated in detail in this article, may be summarized as follows: (1) Well-lighted and ventilated building; (2) simple construction of equipment for easy cleaning; (3) Pasteurizing equipment with flush and seepage-proof valves; (4) careful selection and care of ingredients; (5) Pastcurization of the entire ice-cream mix, excepting flavors and fruits, at not less than $50^{\circ} \mathrm{F}$. for 30 minutes; (6) cooling and holding of milk below $40^{\circ} \mathrm{F}$.; (7) thorough daily cleaning of all equipment; (8) flushing entire system with (a) hot water not less than $180^{\circ} \mathrm{F}$., or (b) Hush in freezers with chemical sterilizers;
(9) routine bacteriological analysis of mix and ice cream, to determine the efficiency of the above processes; and (10) organization and building up of a strong working force.

Sanitary Control of the Montreal Dairy Company, Ltd. Fifth Annual Report of the Provincial Bureau of Health, Province of Quebec, Canada, 1926-1927, pp. 147-149. (Abstract by I. W. Mendelsohn.)

During the course of the typhoid fever epidemic in Montreal in the spring of 1927, the Montreal Dairy was placed under the absolute sanitary control of the Provincial Bureau of Health chemist. This control lasted from May 21 for 10 weeks, and embodied the following features: (1) Thorough disinfection of both plants of the company. The plant Pasteurizing milk and cream was disinfected twice; (2) continued and frequent examination of all employecs of the plants who might come in contact with the products during or after processing or manufacture; (3) removal of all employees suspected of being infected, or who had typhoid in their families, from contact with the products of the plants; (4) maintenance of a close supervision over the raw materials entering the plants to insure that only milk or cream from sources authorized by the city food inspection division of the Montreal Department of Health enters the plants; (5) maintenance of close and constant supervision over every stage of the processing of the milk or cream, or of the manufacture of the ice cream or butter; (6) storage of butter until released upon bacteriological examination; (7) alterations and improvements effected in equipment and methods of processing better to insure the safety of the products; (8) bacteriological examination, at the plant, of the products in various stages of processing; (9) further bacteriological and chemical examinations of various products at the laboratories of the bureau.

A complete report of the epidemic is under preparation.
Refuse Collection and Disposal in Germany. Anon. The Surveyor, vol. 73, No. 1882, February 17, 1928, p. 237. (Abstract by H. W. Streeter.)

A review of a report by F. C. Cable, cleansing superintendent of the Westminster City Council, on his observations of methods of collecting and disposing of refuse in German towns, including Cologne, Mannheim, Frankfort, Weidenau, and Hamburg. The review deals mainly with the methods of collection observed.

At Cologne, the refuse was being disposed of by tipping on land 10 miles from the city, though a destructor, then nearing completion, was intended to burn all the refuse of the city. At this and other cities visited, the method of collection involved the use of standard dustbins, distributed to individual householders and collected, usually biweekly, by specially constructed trucks, in some cases equipped with trailers.

At Hamburg, where the Trommel-Wagen system is in operation, about 35 per cent of the refuse goes to a destructor, the remainder being tipped on land. With this system collection vehicles of a new type are used. When these wagons
arrive at the destructor, the bodies are slung off and raised up, the refuse being tipped onto the floor and eventually fed into the furnaces. The system is entirely dustless, and, as far as the design of dustbins and receiving tanks is concerned, Mr. Cable considered it the best system in operation at the time. He recommends its adoption for Westminster. In general, he considers that portions of the Continent are ahead of England so far as methods of refuse collection are concerned, but that the latter is equally ahead of the former in methods of disposal.

Garbage Collection and Disposal. R. W. Stewart. Pacific Municipalities, vol. 42, No. 2, February, 1928, pp. 45-48. (Abstract by F. E. DeMartini.)

Due to a lack of intelligent study of garbage handling, some cities dispose of their garbage at considerable expense. Experience of Los Angeles with chemical reduction and with disposal of garbage on a hog farm is described. A landholding company pays $\$ 0.60$ per ton for garbage f. o. b. cars Los Angeles, and $\mathbf{\$ 1 . 2 0}$ per ton for hauling the garbage to farm, and is still making a profit. Chief cost of garbage collection is caused by labor and delay necessary to enter premises to obtain the garbage. Comparison of collection methods in Los Angeles has shown that for any route within cruising radius of a team, a team is more economical than a motor truck for collecting garbage. On routes with steep grades, motor trucks are preferred. Rubbish collection and disposal are related problems. The value of rubbish lies chiefly in its content of bottles and tin cans.

The Court Rules upon an Exclusive Garbage-Removal Franchise Under an Ordinance Requiring Owner to Separate Refuse and Pay for Removal. ${ }^{1}$ Anon. The American City, vol. 38, No. 1, January, 1928, p. 183. (Abstract by Harriet S. Ryan.)

A case came up in the Kansas City Court of Appeals in which the plaintiffs unsuccessfully sought to restrain the defendant from removing garbage which the plaintiff had refused to remove. They attempted to justify their refusal under a provision of the ordinance that purported to excuse them from removing garbage that had not been separated, or for persons who had not paid the required fee. The court held that this provision was void. The plaintiffs assumed a right under their franchise by taking into their own hands a method of punishment, where a legal method was provided. An ordinance permitting plaintiffs to refuse to remove garbage and to permit it to remain upon premises would defeat the purpose for which the ordinance was enacted.

Water Purification. P. H. Henderson. Journal of the Royal Sanitary Institute, vol. 48, No. 9, March, 1928, pp. 481-483. (Abstract by W. L. Havens.)

This article contains a brief summary of the methods used by the British Army prior to and during the World War in the provision of drinking water. Army units were provided with one of more water carts, the main tank of each cart containing 110 gallons of water. The water was pumped from the source by semirotary pumps through compressed sponge, contained in cylinders, into the main tank and thence through porcelain filter candles into a smaller tank from which the water bottles were filled. It was fou'nd that the sponges did not act as efficient clarifiers, that it was impossible to ascertain whether the filter candles were free from flaws or were allowing the passage of bacteria, and that it was difficult to secure a bacterium-proof junction between the candles and the caps of the cylinder to which they were attached. During the war, Sir William Horrocks introduced the use of aluminum sulphate as a precipitant and chlorine as a sterilizing agent. This method, however, had the following objections: (1) In the absence of perfect clarification, chlorine is deviated by the organic matter and either produces unpleasant tastes or is not available to kill the microorganisms; (2) if excess chlorine is added the strong chlorine taste is extremely
${ }^{1}$ For fuller report of this decision see Public Health Reports, Oct. 21, 1927, p. 2603.
unpleasant; (3) if dechlorination is used, no chlorine is available in case subsequent accidental pollution takes place.

Polluted Water Causes Epidemic. Anon. Illinois Health News, vol. 14, No. 2, February, 1928, pp. 42-43. (Abstract by R. E. Tarbett.)

A short description of an outbreak of an intestinal disorder occurring in Marseilles, III. The outbreak involved 54 known cases, with an estimated number two to four times that. Epidemiological data implicated the public water supply, which is obtained from artesian wells flowing to a storage reservoir.

Samples of water collected the third morning after the outbreak started showed decided contamination in the water in the distribution system and slight contamination at the pumping station. Upon draining the reservoir, a hole in the bottom of the side wall adjoining a power race carrying polluted Illinois River water was found. This allowed race water to enter the reservoir when the water in the reservoir stood at a lower level than that in the race. An ice jam in the river just before the epidemic occurred had raised the level of the water in the race above normal and above the level of the water in the reservoir.

The Rôle of Ammonia in the Purification of Water. C. H. H. Harold. Journal Royal Sanitary Insiztute, vol. 48, No. 9, March, 1928, pp. 484-488. (Abstract by W. L. Havens.)

During the 1925 maneuvers of the British Army, Major Harold introduced a new method of purifying water. This method consisted in preliminary treatment with ammonia followed by sterilization with chlorine. In this way the absorption of chlorine is restrained and its germicidal powers are enhanced. The sterilizing agent is not unduly deviated by organic matter, and a safe water is produced, practically free from unpleasant tastes. The chlorine solution was given initial contact with the ammonia prior to dosing into water and the highest concentration which did not show evidence of available chlorine was fixed upon as the optimum. Two compounds were produced by the interaction of one equivalent of chlorine with one-half an equivalent of ammonia. In a foul water containing urine and nitrites in unreasonable amount some absorption of monochloramine was evident, but with all casual waters encountered, a dose of $1 \mathrm{p} . \mathrm{p}$. m. has always sufficed. Dichloramine is slower in action, but possesses greater stability than monochloramine. Normally, each water cart having a capacity of 110 gallons is dosed with 1.25 grams of ammonium bicarbonate and about 3 grams by weight of dry chlorine gas.

New Waterworks at Merritton, Ontario. E. H. Darling. Contract Record and Engineciing Review, vol. 41, No. 52, December 28, 1927, pp. 242-245. (Abstract by R. E. Thompson.)

The water supply of Merritton is obtained from a branch of the Welland Canal above Thorold at Lake Erie level. The turbidity at times is as high as $\mathbf{4 0 0}$ p. p. m. The original supply system consisted of an intake and a settling basin or reservoir of $3,000,000$ gallons capacity, the water being delivered by gravity to the town 165 feet below. Owing to ice troubles, augmented by prevailing low water level, a new 18 -inch intake, in 18 feet of water, and a pump were installed. When negotiations with neighboring municipalities for the construction of a joint filter plant had failed, it was decided to construct a filter plant, instructions being issued to this effect on February 1. The plant was put in operation in the open on April 23, i. e., in less than 12 weeks' time, the filter house being constructed later. The plant consists of mixing chamber providing 20 minutes' retention period, a coagulation basin providing $32 / 3$ hours' retention period, four pressure filters of $11 / 2 \mathrm{~m} . \mathrm{g}$. d. total capacity, and chlorinating equipment. The total cost was $\$ 66,300$, and of the filter equipment alone, $\$ 12,500$. The old settling basin was converted into a filtered water reservoir.

## DEATHS DURING WEEK ENDED APRIL 28, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended April 28, 1928, and corresponding week of 1927. (From the Weekly Health Index, May 2, 1928, issued by the Bureau of the Census, Department of Commerce)

|  | Week ended Mpr. 28, 1923 | $\begin{gathered} \text { Corresponding } \\ \text { week } 1927 \end{gathered}$ |
| :---: | :---: | :---: |
| Policies in force | 71, 066, 816 | 67, 499, 046 |
| Number of death claims. | 14, 249 | 13, 807 |
| Death claims per 1,000 policies in force, annual rate. | 10.5 | 10.7 |

Deaths from all causes in certain large cities of the United States during the week ended Apiil 28, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, May 2, 1928, issued by the Bureau of the Census, Department of Commerce)

| City | Week ended A pr. 28, 1928 |  | Annual death rate per 1,000 corresponding week 1927 | Deaths under 1 year |  | $\begin{aligned} & \text { Infant } \\ & \text { mortality } \\ & \text { rate, } \\ & \text { week } \\ & \text { ended } \\ & \text { Apr. } 2, \\ & 192 s^{2}, \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total deaths | Death rate ${ }^{1}$ |  | Week ended Apr. 28, 1928 | Corresponding week 1927 |  |
| Total (66 cities) | 8, 511 | 14.8 | 13.5 | 867 | 832 | 372 |
| Albany ${ }^{\text {. }}$ | 46 | 20.0 | 19.6 | 6 | 2 | 123 |
| Atlanta ${ }^{\text {White }}$ | 45 40 | 15.4 | 15.5 12.8 | 5 3 | 8 |  |
| Colored | 35 | (5) | 21.9 | 2 | 6 |  |
| Baltimore ${ }^{\text {a }}$ | 237 | 14.9 | 14.3 | 22 | 24 | 70 |
| White | 182 |  | 12.7 | 15 | 15 | 60 |
| Colored | 55 | (3) | 23.4 | 7 | 9 | 110 |
| Birmingham | 85 | 20.0 | 15.6 | 13 | 6 | 111 |
| White | 36 |  | 11.4 | 4 | 5 | 55 |
| Colored | 49 | (5) | 22.2 | 9 | 1 | 203 |
| Boston... | 258 | 16.9 | 16.2 | 28 | 28 | 77 |
| Bridgeport | 42 |  |  | 7 | 3 | 128 |
| Bufialo-- | 165 | 15.5 | 13.8 | 21 | 19 | 90 |
| Cambridge | 35 | 14.5 | 14.7 | 4 | 4 | 71 |
| Camden. | 43 | 16.6 | 13.7 | 5 | 5 | 80 |
| Canton. | 28 | 12.5 | 12.4 | 5 | 3 | 119 |
| Chicago ${ }^{4}$ | 912 | 15.1 | 12.8 | 95 | 76 | 81 |
| Cincinnati | 160 | 20.2 | 17.5 | 22 | 18 | 133 |
| Cleveland. | 202 | 10.5 | 10.3 | 28 | 27 | 76 |
| Columbus. | 96 | 16.9 | 15.6 | 7 | 6 | 65 |
| Dallas. | 40 | 9.6 | 9.6 | 1 | 5 |  |
| White | 33 |  | 9.1 | 1 | 5 |  |
| Colored | 7 | (3) | 13.3 | - 0 | 0 |  |
| Denver- | 101 | 17.9 | 15.7 | 1 | 10 |  |
| Des Moines. | 29 | 10.0 | 14.0 | 1 | 4 | 17 |
| Detroit. | 343 | 13.0 | 13.2 | 40 | 47 | 62 |
| Duluth. | 35 | 15.7 | 10.0 | 2 | 3 | 47 |
| El Paso. | 40 | 17.8 | 16.5 | 9 | 5 |  |
| Erie | 31 |  |  | 3 | 5 | 62 |
| Fall River ${ }^{4}$. | 29 | 11.3 | 11.0 | 5 | 5 | 86 |
| Flint. | 33 | 11.6 | 10.6 | 10 | 5 | 128 |
| Forth Worth. | 32 | 10.0 | 10.5 | 4 |  | ... |
| White | 26 |  | 9.1 | 4 |  |  |
| Colored | ${ }_{6}^{6}$ | (5) | 21.3 | 0 |  |  |
| Grand Rapids. | ${ }_{53}^{35}$ | 11.1 | 7.4 | 3 10 | 3 | 45 |
| Houston-...--- | 53 32 |  |  | 10 6 | 5 |  |
| Colored. | 21 |  |  | 4 | 1 |  |
| Indianapolis. | 106 | 14.5 | 16.0 | 8 | 14 | 61 |
| White- | 89 |  | 16.0 | 5 | 12 | 44 |
| Colored | 17 | ${ }^{\text {(3) }}$ | 16.3 | 3 | 2 | 182 |
| Jersey City | 111 | 17.9 | 10.1 | 13 | 8 | 97 |
| Kansas City, Kans. | 52 | 23.0 | 12.0 | 5 | 2 | 106 |
| White | 34 |  | 10.8 | 3 | 2 | 74 |
| Colored. | 18 |  | 17.2 | $\stackrel{2}{5}$ | 0 | 290 |
| Kansas City, Mo. | 121 | 16.2 | 14.0 | 5 | 9 | 35 |
| Knoxville.- | 34 | 16.9 | 17.9 | 1 | 6 | 22 |
| White | 31 |  | 18.0 | ${ }_{0}^{1}$ | 4 | ${ }_{2}^{24}$ |
| Colored........ | 3 | (3) | 17.1 | 0 | 21 | 0 |

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended Apri! 28, 1928, infant mortali!y, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, May 2, 1928, issued by the Bureau of the Census, Department of Commerce)-Continued

| City | $\begin{aligned} & \text { Week ended A pr. } \\ & 28,1923 \end{aligned}$ |  | Annual death rate per 1,000 corresponding week 1927 | Deaths under 1 year |  | $\begin{gathered} \text { Infant } \\ \text { mortality } \\ \text { rate, } \\ \text { week } \\ \text { ended } \\ \text { Apr. 28, } \\ 1928 \text { ? } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total deaths | Death rate ${ }^{1}$ |  | Week ended Apr. 28, 1928 | Corresponding week 1927 |  |
| Los Angeles. | 287 |  |  | 27 | 26 | 77 |
| Lowell...... | 19 | 9.0 | 15.6 | 2 | 6 | 42 |
| Lynn. | 32 | 15.9 | 12.9 | 7 | 6 | 176 |
| Memphis. | 73 | 20.1 | 18.1 | 3 | 6 | 35 |
| White | 36 |  | 12.2 | 1 | 1 | 19 |
| Colored | 37 | (3) | 28.8 | 2 | 5 | 63 |
| Milwaukee. | 149 | 14.3 | 12.3 | 21 | 19 | 94 |
| Minneapolis | 103 | 11.8 | 11.5 | 8 | 6 | 48 |
| Nashville... | 42 | 15.8 | 18.9 | 6 | 6 | 94 |
| White | 24 |  | 14.2 | 5 | 3 | 107 |
| Colored. | 18 | (5) | 30.8 | 1 | 3 | 60 |
| New Bedford. | 38 | 16.6 | 14.4 | 6 | 1 | 130 |
| New Haven.. | 56 | 15.6 | 13.3 | 11 | 3 | 155 |
| New Orleans. | 146 | 17.8 | 18.7 | 18 | 25 | 87 |
| White. | 80 |  | 13.1 | 8 | 12 | 58 |
| Colored. | 66 | ${ }^{(3)}$ | 34. 5 | 10 | 13 | 145 |
| New York | 1,764 | 15.3 | 13.1 | 172 | 154 | 69 |
| Bronx barough. | 230 | 12.6 | 9.2 | 13 | 15 | 39 |
| Brooklyn borough | 590 | 13.4 | 12.0 | 73 | 66 | 73 |
| Manhattan borough. | 695 | 20.7 | 17.8 | 57 | 65 | 68 |
| Queens borough.. | 192 | 11.7 | 8.4 | 23 | 7 | 93 |
| Richmond borough | 57 | 19.8 | 21.3 | 6 | 1 | 108 |
| Newark, N. J. | 109 | 12.0 | 13.3. | 7 | 15 | 36 |
| Oaklend.-.-- | 60 | 11.4 | 9.8 | 7 |  | 76 |
| Oklahoma City. | 33 |  |  | 2 | 2 |  |
| Omaha... | 52 | 12.2 | 14.3 | 3 | 6 | 35 |
| Paterson. | 38 | 13.7 | 16.0 | 2 | 4 | 35 |
| Philadelphia | 590 | 14.9 | 14.2 | 65 | 57 | 88 |
| Pittsburgh.- | 214 | 16.7 | 14.9 | 28 | 20 | 92 |
| Portland, Oreg | 66 |  |  | 3 | 3 | 32 |
| Providence | ${ }_{5}^{69}$ | 12.6 | 10.8 | 6 | 12 | ${ }_{61} 6$ |
| Richmond.. | 53 | 14.3 | 16.3 | 7 |  |  |
| White | 30 |  | 13.8 | 4 3 | 4 | 81 110 |
| Colored | $\stackrel{23}{83}$ | ${ }^{(5)} 13.2$ | 22.5 12.2 | 3 | 0 8 | 110 32 |
| St. Louis.. | 270 | 16.6 | 12.7 | 18 | 13 | 60 |
| St, Paul. | 61 | 12.6 | 12.9 | 3 | 5 | 29 |
| Salt Lake City ${ }^{4}$ | 39 | 14.8 | 15.4 | 4 | 2 | 65 |
| San Antonio. | 81 | 19.4 | 15.0 | 21 | 17 |  |
| San Diego-.- | 37 | 16.2 | 19.9 | 4 | 0 | 76 |
| San Francisco. | 162 | 14.5 | 15.6 | 7 | 7 | 44 |
| Schenectady. | 27 | 15.1 | 9.5 | 2 | 1 | 63 |
| Seattle ........ | 76 | 10.4 | 9.6 | 2 | 9 | 21 |
| Somerville. | 25 | 13.2 | 11.8 | 4 | 2 | 138 |
| Spokanc.- | 27 | 12.9 | 15.8 | 1 | 2 | 26 |
| Springfield, Mass. | 29 | 10.1 | 15.6 | 2 | 4 | 32 |
| Syracuse.- | 78 | 20.5 | 11.9 | 9 | 6 | 109 |
| Toledo... | 79 | 13.2 | 13.7 | 7 | 7 | 67 |
| Treaton_...-.-.- | 33 | 12.4 | 15.6 | 3 | 7 | 51 |
| Washington, D. C. | 159 | 15.1 | 13.6 | 9 | 18 | ${ }_{41}^{51}$ |
| White-.... | 104 |  | 12. | 5 | 7 |  |
| Waterbury.. | 55 | ${ }^{(3)}$ | 18.0 | 4 |  | 74 116 |
| Wilmington, Del | 27 | 11.0 | 14.0 | 4 <br> 3 | 1 | 116 79 |
| Worcester.... | 65 | 17.2 | 13.1 | 5 | 7 | 61 |
| Yonkers... | 25 | 10.8 | 14.0 | 0 | 2 | 0 |
| Youngstown...- | 37 | 11.1 | 12.3 | 3 | 10 | 40 |

[^10]
## PREVALENCE OF DISEASE

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

## UNITED STATES

## CURRENT WEEKLY, STATE REPORTS

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

## Reports for Weeks Ended May 7, 1927, and May 5, 1928

Cases of certain communieable diseases reported by telegraph by State health officers for weeks ended May 7, 1927, and May 5, 19.98

|  |  |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May ', 1927, and May 5, 19:8-Continued

| Division and State | Diphtheria |  | Influenzs |  | Measles |  | Meningococcus meningitis |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\left.\begin{gathered} \text { Week } \\ \text { ended } \\ \text { May 7, } \\ \text { 1927 } \end{gathered} \right\rvert\,$ | $\begin{gathered} \text { Week } \\ \text { ended } \\ \text { May } 5, \\ 1928 \end{gathered}$ | Week ended ${ }_{1927}{ }^{\text {May }}$ 1927 | Week ended May 5, 1928 | $\begin{gathered} \text { Week } \\ \text { ended } \\ \text { May 7, } \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Week } \\ \text { ended } \\ \text { May 5, } \\ 1928 \end{gathered}$ | $\begin{gathered} \text { Week } \\ \text { ended } \\ \text { May } 7, \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Week } \\ \text { ended } \\ \text { May } 5, \\ 1928 \end{gathered}$ |
| East South Central States: <br> Kentucky. <br> 14 <br> 268 |  |  |  |  |  |  |  |  |
| Tennessee..................... | 11 | 8 | 86 | 256 | 90 | 228 | 1 | 0 |
| Alabama. | 18 | 12 | 62 | 165 | 248 | 251 | 0 | 1 |
| Mississippi -.-.-......- | 7 | 13 |  |  |  |  | 1 | 2 |
| West South Central States: Arkansos. | 2 | 3 | 48 | 429 | 140 | 449 | 0 | 1 |
| Louisiana. | 21 | 18 | 19 | 13 | 54 | 258 | 0 | 0 |
| Oklahoma ${ }^{3}$ | 11 | 18 | 68 | 468 | 341 | 346 | 0 | 3 |
| Texas. |  | 50 |  | 388 |  | 354 |  | 1 |
| Mountain States: |  |  |  |  |  |  |  |  |
| Idaho..... | 5 |  |  |  |  |  | 1 | 2 |
| W yoming | 2 |  | 3 |  | 111 | 22 | 0 | 0 |
| Colorado | 9 | 12 |  |  | 273 | 184 | 4 | 10 |
| New Mexico | 2 | 8 | 1 | 101 | 63 | 139 | 0 | 0 |
| Arizona. |  | 7 |  |  | 46 | 9 | 0 | 3 |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Poliomyelitis Scarlet fever $^{\text {P }}$ Smallpox ${ }^{\text {P }}$ Typhoid fever |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Division and State |  |  | Week |  |  |  |  |  |
|  | ended | ended | ended | ended | ended | ended | ended | ended |
|  | $\text { May } 7,$ | May 5, | May 7, | May 5, | May ${ }^{\text {7 }}$ | May 5, | May 7 , | May 5 , |
|  |  |  |  | 1928 |  | 1928 | 1927 | ${ }^{1928}$ |
| New England States: |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| New Hampshire. |  | 0 |  | 16 |  | 0 |  | 0 |
| Vormont-.-...... | 0 | 0 | ${ }_{4}^{6}$ | 9 092 | 0 | 0 | 0 | 2 |
| Massachusetts | 2 | 2 | 469 | 292 | 0 | 0 | 7 | 3 |
| Rhode Island. | 0 | 0 | 14 | 33 | 0 | 0 | 0 | 0 |
| Connecticut. | 0 | 0 | 103 | 66 | 0 | 5 | 1 | 1 |
| Middle Atlantic States: |  |  |  |  |  |  |  |  |
| Now York...-.-.-. |  | 2 | 1,133 | 638 | 6 | 2 | 21 | 11 |
| New Jersey-- | 0 | 1 | . 372 | 251 | 0 | 8 | 6 | 2 |
| Pennsylvania | 0 | 0 | 500 | 482 | 0 | 1 | 15 | 17 |
| East North Central States: |  |  |  |  |  |  |  |  |
| Ohio--.-.-.-.-.-......... |  | 0 | 141 | 306 101 | 105 | 60 123 |  | 5 |
| Illinois. | 0 | 1 | 260 | 279 | 53 | 61 | 9 | 9 |
| Michigan. | 0 | 0 | 293 | 230 | 56 | 12 | 5 | 0 |
| Wisconsin. | 0 | 1 | 134 | 179 | 11 | 5 | 1 | 4 |
| West North Central States: |  |  |  |  |  |  |  |  |
| Iowa | 0 | 1 | 172 | 121 | 5 | 12 | 1 | 1 |
| Missouri. | 2 | 0 | 77 | 100 | 24 | 52 | 10 | 4 |
| North Dakota. | 0 | 0 | 32 | 30 | 0 | 3 | 1 | 0 |
| South Dakota. | 0 | 0 | 27 | 36 | 1 | 8 | 0 | 0 |
| Nebraska | 0 | 0 | 34 | 118 | 6 | 41 | 1 | 1 |
| Kansas. | 1 | 0 | 98 | 150 | 32 | 105 | 3 | 2 |
| Bouth Atlantic States: |  |  |  |  |  |  |  |  |
| Delaware --..... | 0 | 0 | 9 | 0 | 0 | 0 | 2 |  |
| Maryland ${ }^{2}-$------- | 0 | 0 | 71 | 70 | 0 | 0 | 5 | 4 |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| North Carolina. | 0 | 0 | 25 | 23 | 69 | 59 | 9 | 6 |
| South Carolina. | 2 | 0 | 7 | 6 | 17 | 6 | 15 | 11 |
| Georgia....... | 0 | 0 | 17 | 12 | 24 | 0 | 15 | 3 |
| Florida-................ | 0 | 1 | 12 | 4 | 30 | 0 | 7 | 11 |
| 2 Week ended Friduy. ${ }^{3}$ Exclusive of Tulsa. |  |  |  |  |  |  |  |  |

Cascs of certain communicable diseases reported by telegraph by State health officers for weeks ended May 7, 1927, and May 5, 1928-Continued

| Division and State | Poliomyelitis |  | Scarlet fever |  | Smallpox |  | Typhoid ferer |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Week ended M3y 5 1923 | Week ended ${ }_{1927}{ }^{\text {May }}$ 1927 | Week ended May 5, 1928 | Week ended May 1927 | Week ended May 5 1928 | Week ended ${ }_{1927}{ }^{\text {May }}$ 1927 | Week ended ${ }^{\text {May }}{ }^{5}{ }^{5}$ 1928 |
| East South Central States: |  |  |  |  |  | 3 |  |  |
| Tennessee. | 0 | 0 | 28 | 19 | 16 | 16 | 17 | 4 |
| Alabama- | 0 | 0 | 11 | 10 | 27 | 11 | 17 |  |
| Mississippi....- | 0 | 0 | 12 | 9 | 0 | 9 | 9 | 2 |
| West South Central States: Arkansas. | 1 | 0 | 7 | 18 | 2 | 8 | 11 | 0 |
| Jouisiana... | 1 | 0 | 10 | 8 | 4 | 11 | 11 | 18 |
| Oklahoma ${ }^{3}$ | 0 | 0 | 27 | 65 | 53 | 98 | 10 | 3 |
| Texas.-.-. |  | 3 |  | 101 |  | 99 |  | 7 |
| Mountain States: |  |  |  |  |  |  |  |  |
| Montans..... | 0 | 0 | 112 | 7 | 8 | 11 | 0 | 0 |
| W yoming. | 0 | 0 | 19 | 21 | 2 | 1 | 0 | 0 |
| Colorado. | 0 | 0 | 167 | 109 | 0 | 10 | 33 | 1 |
| New Mexico | 0 | 0 | 4 | 25 | 1 | 4 | 0 | 0 |
| Arizona | 1 | 0 | 11 25 | 4 2 | 0 | 14 | 1 | 5 |
| Pacific States:- | 0 |  |  |  |  |  |  |  |
| Washington. | 1 | 0 | 51 | 43 | 49 | 35 | 3 | 4 |
| Oregon...... | 0 | 0 | 19 | 13 | 17 | 32 | 4 | ${ }_{8}^{2}$ |
| Callfornia. | 4 | 11 | 178 | 153 | 23 | 22 | 5 | 8 |

2 Week ended Friday.
' Exclusive of Tulsa.

## SUMMARY OF MONTHLY REPORTS FROM STATES

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

| State | Meningococcus meningitis | Diphtheria | Influenza | Malaria | Measles | Pellagra | Polio-myolitis | Scariet fever | $\underset{\text { pox }}{\text { Small- }}$ | Typhoid fever |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| March, 1988 |  |  |  |  |  |  |  |  |  |  |
| California | 22 | 454 | 167 | 4 | 1,001 | 2 | 15 | 765 | 98 | 32 |
| District of Columbia. | 1 | 89 | 18 |  | 744 |  | 2 | 226 | 13 | 2 |
| Idaho..............-- | 10 | 4 | 5 |  | 2 |  | 1 | 149 | 41 | 5 |
| Kansas.. | 9 | 52 | 125 |  | 410 |  | 4 | 129 55 | 386 80 | 5 |
| Montana_...-.....-- | 15 | 34 | 16 |  | 9 |  | 0 | 55 93 | 80 | 3 |
| New Hampshire...- | 0 | 17 | 42 |  |  |  | 0 | $\begin{array}{r}93 \\ 126 \\ \hline\end{array}$ |  |  |
| North Carolina | 1 | ${ }^{237}$ |  |  | 14,823 | 18 | 0 5 | 128 | 878 | $\stackrel{12}{29}$ |
| Oklahoma ${ }^{\text {- }}$ | 12 | 99 | 2,140 | 71 2 | 1,604 495 | 18 | 5 9 | 921 | 8 | 12 |
| Oregon | 13 |  | 208 4,886 |  | 495 5,043 | 301 | 9 5 | 95 31 | 347 49 | 15 |
| South Carolina.....-- | 0 | 11 | 4,885 110 | 597 | $\begin{array}{r}5,043 \\ \hline 168\end{array}$ |  | 5 | 273 | 55 | 7 |
| Virginia.... | 4 | 130 | 3,073 | 65 | 3,753 | 23 | 3 | 233 | 39 | 22 |
| Washington........-- | 21 | 5 | 44 |  | 1,205 |  | 3 | 195 | 203 | 21 |
| W isconsin........ | 38 | 147 | 772 |  | 583 |  | 3 | 1,142 | 118 | 14 |

${ }^{1}$ Exclusive of Oklahoma City and Tulsa.

| March, 19.8 | Cases | Chicken pox-Continued. | Cases |
| :---: | :---: | :---: | :---: |
| Actinomycosis: |  | Oklahoma ${ }^{\text {1 }}$ | 148 |
| California | 1 | Oregon | 238 |
| Chicken pos: |  | South Caroina. | 427 |
| California. | 3,402 | South Dakota.- | 90 |
| 1)istrict of Columbia. | 115 | Virginia. | 657 |
| Idaho. | 83 | Washington | 463 |
| Kansas. | 592 | Wisconsin. | 1,300 |
| Montana. | 54 | Dencue: |  |
| North Carolina. | 848 | South Carolina.. | 1 |

${ }^{1}$ Exclusive of Oklahoma City and Tulsa.

| Dysentery: | Cases |
| :---: | :---: |
| California (amoebtc). | 1 |
| California (bacillary) | 2 |
| Oklahoma ${ }^{1}$. | 4 |
| Virginia. | 54 |
| German measles: |  |
| California. | 2,450 |
| Kansas. | 53 |
| Montana. | 7 |
| North Carolina | 27 |
| Washington. | 44 |
| Hookworm diseaso: |  |
| California. | - 1 |
| South Carolina | 131 |
| Virginia.. | 22 |
| Impetigo contagiosa: |  |
| Oregon...- | 10 |
| Washington. | 18 |
| Jaundice: |  |
| California | 2 |
| Leprosy: |  |
| California. | - 1 |
| Lethargic encephalitis: |  |
| C'alifornia | 7 |
| Kansas. | 1 |
| Oregon. | 2 |
| Washington | 1 |
| Wisconsin. | 4 |
| Mumps: |  |
| C'alifornia. | 1,530 |
| Idaho. | 100 |
| Kansas. | 649 |
| Montana. | 1 |
| Oklahoma ${ }^{\text {1 }}$ | 168 |
| Oregon. | 96 |
| South Carolina. | 79 |
| South Dakota | 57 |
| Washington. | 449 |
| Wisconsin.. | 1,413 |
| Ophthalmia neonatorum: |  |
| Oklahoma ${ }^{\text {-. }}$ | 1 |
| South Carolina | 18 |
| Paratyphoid fever: |  |
| California. | 4 |
| Idaho. | 1 |
| South Carolina. | 4 |
| Pink eye: |  |
| Kansas. | 7 |
| Oklahoma ${ }^{\text {- }}$ | 2 |
| ${ }^{1}$ Exclusive of Oklahoma |  |

Puerperal septicemia: CasesOregon1
Rabies in animals: ..... 48
Idaho ..... 2
South Carolina ..... 24
Rocky Mountain spotted or tick fever:
Montana ..... 1
Oregon ..... 1
Septic sore throat:
North Carolina ..... 11
Oklahoma ..... 10
Oregon ..... 16
Scabies:
Oregon ..... 13
Washington ..... 24
Tetanus:
California ..... 4
Kansas. ..... 2
Trachoma:
California ..... 13
Oklahoma : ..... 9
South Dakota ..... 2
Trichinosis:
California ..... 10
Tularaemia:
Idaho. ..... 1
South Carolina ..... 1
Undulant (malta) fever:
Kansas. ..... 1
Vincent's angina:
South Carolina ..... 18
Whooping cough:
California ..... 772
District of Columbia ..... 43
Idaho. ..... 7
Kansas ..... 349
Montana ..... 56
North Carolina. ..... 661
Oklahoma ${ }^{1}$ ..... 61
Oregon ..... 6
South Carolina ..... 463
South Dakota ..... 55
Virginia ..... 590
Washington ..... 53
Wisconsin ..... 405
GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 100 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than $31,575,000$. 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 April 21, 1928, and April 23, 1927

|  | 1928 | 1927 | Estimated expectancy |
| :---: | :---: | :---: | :---: |
| Cases reported |  |  |  |
| Diphtheria: 43 States. | 1,431 |  |  |
| 100 cities | 1,431 | 1,065 | 859 |
| Measles: |  |  |  |
| 42 States. | 18,550 | 14,628 |  |
| 100 cities | 8,244 | 4,038 |  |
| Poliomyelitis: |  |  |  |
| 44 States | 19 | 8 | -......-...- |
| 43 States. | 3,936 | 4,671 |  |
| 100 cities. | 1,598 | 2,154 | 1,2i1 |
| Smallpox: |  |  |  |
| 43 States | 1,067 | 790 |  |
| T 100 cities... | 135 | 195 | 113 |
| hoid fever: <br> 43 States. | 167 | 239 |  |
| 100 cities.. | 38 | 43 | 49 |
| Deaths reported |  |  |  |
| Influenza and pneumonia: 95 cities | 1,333 | 1,031 |  |
| Smallpox: |  |  |  |
| 95 cities. | 1 | 0 |  |
| Louisville, Ky. | 1 | 0 |  |

## City reports for week ended April 21, 1928

The "estlmated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of ain 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 oxcluded and the estimated expectancy is the mean number of cases reported for the week during nor. 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 disceses given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

| Division, State, and city | $\begin{array}{\|c} \text { Population, } \\ \text { July 1, } \\ \text { estimated } \end{array}$ | Chicken pox, cases reported | Diphtheria |  | Influenza |  | Measles, cases reported |  | Pneumonia, deaths reported |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Cases, estimated expectancy | Cases reported | Cases reported | Deaths reported |  |  |  |
| new england |  |  |  |  |  |  |  |  |  |
| Maine: |  |  |  |  |  |  |  |  |  |
| Portland -... | 76,400 | 5 | 1 | 0 | 1 | 0 | 3 | 11 | 3 |
| New Hampshire: Concord | ${ }^{1} 22,548$ | 0 | 0 | 1 | 0 | 0 | 1 | 0 |  |
| Manchester. | 84,000 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 5 |
| Vermont: |  |  |  |  |  |  |  |  |  |
| Barre....... | ${ }^{1} 10,008$ | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Burlington. | ${ }^{1} 24,089$ | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 2 |
| Massachusetts |  |  |  |  |  |  |  |  |  |
| Fall River. | 131, 000 | 2 | 3 | 1 | 0 | 0 | 1 | 0 | 1 |
| Springfield.......... | 145, 000 | 5 | 2 | 7 | 0 | 0 | 2 | 40 | 1 |
| Worcester..........- | 193, 000 | 3 | 4 | 4 | 0 | 0 | 58 | 41 | 7 |
| Rhode Island: |  |  |  |  |  |  |  |  |  |
| Pawtucket-......... | 71,000 275,000 | 0 | 1 | 3 5 | 0 | 0 1 | 19 264 | 29 0 | 7 |
| Connecticut: |  |  |  |  |  |  |  |  |  |
| Bridgeport .......... | ${ }^{(2)}$ | 1 | 5 | 3 | 1 | 1 | 5 | 0 | 5 |
| 1Iartford............... | 164, 000 | 7 | 5 | 5 | 0 | 0 | 30 | 11 | 8 |
| New Haven. | 182, 000 | 21 | 3 | 2 | 0 | 0 | 115 | 56 | 17 |
| ${ }^{1}$ Estimated, July 1, 1925. ${ }^{2}$ No |  |  |  |  |  |  |  |  |  |

City reports for weck ended April 21, 1928—Continued

| Division, State, and city | $\begin{aligned} & \text { Population, } \\ & \text { July 1, } \\ & \text { estimated } \end{aligned}$ | Chick. en pox, cases reported | Diphtheria |  | Influenza |  | Measles, cases ported | Mumps, cases ported | Pneumonia, deaths reported |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Cases, estimated expectancy | Cases reported | Cases reported | Deaths reported |  |  |  |
| middie atlantic |  |  |  |  |  |  |  |  |  |
| New York: Buffalo | 544,000 | 28 | 8 | 21 |  | 0 | 72 | 49 | 13 |
| New York | 5,924,000 | 211 | 246 | 27 | 94 | 35 | 1,992 | 30 | 333 |
| Rochester. | 321,000 | 7 | 9 | 2 | 1 | 0 | , 26 | 30 | 6 |
| Syracuse......... | 185, 000 | 21 | 5 | 4 |  | 0 | 161 | 9 | 15 |
| New Jersey: |  |  |  |  |  |  |  |  |  |
| Camden... | 131,000 | 0 | 5 | 8 | 0 | 0 | 45 | 4 | 2 |
| Newark | 459,000 | 17 | 11 | 19 | 12 | 0 | 380 | 20 | 17 |
| Trenton. | 134,000 | 1 | 3 | 11 | 0 | 0 | 4 | 2 | 4 |
| Pennsylvania: | 2,008,000 | 73 | 69 | 60 | 0 | 12 | 910 | 69 | 69 |
| Pittsburgh. | 637,000 | 37 | 17 | 16 | 0 | 5 | 143 | 38 | 37 |
| Reading. | 114,000 | 10 | 2 |  | 0 | 2 | 10 | 0 | 1 |
| fast north central |  |  |  |  |  |  |  |  |  |
| Ohio: |  |  |  |  |  |  |  |  |  |
| Cincinnati. | 411,000 | 7 | 7 | 10 | 0 | 3 | 79 | 0 | 12 |
| Cleveland. | 960, 000 | 47 | 23 | 36 | 34 | 3 | 35 | 101 | 24 |
| Columbus. | 285, 000 | 12 | 4 | 1 | 1 | 0 | 90 | 3 | 5 |
| Toledo.... | 295, 000 | 12 | 3 | 3 | 8 | 7 | 140 | 22 | 5 |
| Indiana: ${ }_{\text {Fort }}$ Weyne |  |  |  |  |  |  |  |  |  |
| . Fort Wayne-.....--- | 99,900 367,000 | ${ }^{37}$ | 2 | 4 6 | 0 | 0 | 87 | 0 112 | 4 |
| South Bend. | 81, 700 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| Terre Haute.........- | 71,900 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 11 |
| Ilinois: |  |  |  |  |  |  |  |  |  |
| Chicago--.........- | 3,048, 000 | 77 | 72 | 77 | 46 | 20 | 37 | 31 | 109 |
| Springfield.........-- Michigan: | 64,700 | 3 | 1 | 0 | 2 | 0 | 0 | 13 | 1 |
| Detroit.............-- | 1,290,000 | 48 | 48 | 28 | 10 | 7 | 786 | 25 | 77 |
| Flint.-...-.-.-......- | 136,000 | 15 | 3 | 4 | 0 | 2 | 113 | 54 | 4 |
| Grand Rapids...---- | 156, 000 | 1 | 4 | $\stackrel{4}{2}$ | 0 | 3 | 13 | 8 | 8 |
| Wisconsin: |  |  |  |  |  |  |  |  |  |
| Kenosha-...-.-..... | 52,700 | 17 | 1 | 0 | 2 | 0 | 2 | 0 | 1 |
| Milwaukee. | 517, 000 | 71 | 13 | 8 | 43 | 3 | 4 | 39 | 20 |
| Racine... | 69,400 | 5 | 2 | 1 | 0 | 0 | 1 | 2 | 2 |
| Superior-....-----.-- | ${ }^{1} 39,671$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| west norti central |  |  |  |  |  |  |  |  |  |
| Minnesota: |  |  |  |  |  |  |  |  |  |
| Duluth. | 113, 000 | 6 | 1 | 0 | 18 | 4 | 1 | 2 | 3 |
| Minneapolis. | 434, 000 | 56 | 14 | 10 | 0 | 11 | 83 | 206 | 15 |
| St. Paul............-- | 248, 000 | 20 | 12 | 2 | 0 | 0 | 3 | 36 | 13 |
| Iowa: ${ }_{\text {Davenport }}$ |  |  |  |  |  |  |  |  |  |
| Davenport... | ${ }^{1} 52,469$ | 1 | 1 | 0 | 0 | .- | 0 | 0 | - |
| Des Moines. Sioux City. | 146, 000 | 0 | 2 | 1 | 0 |  | 0 | 0 | . |
| Sioux City | 78,000 |  | 1 |  |  |  |  |  |  |
| Waterloo... | 36,900 | 11 | 0 | 0 | 0 |  | 3 | 4 | - |
| Missouri: Kansas City |  | 13 |  |  |  |  |  |  |  |
| St. Joseph..- | 78,400 | 1 | 1 | 0 | 0 | 0 | ${ }_{0}$ | 11 | 8 |
| St. Louis.............- | 880, 000 | 12 | 39 | 27 | 2 | 1 | 351 | 15 |  |
| North Dakota: | 126,403 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Grand Forks.......- | 114,811 | 2 | 0 | 0 | 0 |  | 0 | 0 |  |
| South Dakota: |  |  |  |  |  |  |  |  |  |
| A berdeen.... | ${ }^{1} 15,036$ | 6 | 0 | 0 | 0 |  | 1 | 0 |  |
| Sioux Falls.......-- | ${ }^{1} 30,127$ | 0 | 0 | 1 | 0 |  | 0 | 0 |  |
| Nebraska: Lincoln | 62,000 | 4 | 1 | 2 | 0 | 0 | 0 | 22 | 0 |
| Omaha. | 216,000 | 8 | 2 | 1 | 0 | 0 | 2 | 1 | 14 |
| Kansas: |  |  |  |  |  |  |  |  |  |
| Topeka-............- | 56,500 | 22 | 1 | 0 | 0 | 3 | 1 | 4 | 3 |
| Wichita............- | 92, 500 | 18 | 1 | 1 | 0 | 0 | 11 | 0 | 6 |

${ }^{1}$ Estimated July 1, 1925.

City reports for week ended April 21, 1928-Continued


City reports for week ended April 21, 1928—Continued

${ }^{1}$ Estimated, July 1, 1925.
${ }^{2}$ No estimate made.

City reports for week ended April 21, 1928—Continued


City reports for week ended April 21, 1928—Continued


City reports for week ended April 21, 1928-Continued


City reports for week ended April 21, 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 |
| south atlantic |  |  |  |  |  |  |  |  |  |
| Maryland: |  |  |  |  |  |  |  |  |  |
| Baltimore. | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| North Carolina: Raleigh | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  |
| Wilmington | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| South Carolina: |  |  |  |  |  |  |  |  |  |
| Charleston | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| Greenville.. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Georgia: | 0 | 0 | 0 | 0 | 1 |  |  |  |  |
| Florida: | 0 |  | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| Miami. | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |  |
| Tampa | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| east south central |  |  |  |  |  |  |  |  |  |
| Tennessee: <br> Nashville | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| Alabama: |  |  |  |  |  |  |  |  |  |
| Birmingham. | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Mobile. | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| Montgomery | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| west south central |  |  |  |  |  |  |  |  |  |
| Louisiana: <br> New Orleans. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oklahoma: |  |  |  |  |  |  | 0 |  | 0 |
| Oklahoma City. | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Texas: <br> Dallas | 0 | 0 |  |  |  |  |  |  |  |
| Houston. | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| mountain |  |  |  |  |  |  |  |  |  |
| Colorado: |  |  |  |  |  |  |  |  |  |
| Denver. | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Utah: <br> Salt Lake City | 1 | 0 | 0 | 0 | 0 | 0 | 0 |  |  |
| Washington: |  |  |  | 0 | 0 | 0 |  | 0 | 0 |
| Seattle... | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Tacoma. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Oregon: Portland: | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| California: |  |  |  |  |  |  |  |  | 0 |
| Los Angeles. | 3 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Sacramento.- | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 21, 1928, compared with those for a like period ended April 23, 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, March 18 to April 21, 1928-Annual rates per 100,000 population compared with rates for the corresponding period of $1927^{1}$

DIPHTHERIA CASE RATES

|  | Week ended- |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { Mar. } \\ 26, \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Mar. } \\ 24, \\ 1928 \end{gathered}$ | $\begin{gathered} \text { Apr. } \\ 2, \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Mar. } \\ 31, \\ 1928 \end{gathered}$ | $\begin{gathered} \text { Apr. } \\ \text { 9, } \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Apr. } \\ 79 \\ 1928 \end{gathered}$ | $\begin{aligned} & \text { Apr. } \\ & 16, \\ & 1927 \end{aligned}$ | $\begin{gathered} \text { Apr. } \\ 14, \\ 1928 \end{gathered}$ | $\begin{gathered} \text { Apr. } \\ \text { 23, } \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Apr. } \\ 21, \\ 1928 \end{gathered}$ |
| 101 cities | 178 | 158 | 190 | 139 | 200 | 132 | 174 | 144 | 179 | ${ }^{2} 137$ |
| New England | 130 | 124 | 137 | 110 | 181 | 126 | 105 | 168 | 135 | 131 |
| Middle Atlantic. | 226 | 222 | ${ }_{263}$ | 181 | 269 | 188 | 271 | 209 | 270 | 204 |
| East North Central | 178 | 148 | 159 | 146 | 169 | 121 | 135 | 116 | 131 | 116 |
| West North Central | 121 | 132 | 158 | 84 | 170 | 101 | 109 | 101 | 141 | 282 |
| South Atlantic. | 146 | 112 | 157 | 121 | 117 | 88 | 141 | 82 | 135 | 82 |
| East South Central. | 41 | 60 | 61 | 85 | 66 | 25 | 86 | 40 | 30 | 40 |
| West South Central | 174 | 116 | 178 | 108 | 335 | 132 | 141 | 160 | 124 | 124 |
| Mountain. | 81 | 80 | 108 | 115 | 170 | 44 | 108 | 133 | 188 | 80 |
| Pacific. | 193 | 105 | 170 | 74 | 125 | 77 | 115 | 74 | 157 | 102 |

Measles Case rates

| 101 cities | 943 | 1,326 | 837 | 1,388 | 867 | 1,277 | 766 | 1,340 | 788 | ${ }^{2} 1,365$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| New England | 198 | 1,536 | 205 | 2,014 | 270 | 1,874 | 223 | 1,726 | 295 | 1,743 |
| Middle Atlanti | 114 | 1,393 | 127 | 1,491 | 159 | 1,504 | 172 | 1,739 | 145 | 1,824 |
| East North Central | 1,138 | 1,009 | 925 | 1,023 | 957 | 1,034 | 885 | 998 | 797 | 817 |
| West North Centra | 1,514 | 725 | 1,821 | 748 | 1,300 | 762 | 1,314 | 861 | 1,552 | ${ }^{2} 1,016$ |
| South Atlantic | 972 | 2,893 | 1,091 | 2,905 | 936 | 2,285 | 1,311 | 2,115 | 1,589 | 2,358 |
| East South Central | 436 | 1,426 | 284 | 1,696 | 608 | 958 | 396 | 1,117 | 517 | 1,536 |
| West South Centr | 1,754 | 1,120 | 935 | 836 | 2,114 | 436 | 1,005 | 428 | 1,249 | 380 |
| Mountain | 5, 074 | 504 | 3,443 | 752 | 2,788 | 708 | 2,080 | 743 | 1,793 | 761 |
| Pacific. | 3,163 | 807 | 2,761 | 580 | 3,051 | 447 | 2,207 | 524 | 2,103 | 393 |

## SCARLET FEVER CASE RATES

| 101 cities | 423 | 309 | 440 | 303 | 394 | 273 | 391 | 226 | 362 | 2265 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| New England | 479 | 411 | 530 | 405 | 367 | 331 | 423 | 301 | 346 | 264 |
| Middle Atlantic | 580 | 374 | 612 | 398 | 594 | 366 | 581 | 273 | 528 | 287 |
| East North Central | 347 | 306 | 329 | 266 | 272 | 252 | 285 | 194 | 298 | 272 |
| West North Central | 400 | 292 | 467 | 257 | 433 | 263 | 396 | 277 | 342 | 2297 |
| South Atlantic | 179 | 224 | 197 | 221 | 177 | 179 | 150 | 154 | 161 | 170 |
| East South Central | 162 | 234 | 172 | 204 | 177 | 100 | 218 | 234 | 167 | 200 |
| West South Central | 58 | 124 | 54 | 144 | 99 | 148 | 50 | 128 | 41 | 164 |
| Mountain. | 1,130 | 177 | 1,210 | 186 | 941 | 239 | 950 | 239 | 932 | 212 |
| Pacific. | 360 | 202 | 340 | 207 | 243 | 133 | 243 | 123 | 209 | 151 |

SMALLPOX CASE RATES

| 101 cities. | 30 | 25 | 28 | 25 | 26 | 18 | 24 | 20 | 33 | 222 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| New England | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Middle Atlantic. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| East North Central | 29 | 18 | 33 | 24 | 37 | 24 | 32 | 24 | 29 | 31 |
| West North Central | 69 | 125 | 30 | 64 | 42 | 84 | 55 | 49 | 40 | ${ }^{2} 62$ |
| South Atlantic... | 41 | 23 | 61 | 68 | 25 | 14 | 27 | 11 | 65 | 12 |
| East South Central | 106 | 25 | 122 | 30 | 86 | 10 | 96 | 35 | 162 | 20 |
| West South Central | 74 | 36 | 62 | 36 | 103 | 4 | 87 | 16 | 95 | 8 |
| Mountain. | 18 | 62 | 9 | 142 | 27 | 106 | 27 | 150 | 54 | 168 |
| Pacific.-.-.-.-. -- | 99 | 61 | 68 | 23 | 55 | 18 | 28 | 74 | 97 | 59 |

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, 1927 and 1928, respectively.
${ }_{2}$ Sioux City, Iowa, not included.

Summary of weekly reports from cities, March 18 to April 21, 1928-Annual rates per 100,000 population compared with rates for the corresponding period of 1927-Continued

TYPHOID FEVER CASE RATES

|  | Week ended- |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mar. 26, 1927 | $\begin{gathered} \text { Mar. } \\ 24, \\ 1928 \end{gathered}$ | $\begin{gathered} \text { Apr. } \\ 2, \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Mar. } \\ 31, \\ 1928 \end{gathered}$ | $\begin{aligned} & \text { Apr. } \\ & 1927 \end{aligned}$ | Apr. <br> 1928 | $\begin{gathered} \text { Apr. } \\ 1927 \\ 1927 \end{gathered}$ | Apr. <br> 14, <br> 1928 | Apr. <br> 23, 1927 | Apr. $\begin{gathered} 21, \\ 1928 \end{gathered}$ |
| 101 cities.. | 8 | 4 | 8 | 5 | 8 | 4 | 8 | 5 | 7 | 26 |
| New England. | 5 | 9 | 12 | 5 | 7 | 2 | 9 | 9 | 0 |  |
| Middle Atlantic. | 7 | 4 | 6 | 4 | 6 | 1 | 5 | 5 | 7 |  |
| East North Central. | 4 | 3 | 1 | 2 | 5 | 3 | 1 | 1 | 3 |  |
| West North Central | 4 | 0 | 2 | 2 | 2 | 6 | 12 | 8 | 4 | 26 |
| South Atlantic...... | 13 | 11 | 16 | 21 | 9 | 12 | 13 | 4 | 11 |  |
| East South Central. | 41 | 5 | 20 | 10 | 35 | 15 | 35 | 20 | 30 | 15 |
| West South Central | 29 | 8 | 25 | 12 | 37 | 16 | 17 | 20 | 12 | 20 |
| Mountain.......... | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 27 | 0 |
| Pacific.. | 10 | 5 | 24 | 3 | 8 | 8 | 18 | 3 | 10 | 3 |

INFLUENZA DEATH RATES

| 95 cities | 27 | 32 | 22 | 29 | 23 | 34 | 21 | 30 | 18 | 28 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| New England. | 7 | 9 | 12 | 11 | 7 | 16 | 16 | 9 | 12 | 7 |
| Middle Atlantic. | 26 | 22 | 21 | 29 | 28 | 31 | 21 | 27 | 20 | 26 |
| East North Central | 16 | 35 | 15 | 24 | 9 | 40 | 11 | 27 | 11 | 28 |
| West North Central | 14 | 16 | 4 | 18 | 17 | 16 | 12 | 24 | 21 | 41 |
| South Atlantic. | 65 | 39 | 38 | 21 | 40 | 19 | 38 | 30 | 22 | 16 |
| East South Central. | 96 | 89 | 106 | 78 | 74 | 73 | 90 | 84 | 58 | 68 |
| West South Central | 25 | 98 | 30 | 86 | 51 | 107 | 42 | 90 | 30 | 45 |
| Mountain.. | 27 | 133 | 27 | 53 | 36 | 80 | 18 | 53 | 0 | 53 |
| Pacific. | 28 | 7 | 24 | 14 | 17 | 7 | 14 | 14 | 10 | 14 |

PNEUMONIA DEATH RATES

| 95 cities | 167 | 213 | 163 | 222 | 162 | 215 | 153 | 207 | 159 | 198 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| New England | 156 | 182 | 156 | 225 | 140 | 179 | 156 | 177 | 151 | 166 |
| Middle Atlantic | 198 | 245 | 186 | 264 | 198 | 244 | 175 | 243 | 199 | 242 |
| East North Central | 141 | 211 | 147 | 207 | 131 | 241 | 141 | 199 | 135 | 192 |
| West North. Central | 101 | 118 | 93 | 130 | 137 | 122 | 128 | 175 | 124 | 155 |
| South Atlantic. | 218 | 240 | 225 | 230 | 150 | 179 | 184 | 209 | 179 | 181 |
| East South Central | 197 | 240 | 133 | 288 | 218 | 397 | 138 | 183 | 160 | 235 |
| West South Central | 136 | 275 | 161 | 242 | 140 | 185 | 76 | 238 | 81 | 197 |
| Mountain. | 170 | 168 | 161 | 106 | 242 | 97 | 152 | 186 | 161 | 106 |
| Pacific. | 110 | 101 | 128 | 118 | 117 | 105 | 117 | 88 | 97 | 81 |

a Sioux City, Iowa, 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 citics reporting cases | Number of cities reporting deaths | Aggregate population of cities reporting cases |  | Aggregate population of cities reporting deaths |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1927 | 1923 | 1927 | 1928 |
| Total. | 101 | 95 | 31, 050, 300 | 31,657,000 | 30, 369, 500 | 30,960,700 |
| New England | 12 | 12 | 2, 242, 700 | 2, 274,400 | 2, 242, 700 | 2, 274,400 |
| Middle Atlantic | 10 | 10 | 10, 594, 700 | 10, 732,400 | 10,594, 700 | 10, 732, 400 |
| East North Central | 16 | 16 | 7, 820, 700 | 7,991, 400 | 7, 820, 700 | 7, 991,400 |
| West North Centra | 12 | 10 | 2, 634,500 | 2, 683, 500 | 2, 518, 500 | 2,566,400 |
| South Atlantic | 21 | 21 | 2, 890, 700 | 2,981,900 | 2, 890, 700 | 2,981,900 |
| East South Central | 8 | 6 | 1, 028, 300 | 1, 048,300 | 980,700 | 1,000, 100 |
| West South Central | 8 | 7 | 1, 260, 700 | 1,307, 600 | 1,227, 800 | 1,264,100 |
| Mountain. | 9 | 9 | -581,600 | 591, 100 | , 881,600 | 391, 100 |
| Pacific. | 6 | 4 | 1,996,400 | 2,046, 400 | 1,512,100 | 1, 548, 900 |

# FOREIGN AND INSULAR 

## THE FAR EAST

Report for the week ended April 7, 1928.-The following report for the week ended April 7, 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:
Egypt.-Suez.
Aden Protectorate.-Aden.
India.-Bassein, Bombay, Calcutta. Rangoon.
Cholera
India.-Bassein, Calcutta, Madras, Rangoon, Tuti-
corin.
French India.-Pondicherry.
Siam.-Bangkok.
French Indo-China.-Saigon.

## SMALLPOX

India.-Bombay, C'alcutta, Madras, Moulmein, Rangoon.
French India.-Pondicherry.
China.-Shanghai, Hong Kong.
Japan.-Shimonoseki.
Kuantung.-Dairen.

Returns for the week ended April 7 were not received from the following ports:

Ceylon.-Colombo.
China.-Canton.
Dutch East Indies.-Banjermasin, Belawan-Deli, Menado, Samarinda.

Iraq.-Basra.
Cnion of Soriet Socialist Republics.-Vladivostok.

## ANGOLA

Communicable diseases-December, 1927—January, 1928.—During December, 1927, and January, 1928, communicable diseases were reported in Angola as follows:

| Disease | December, 1927 |  |  |  | January, 1928 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Coast district | Land frontier | Interior | Total | Coast district | Land frontier | Interior | Total |
| Ancylostomiasis. | 5 | 5 | 7 | 17 | 10 | 17 |  | 27 |
| Beriberi.... | 6 | 4 |  | 10 | 2 | 5 | 31 | ${ }_{3}^{2}$ |
| Chicken pox ${ }^{\text {a }}$ | 19 |  | 4 | 23 | 13 | 1 | 1 | 15 |
| Dysentery -.- | 36 | 20 | 12 | 68 | 27 | 21 | 9 | 57 |
| Erysipelas. | 2 |  |  | 2 |  |  |  |  |
| Hemoglobin fever | 11 | 2 | 9 | 22 | 10 | 2 | 5 | 17 |
| Influenza. | 58 | 189 | 98 | 345 | 44 | 353 | 69 | 466 |
| Leprosy.. | 4 | 1 |  | 5 |  |  |  |  |
| Malaria. | 353 | 167 | 165 | 685 | 359 | 212 | 104 | 675 |
| Measles | 116 |  | 1 | 120 | 60 | 6 | 4 | 70 |
| Meningitis |  | 1 | 14 | 14 5 | 2 | 1 |  | $\underline{1}$ |
| Plague.- | 3 |  |  | 3 |  |  |  |  |
| Puerperal septicemia | 1 |  |  | 1 | 1 | 1 |  | 2 |
| Pneumonia.- | 11 | 3 | 15 | 29 | 25 | 12 | 7 | 44 |
| Relapsing fever |  | 4 |  | 4 |  | 14 |  | 14 |
| Ringworm...-. |  |  |  |  |  | 4 |  | 4 |
| Scabies.- | 9 | 75 | -- | 84 | 6 | 50 |  | 56 |
| Smallpox. | 7 |  |  | 7 | 10 |  |  | 10 |
| Tetanus. | 1 |  |  | 1 | 3 |  |  | 3 |
| Tuberculosis. | 39 | 3 | 3 | 45 | 27 | 4 | 3 | 34 |
| Typhoid fever | 1 | 2 | 8 | 4 | 2 |  |  | 2 |
| Trypanosomiasis. | 57 | 27 | 38 | 122 | 74 | 70 | 7 | 151 |
| Venereal diseases. | 152 | 216 | 16 | 384 | 178 | 237 | 27 | 442 |
| Whooping cough | 7 |  |  | 7 |  |  | 2 | ${ }_{10}^{2}$ |
| Yaws.. | 89 | 33 | 69 | 191 | 82 | 19 | 5 | 106 |

[^11]
#### Abstract

ARABIA Aden-Plague.-Under date of April 1, 1928, continued prevalence of plague was reported at Aden, with a total of 1,170 cases and 830 deaths from the outbreak of the epidemic. It was stated that the epidemic had spread to a point 25 miles north of Aden.


## CANADA

Fort William, Ontario-Vital statistics and communicable diseases, 1927.-The annual report of the department of health of the city of Fort William, Ontario, Canada, for the year ended October 31, 1927, gives the following statistics:

${ }^{1}$ Including nonresidents.

Death rate per 1,000 births....................... 54.63
Deaths (all causes) .................................. 196
Death rate per 1,000 population................ 18.32

Communicable diseases-Cases and deaths at Fort William, Ontario, Canada, year ended October 31, 1927

| Disease | Cases | Deaths | Disease | Cases | Deaths |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Broncho-pneumonia. | 8 | 6 | Pneumonia (lobar) |  | 15 |
| Chicken pox. | 66 |  | Poliomyelitis.. | 1 |  |
| Diphtheria | 27 | 2 | Scarlet fever. | 32 |  |
| Erysipelas. | 3 |  | Smallpox | 0 |  |
| Gonorrhea. | 51 |  | Syphilis | 22 |  |
| Influenza | 3 | 1 | Tuberculosis.. | 24 | 12 |
| Measles | 32 | 1 | Typhoid fever- | 10 |  |
| Mumps. | 5 |  | Whooping cough. | 69 | 3 |

Quebec Province-Communicable diseases-Week ended April 21, 1928.-The Bureau of Health of the Province of Quebec reports cases of communicable diseases for the week ended April 21, 1928, as follows:

| Disease | Cases | Disease | Cases |
| :---: | :---: | :---: | :---: |
| Chicken pox. | 67 | Scarlet fever-... | 95 |
| Diphtheria--..- | 36 | Smallpox--.-- | 25 |
| German measles | 12 | Tuberculosis... | 51 |
| Influenza. | 6 | Typhoid fever. | 15 |
| Measles. | 302 | Whooping cough. | 12 |

## ITALY

Messina-Vital statistics-Year 1927.-The following table gives vital statistics for the city of Messina, Italy, for the year 1927:


Deaths from-Continued.
Influenza-........................................... 33
Measles.-............................................ 1
Smallpox-.......................................... 1
Tuberculosis.................................... 102
Typhoid fever.................................. 27

## MALTA

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

| Disease | Cases | Discase | Cases |
| :---: | :---: | :---: | :---: |
| Bronchopneumonia | 19 | Pneumonia | 8 |
| Cerebrospinal meningitis | 1 | Puerperal fever | 3 |
| Chicken pox. | .36 | Scarlet fever.- | - 6 |
| Diphtheria. | 4 | Trachoma--- | 41 |
| Erysipelas. | 6 | Tuberculosis | 28 |
| Infuenza $M$ alta | 28 46 | Typhoid fever-- | ${ }^{20}$ |
| Malaria ${ }^{\text {1 }}$........ | 1 | Whooping cough. | 6 |

${ }^{1}$ Contracted abroad.
Population, civil, estimated: 228,575 .

## NIGERIA

Lagos-Plague-Plague-infected rats-February 26-March 3, 1928.— During the week ended March 3, 1928, two cases of plague with two deaths were reported at the port of Lagos, Nigeria. During the same period, of 8,246 rats taken in Lagos, 1,186 were examined, 51 per cent of these being found infected.

Inland localities-Smallpox.-During the same period, 103 cases of smallpox were reported, with 7 deaths, in 12 inland localities of the northern provinces of Nigeria, with high mortality reported at Mokwa. In the southern provinces 7 cases were reported from 3 localities.

Other transmissible diseases.-Ten cases of relapsing fever and 72 cases of trypanosomiasis were reported in the northern provinces of Nigeria.

## PORTO RICO

Smallpox-Correction.-The unofficial report of smallpox in the vicinity of Fajardo, Porto Rico, which was published in the Public Health Reports dated March 23, 1928, page 723, was erroneous. The Commissioner of Health of Porto Rico states that smallpox has not been reported there for several years.

## UNION OF SOUTH AFRICA

Orange Free State-Flague-Weeks ended March 10 and 17, 1928.During the two weeks ended March 10 and 17, 1928, three fatal cases of plague were reported on Allemanskamp farm, Theunissen Area of the Winburg District, Orange Free State. A further suspect case, in a native, was reported found on the Theunissen-Theron Road. The case ended fatally.

Smallpox.-A fresh outbreak of smallpox was reported during the week ended March 10, 1928, in the State of Natal.

Typhus fever.-During the week ended March 10, 1928, fresh outbreaks of typhus fever were reported in the Orange Free State, occurring in Harrismith district, and two sporadic cases in Europeans, one of which was imported, in Durban, Natal.

During the week ended March 17, 1928, fresh outbreaks were reported in the Cape Province, occurring in four districts; in Natal, at Port Shepstone; and in the Transvaal, in Potchefstroom district, on a farm.

Month of February, 1928-Typhus fever.-During the month of February, 1928, 65 cases of typhus with 9 deaths were reported in the native population of the Union of South Africa. The distribution of the occurrence was as follows: Cape Province-cases 36, deaths 6; Natal-cases 6, deaths 1; Orange Free State-cases 23, deaths 2. There were reported two cases in Europeans occurring in the State of Natal.

## VIRGIN ISLANDS

Communicable diseases-March, 1928.-During the month of March, 1928, communicable diseases were reported in the Virgin Islands of the United States as follows:

| Island and disease | Cases | Remarks |
| :---: | :---: | :---: |
| St. Thomas and St. John: |  |  |
| Chancroid-- | 1 |  |
| Malaria | 3 | 2 from St. John. Malignant tertian. |
| Pellagra | 1 |  |
| Syphilis | 11 |  |
| Tuberculosis-..- | 5 | Chronic pulmonary. |
| St. Croix: |  |  |
| Chancroid | 1 |  |
| Gonorrhea | 10 |  |
| Syphilis | 5 | Secondary. |
| Tuberculosis. | 2 | Chronic pulmonary. |

## YUGOSLAVIA

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

| Disease | Cases | Deaths | Disease | Cases | Deaths |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Anthrax. | 27 | 2 | Poliomyelitis. | 1 |  |
| Cerebrospinal meningi | 11 | 3 | Scarlet fever. | 1,597 | 276 |
| Diphtheria... | 224 | 51 | Rabies.- | 1 | 1 |
| Dysentery --.----- | 16 |  | Tetanus | 18 | 8 |
| Lethargic encephalitis. | 1 |  | Typhoid fever | 150 21 | 10 |
| Messles.- | 3,932 | 78 | T yphus fever. | 21 | 1 |

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 cither the list of countries included or the figures for the particular countries for which reports are given. CHOLERA
[C, indicates cases; $\mathbf{D}$, deaths; $\mathbf{P}$, present]

| Place |  | Aug. <br> $28-$ sept. 24, 1927 |  |  | $\left.\begin{gathered} \text { Nov. } \\ 20- \\ \text { Dec. } \\ 17,1927 \end{gathered} \right\rvert\,$ | $\begin{gathered} \text { Dec. } \\ 18, \\ 192 \overline{7}- \\ \text { Jan. } \\ 14,1928 \end{gathered}$ | Week ended- |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | $\underset{1928}{\text { January, }}$ |  | February, 1928 |  |  |  | March, 1928 |  |  |  |  | $\begin{aligned} & \text { April, } \\ & 1928 \end{aligned}$ |  |
|  |  |  |  |  |  |  | 21 | 28 | 4 | 11 | 18 | 25 | 3 | 10 | 17 | 24 | 31 | 7 | 14 |
| China: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| D | 7 | 3 | 16 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Canton.-.........-.................... | 31 | 36 | 14 | 12 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  | -- |
| Foochow ............................................................ | 16 | 25 | 14 | 11 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |  |
| Foochow ............................. ${ }^{\text {d }}$ | $\stackrel{P}{P}$ | P | P |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hong Kong--7...................... C | P | 1 | P |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Shanghai (settlement and concession) - <br> Foreigners only | 1 | 6 | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Including natives $\qquad$ D | 20 | 74 | 7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 42 | P | P | P |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | P | P | P |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tientsin ............................. $\mathbf{C}^{\text {C }}$ | P | 15 | 2 | P | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dutch East Indies: Java-Batavia....... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| India..................................... $\mathrm{C}_{\text {C }}^{\text {D }}$ |  |  |  | ${ }^{18}$ | 25, 13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| India........................................- ${ }^{\text {C }}$ | 45,163 22,051 | 31,380 15,895 | 20,160 10,371 | 23, 047 | 25,139 15,026 | 15,377 8,863 | 3,267 1,765 | 3,097 1,739 | 3,026 | 3, 1,562 | 2,865 | 3,047 1,686 | 3,256 |  |  |  |  |  |  |
| Bassein..............................- ${ }_{\text {B }}^{\text {D }}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 4 | 25 | 22 | 20 |
| Bombay .-.................................- | $42$ | 3 |  | $\begin{array}{r} 7 \\ 2 \end{array}$ |  |  |  | 1 |  |  |  |  |  | 1 | 1 |  | 1 |  |  |
| Calcutta...-............................. | 87 | 78 | 101 | 199 | 428 | 176 | 39 | 36 | 70 | 88 |  | 80 | 99 | 162 | 164 | 190 | 1 |  |  |
| ${ }^{-1}$ | 40 | 39 | 64 | 138 | 281 | 125 | 18 | 24 | 38 | 32 | 35 | 42 | 63 | 101 | 94 | 122 | 114 | 112 | 111 |
|  | 547 | 59 | 14 | 13 | 1 | 1 | 1 |  |  | 1 |  | 3 | 11 |  |  | 7 | 1 |  |  |
|  | 278 7 | 48 3,056 | -8888 | 3 ${ }^{13}$ | - 2 | 1 1 1 |  | 1, 3 |  | 1 | ${ }^{2}$ | 2 839 | ${ }^{7}$ | 7 |  | 2 | 1 | 1 | 4 |
| Madras Presidency .-................. ${ }^{\text {D }}$ | 7,660 3,513 | 3,056 1,581 | 2,050 1,055 | 3,073 1,736 | 3,702 2,104 | 1,864 | 1, 163 | 1,301 | 1, 325 | 912 448 | 930 504 | 839 457 | 621 357 |  |  |  |  |  |  |
| Negapatam........................... ${ }_{\text {C }}^{\text {D }}$ | 3, 513 | 1,581 | 1,055 | 1,736 | 2,104 | 984 | 623 4 | 813 | 726 | 498 | 504 | 457 | 357 |  |  |  |  |  |  |
| Rangoon......................................... |  |  |  |  |  |  | 4 | 1 |  | 1 | 12 | 2 |  |  |  |  |  |  | 1 |
| Rangoon-1.- |  |  | 5 |  | 8 | 4 | 4 |  | 1 |  | 8 | 4 | 2 | 4 | 2 | 3 | 6 |  |  |
| Tuticorin............................... $\underset{\text { D }}{\text { D }}$ |  |  | 1 | $\cdots{ }^{-17}$ | 88888 |  |  |  |  |  |  |  |  |  | 2 |  |  | 10 8 | 43 26 |

CHOLERA,
and yellow fever-Continued


[^12]
[C indicates cases; D, deaths; P, present]


\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Maghagha District..............................- \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& --.--- \& 1 \\
\hline Minich Province. . . . . .-...................... \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& 32 \\
\hline D \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& 5 \\
\hline  \& 1 \& \& \& \& 1 \& 1 \& \& 3 \& \& 3
3 \& 4 \& 3 \& 3 \& \& \[
\begin{aligned}
\& 4 \\
\& 2
\end{aligned}
\] \& 7
3 \& 3 \& ----- \& 3
2 \\
\hline \begin{tabular}{l}
Greece: \\
Athens and Piræus
\end{tabular} \& 3 \& 1 \& \& \& 3 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline - \& \& 1 \& \& \& 1 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline  \& 5 \& 1 \& 3 \& 3 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& -- \\
\hline  \& 2 \& 1 \& 1 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline Hawai Territory: Hawaii \& \& 1 \& 1 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline  \& \& \& \& \& \& \& \& \& \& 11 \& \& \& \& \& \& \& \& \& \\
\hline  \& 2,710 \& 3,246 \& 3,600 \& 5,518 \& 7,097 \& 2,544 \& 2,699 \& 3, 601 \& 3,808 \& 5, 188 \& 5,776 \& 6,136 \& \& \& \& \& \& \&  \\
\hline Bassein \& 1,428 \& 1,792 \& 2,065 \& 3,269 \& 4,925 \& 1,653 \& 1,661 \& 2,577 \& 2,630 \& 3,585 \& 3,999 \& 4,828 \& \& \& \& \& \& \& \\
\hline  \& 14
7 \& 8
4 \& 4 \& 4 \& 17
3 \& \begin{tabular}{|c}
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\frac{1}{5}
\] \& [ \(\begin{array}{r}2 \\ 14 \\ 14\end{array}\) \& 4
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7 \& 4 \& 5 \& 7 \& 5 \& 4 \& ---* \\
\hline Calcutta.............................................................. \& 5 \& 3 \& \& \& 3
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\] \& 6 \& 14 \& 7 \& 6 \& 4 \& 11 \& 25 \& 21 \& 15 \& -.. \\
\hline  \& 10 \& \& \& \& \& \& 1 \& \& \& \& \& \& \& \& \& \& 2 \& \& \\
\hline Madras Presidency.-............................. C \& 465 \& \& 470 \& 791 \& 550 \& \& 132 \& \& \& 142 \& 112 \& 64 \& \& \& --- \& \& \& \& -... \\
\hline Pangoon \({ }^{\text {D }}\) \& 230 \& 298 \& 282 \& 359 \& 206 \& 63 \& 64 \& 60 \& 69 \& 79 \& 72 \& 34 \& 27 \&  \& \& \& \& \& \\
\hline  \& 6 \& 11
11 \& 11
11 \& 15
15 \& 17
16 \& 8 \& 9
7 \& 7
6 \& 11
10 \& 15
12 \& 16
15 \& 6
6 \& 111 \& 5 \& 11
9 \& 5 \& 8 \& 5 \& \\
\hline Indo-China: \({ }^{1}\) Saigon.................................. \(\mathbf{C}\) \& 6
2 \& \& 1 \& 15 \& 16 \& 7 \& 7 \& 6 \& 10 \& 12 \& 15 \& 6 \& 10 \& 4 \& \& 5 \& 8 \& 5 \& \\
\hline \begin{tabular}{l}
Iraq: \\

\end{tabular} \& \& \& \& \& \& 1 \& 1 \& \& 2 \& \& 1 \& 1 \& ....- \& 2 \& \& 1 \& \& 1 \& 4 \\
\hline  \& \& \& \& \& \& 1 \& \& \& 1 \& \& 1 \& 1 \& ----- \& 2 \& 1 \& 1 \& \& 1 \& --. \\
\hline Madagascar 1 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline Mauritios \({ }^{1}\). \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline  \& \& \& 17 \& 13
13 \& 10
8 \& 2
3 \& 3
3 \& 3
3 \& 2 \& 2 \& 3
3 \& 2 \& 1 \& 2 \& \& \& \& 2 \& ---- \\
\hline Peru \({ }^{1}\) \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline \begin{tabular}{l}
Senegal: \({ }^{12}\) \\
Baol.
\end{tabular} \& 72 \& 95 \& P \& P \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline Ba01-----------------------------------10-1 \& 33 \& 40 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline  \& 463 \& 176 \& 48 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline Cay \& 233 \& 88 \& 28 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \\
\hline  \& 20

12 \& 1 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline Louga ${ }_{\text {c }}$ \& 12 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline  \& 5 \& 8 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline Rufisque.............................................. ${ }_{\text {C }}^{\text {D }}$ \& 4 \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline  \& 16. \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>
\hline Thies and vicinity .................................. \& 19
7 \& 1 \& 1 \& \& \& \& \& \& \& \& \& \& \& \& \& 8 \& \& \& <br>
\hline \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& \& <br>

\hline | ${ }^{1}$ Sec monthly table below. |
| :--- |
| 2 During January, 1928, 5 cases of plague were | \&  \&  \&  \&  \&  \& ith \& \& \&  \& ks \& eb \&  \& \&  \& ath \&  \& \[

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\end{tabular}

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued
PLAGUE-Continued
[C indicates cases; D, deaths; P, present]

| Place | $\begin{gathered} \text { Aug. } \\ 28- \\ \text { Sept. } \\ 24,1927 \end{gathered}$ | $\begin{gathered} \text { Sept. } \\ 25- \\ \text { Oct. } \\ 22,1927 \end{gathered}$ | $\left\lvert\, \begin{gathered} \text { Oct. } \\ 23- \\ \text { Nov. } \\ 19,1927 \end{gathered}\right.$ | $\begin{gathered} \text { Nov. } \\ 20- \\ \text { Dec. } \\ 17,1927 \end{gathered}$ | 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 |
|  | ----- | 13 | 1 | 3 |  | 5 |  |  | 6 5 | 13 | 4 | 11 | 14 | 7 |  |  |  |  | 11 |
| Bangkok............................................. ${ }^{\text {C }}$ ( |  | 9 2 |  | 2 | 11 | 1 | 1 | 5 | 5 | 10 | 4 | 10 | 12 | 6 |  |  |  |  | --- |
| Straits Sotiloments: |  |  | 1 |  | 1 |  | 1 | 1 |  | 1 |  |  |  |  |  | 1 |  |  |  |
| Straits Settlements: Singapore...................- ${ }^{\text {C }}$ D |  |  | 1 |  |  |  |  |  | 1 | 1 |  |  | 1 |  | 1 |  |  |  | - |
| Syria ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tunisia ${ }^{\text {a }}$ - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Turkey: Constantinople..........-.................... | 1 | 1 |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Union of South Africa: <br> Cape Province. |  |  | 2 | 2 |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Orange ${ }^{\text {a }}$ (atee |  |  | 2 | 1 |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Orange Free State.................................. ${ }_{\text {- }}^{\text {C }}$ |  |  | 1 | 8 |  |  | 2 |  | 3 | 4 | 1 |  |  | 3 |  |  |  |  |  |
| U. S. S. R.: <br> Chita district |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 14 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Venezuela: State of Miranda-Tacata and Cua.. ${ }_{\text {( }}^{\text {D }}$ | 10 |  |  |  |  |  |  |  |  |  |  |  | P |  |  |  |  |  |  |
|  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S. S. Aghios Gerasimos, at Vigo, Spain..... C |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

${ }^{1}$ See monthly table below.
${ }_{3} 8$ cases of plague with 6 deaths were reported in Bengardane region, Tunisia, Mar. 17 to 27, 1928.

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1 See monthly table below.

| Place | $\begin{gathered} \text { July } \\ \text { 31- } \\ \text { Aug. } \\ 27, \\ 1927 \end{gathered}$ | Aug. $\xrightarrow{28-}$ 24 . 1927 | Sept. 25Oct. 22. 1927 | Oct. 23Nov. 19. 1927 | Nov. 20Dec. 17, 1927 | $\begin{gathered} \text { Dec. } \\ 18, \\ 1927- \\ \text { Jan. } \\ 14, \\ 1928 \end{gathered}$ | Week ended- |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | January, 1928 |  | February, 1828 |  |  |  | March, 1928 |  |  |  |  | April, 1928 |  |  |
|  |  |  |  |  |  |  | 21 | 28 | 4 | 11 | 18 | 25 | 3 | 10 | 17 | 24 | 31 | 7 | 14 | 21 |
| British East Africa: ${ }^{1}$Kenya-Mombasa......................C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tanganyiki.........................-BritishD |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| British south Africa: <br> Northern Rhodesia... | 55 | 39 | 164 | 185 | 252 | 236 | 3 |  | 230 |  | 79 | 117 |  | 63 |  |  |  |  |  |  |
|  | 1 | 2 | 11 | 64 | 62 | 31 |  |  | 23 |  | 5 | 32 | 2 | 3 |  |  |  |  |  |  |
| Southern Rhodesia. |  |  |  | 3 | 2 | 1 |  |  | $P$ | 3 | 2 | 4 | P | 3 | 4 |  |  |  |  |  |
| Canada: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Calgary | 1 |  |  |  |  |  | 1 | 19 | 1 |  |  |  |  | 7 | 1 | 20 | 7 | 13 |  |  |
| Edmonton.....-.-.- |  |  | 1 | 1 | 8 |  | 1 |  |  | 2 | 1 |  | 11 | 1 | 1 | 11 | 1 | 7 | 2 |  |
| British Columbia: Va |  | 2 |  |  | 4 | 8 | 11 | 3 | 1 | 11 | 2 | 1 | 3 | 4 | 2 | 5 | 6 | 4 | 11 | .-. |
| Manitoba-...-- | 13 | 9 4 | 7 2 | 19 2 | 7 | 11 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Nova Scotia.................................. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Ottawa | 27 | 40 | 67 | 134 | ${ }_{30}^{63}$ | ${ }_{6}^{60}$ | 20 |  | 23 | 9 | 11 | 3 |  | 7 | 6 | 8 | 10 | 2 |  | 3 |
|  |  |  |  |  |  |  | 8 | 5 | 1 | 6 | 4 | 4 | 2 | 4 | 2 | 3 | 3 |  | 2 | 4 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Rivicre du Loup |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sukat chewan..................... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Moose Jaw | 10 | 16 | 3 |  |  | 4 | 4 | 2 | 3 | 2 |  |  |  | 5 | 2 | 5 |  |  | 3 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Coylon Colombo.......... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


${ }^{1}$ See 10 -day and monthly tables below.
CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, SMALLPOX-Continued
[C indicates cases; D, deaths; P, present]


CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER,

| Place | July <br> 31- <br> Aug. <br> ${ }_{1927}$ <br> 1927 | Aug. 28Sept. 24, 1927 | Sept. 25Oct. 22, 1927 | Oct. <br> 23- <br> Nov. <br> 19, <br> 1927 | Nov. 20Dec. 17, 1927 | $\begin{gathered} \text { Dec. } \\ 18, \\ 1927- \\ \text { Jan. } \\ 14, \\ 1928 \end{gathered}$ | Week ended- |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | January, 1928 |  | February, 1928 |  |  |  | March, 1928 |  |  |  |  | A pril, 1828 |  |
|  |  |  |  |  |  |  | 21 | 28 | 4 | 11 | 18 | 25 | 3 | 10 | 17 | 24 | 31 | 7 | 14 |
| Spain: ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Malaga |  |  |  | 1 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 1 |  |  | 2 |  |  |  |  |  |  |  | 1 |  | 1 | 1 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | 2 | --...- |  |  |  |  |  |  |  |  |  |  |  |  |
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| Cape $\mathbf{P}$ <br> Cape Province $\qquad$ | P |  | P |  |  |  | $\mathbf{P}$ |  |  | $\stackrel{\mathbf{P}}{\mathbf{P}}$ | $\mathbf{P}$ |  |  | $\stackrel{-}{ }$ |  |  |  |  |  |
|  | P |  |  |  | P | P | $\stackrel{\rightharpoonup}{\mathbf{P}}$ |  |  | $\underset{\mathbf{P}}{ }$ |  |  |  |  |  |  |  |  |  |
| Transvaal.......................................... |  |  | $\mathbf{P}$ | 7 |  | $P$ | P |  |  |  |  |  |  |  |  |  |  |  |  |
| Upper Volta |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Union of Soviet Socialist Republics ${ }^{\text {1-........- }}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

${ }^{1}$ See 10 -day and monthly tables below.


| Place | $\begin{gathered} \text { July } \\ 311 \\ \text { Aug. } \\ 27, \\ 1927 \end{gathered}$ | $\begin{gathered} \text { Aug. } \\ \text { 28- } \\ \text { Sept. } \\ 24, \\ 1927 \end{gathered}$ | Sept. <br> Oct. <br> ${ }_{1927}^{22}$ | $\begin{gathered} \text { Oct. } \\ 23- \\ \text { Nov. } \\ 19, \\ 1927 \end{gathered}$ | $\begin{aligned} & \text { Nov. } \\ & 20- \\ & \text { Dec. } \\ & 17 . \\ & 1927 \end{aligned}$ | $\begin{gathered} \text { Dec. } \\ 188 . \\ \text { 1982- } \\ \text { Jan. } \\ 14, \\ 1928 \end{gathered}$ | Week ended- |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | $\begin{aligned} & \text { January, } \\ & 1928 \end{aligned}$ |  | February, 1928 |  |  |  | March, 1928 |  |  |  |  | April, 1928 |  |
|  |  |  |  |  |  |  | 21 | 28 | 4 | 11 | 18 | 25 | 3 | 10 | 17 | 24 | 31 | 7 | 14 |
| Algeria: ${ }^{1}$ <br> Algiers |  |  |  |  |  |  |  | 1 |  |  |  |  | 1 | 2 | 1 | 1 | 2 |  |  |
| Oran................................... $\mathbf{C}$ |  |  |  |  |  | 4 |  | 2 |  | - | 2 | 1 | 6 | 1 | 1 |  | 2 |  |  |
| Austria: Vienna........................................... ${ }^{\text {C }}$ |  |  |  |  |  |  |  |  | 1 | - |  |  |  |  |  |  |  |  |  |
| Bulgaria:1 Sofa........................................ ${ }^{\text {C }}$ |  |  | 17 | 6 | 1 | 6 | 1 |  |  |  |  |  |  |  | 3 |  | 3 | 14 | - |
| Chile: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Antofagasta_................................................................ |  | 1 | 1 |  | 2 | 1 |  |  |  | .-. |  |  | 1 |  |  |  |  |  |  |
| China: 1 <br> Manchuria- | 2 | 1 |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 2 |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7 |
| Tientsin. |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Crechoslovakia ${ }^{\text {- }}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Egypt_...................................... ${ }_{\text {D }}^{\text {D }}$ | ${ }_{3}^{2}$ |  | 12 | 4 |  | ${ }_{4}^{8}$ | 2 | ${ }_{2}^{6}$ |  | 1 | - | ${ }^{13}$ | ${ }_{3}^{3}$ | 1 | .... | 1 | 1 | -- | 2 |
| Cairo.................................... C $^{\text {d }}$ |  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Port Said............................. ${ }^{\text {C }}$ |  |  | 1 |  | 3 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Greece ${ }^{\text {1 }}$.................................................. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Japan ${ }^{1}$-1..........-....... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ireland (Irish Free State): <br> Cork County |  |  |  |  | 3 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lithuania 1..... |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


${ }^{1}$ See 10 -day and monthly table below.
CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued
TYPHUS FEVER-Continued

| Place | July- Sep- tember, 1927 | October, 1927 | $\begin{aligned} & \text { No- } \\ & \text { Nem- } \\ & \text { ber, } \\ & 1927 \end{aligned}$ | $\begin{aligned} & \text { De- } \\ & \text { cem- } \\ & \text { her, } \\ & \text { 1927 } \end{aligned}$ | January, 1928 | February, 1928 | Place | $\begin{gathered} \text { July- } \\ \text { Sep- } \\ \text { tember, } \\ 1927 \end{gathered}$ | October, 1927 | No-vember, 1927 | De-cember, 1927 | January, 1928 | February, 1928 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Argentina: Rosario................. C |  |  | 1 |  |  |  | Lithuania........................... ${ }^{\text {C }}$ | 69 | 9 | 18 | 27 | 86 | 137 |
|  |  |  |  | 1 | 1 |  |  | 14 | 1 | 1 | 1 | 10 | 12 |
| China: Shanghai.................. D |  |  | 1 |  |  |  | Mexico...-......-...................- D | 64 | 36 | 29 |  |  |  |
| Chosen...............................- ${ }^{\text {C }}$ |  | 16 1 | ${ }_{2}^{26}$ | 38 3 |  | 400 44 |  |  |  |  |  |  |  |
| Chemulpo.................... ${ }_{\text {C }}^{\text {D }}$ | 8 3 | 1 | 2 | 3 | 19 | 44 |  | 3 8 | 2 |  | 1 | 2 |  |
| Gensan-........................- | 2 |  |  |  | 1 |  | U. S. S. R.: |  |  |  |  |  |  |
| Seoul ${ }_{\text {d }}^{\mathbf{D}}$ |  |  |  |  | 1 |  | Railways, etc.---7.-......- ${ }^{\text {C }}$ | 77 | 23 | 33 | 46 | 41 | --..---- |
| Seoul............................- d $_{\text {C }}^{\text {D }}$ | 5 1 | 2 |  |  |  |  | Transcaucasus, Siberia, and Central Asia. C | 208 | 61 | 49 | 80 | 7 |  |
| Czechoslovakia-.................... ${ }^{\text {C }}$ | 12 | 1 |  | 6 |  |  | Ukraine...-.................... | 295 | 151 | 198 | 282 | 533 |  |
| Greece: Athens......................... | 3 |  |  | 1 | 2 | 2 | Other territories in Europe... O | 1,839 | 521 |  | 1,403 |  |  |
| Japan...............................- ${ }_{\text {C }}$ | 6 |  | 1 |  |  |  | Yugoslavia......................... | 20 | , | 1 |  | 7 |  |
| Lat via............................... $\mathbf{C}$ | 6 |  |  |  |  | 1 | D | 5 |  |  |  | 3 |  |



${ }^{1}$ See monthly table below.


[^0]:    ${ }^{1}$ From the Office of Statistical Investigations, United States 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 Nö. 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 Ilness and Death. Pab. Health Rep., vol. 42, No. 25, June 24, 1927. Reprint No. 1167.
    VI. The Mlness 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 Repts., vol. 43, No. -.

[^1]:    ${ }^{3}$ Per cent of persons observed for specified number of months in the Hagerstown morbidity study

[^2]:    ${ }^{1}$ Including unknown ages.

[^3]:    ${ }^{6}$ The chronological variations in the incidence of illness from various causes will be presented in some detail in a later paper.

[^4]:    6 Collins (1) reported the following:
    Sickness resulting in absence from school due to "headache and neuralgia" as reported by child or parent, in urhite sckools, Hagerstown, Md., December, 1921-Mfay, 19\%5

    | Age | Annual a <br> rate per 1,000 | Age | Annual a rate per 1,000 |
    | :---: | :---: | :---: | :---: |
    | 6. | 142 | 12. | 402 |
    | 7. | 196 |  | 38. |
    | 8. | 255 | 14. | 377 |
    |  | 296 | 15-7 | 357 |
    | 10 | 321 | 16-18. | 267 |
    |  | 318 |  |  |

    - Per school year of $\mathbf{1 8 0}$ days

[^5]:    "Backache" may be regarded as a symptom of any of several causes or as an indeterminate name for lumbago. The "diseases of the bones" were too few to classify separately.

[^6]:    - Rate per 1,000 children per school year of 180 schocl days.

[^7]:    ${ }^{7}$ A study based on semimonthly reports from a group of medical officers of the Army, Navy, and Public Health Service and members of several college faculties upon the incidence of respiratory attacks among themselves and members of their families showed a rate of 2.009 per 1,000 during 1924 (3). A similar study for several thousand college students reporting upon themselves showed a rate of 2,877 per 1,000 during the period June 1, 1924-May 30, 1925.

[^8]:    ${ }^{8}$ The epidemiological and etiological evidence bearing on this point is presented and discussed in detail by Collins (4) in his monograph "An Epidemiological and Statistical Study of Tonsillitis, Including Related Throat Conditions." The Hagerstown data will be considered in greater detail in a review of the morbidity records from all sources bearing on respiratory attacks, which is in preparation.

[^9]:    - The stillbirth ratio for whites in the birth registration area was 3.8 per 100 live births in 1925 and for whites in Maryland was 5.8.

[^10]:    Annual rate per 1,000 population.
    ${ }_{2}$ Deaths under 1 year per 1,000 births. Cities left blark are not in the registration area for births.

    - Data for 65 cities.
    - Deaths for week ended Friday, Apr. 27, 1928.
    - 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; Indianapclis, 11; Kansas City, Kans., 14; Knoxrille, 15; Memphis, 38 ; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

[^11]:    ${ }^{1}$ Including alastrim.

[^12]:    ${ }_{2}$ 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; Liwa, 79 cases, 60 deaths; Kut Liwa, 66 cases, 44 deaths; Muntafiq Liwa, 244 cases, 151 deaths.

