Public Health Reports

Vol. 55 • MAY 17, 1940 • *No. 20*

DURATION OF ILLNESS FROM SPECIFIC DISEASES AMONG 9,000 FAMILIES, BASED ON NATION-WIDE PERIODIC CANVASSES, 1928-31 [1]

By SELWYN D. COLLINS, *Principal Statistician, United States Public Health Service*

CONTENTS

Mortality statistics consider only numbers of deaths without regard to duration of the illness that preceded death. The fatal outcome of the case marks it as belonging to the most severe category whether death came without preceding illness, as in an accident, or whether it came only after a prolonged period of confinement to bed, as with some chronic diseases.

Morbidity statistics, on the other hand, must consider more than the number of cases, for illnesses vary so greatly in severity that a count of cases does not indicate the magnitude of the sickness problem. The durations of illness in terms of the total days that the symptoms lasted, the days of inability to work or pursue other usual activities, and the days confined to bed are important supplements to case rates which help to indicate the extent of illness from all causes and from given diseases.

Durations of illness as recorded in sickness surveys are not precise. The informant frequently can give only approximations which tend

[1] From Statistical Investigations, Division of Public Health Methods, National Institute of Health.

This is the fifteenth of a series of papers on sickness and medical care in this group of families (*1-14*). The survey of these families was organized and conducted by the Committee on the Costs of Medical Care; the tabulation was done under a cooperative arrangement between the Committee and the Public Health Service. Committee publications based on the results deal primarily with costs and Public Health Service publications primarily with the incidence of illness and the extent and kind of medical care, without regard to cost. As costs are meaningless without some knowledge of the extent and nature of the service received, there is inevitably some overlapping. The committee staff, particularly Dr. I. S. Falk and Miss Margaret Klem, cooperated in the tabulation of the data.

Special thanks are due to Dr. Mary Gover, who assisted in the analysis; to Mrs. Lily Vanzee Welch, who was in immediate charge of tabulating the data; and to other members of the statistical staff of the Public Health Service for advice and assistance in the preparation of the study.

to be stated in such round numbers as 3, 5, 7, or 10 days, as 1, 2, or 3 weeks, and often in months only. However, such approximations may yield reasonably good average durations and it may also be worth tabulating distributions of cases according to duration if the class intervals are arranged so that the round numbers most frequently used in reporting are at or near the midpoints of the classes.

I. SOURCE AND CHARACTER OF DATA

In the study of illness in a group of families in 18 States [2] that was made by the Committee on the Costs of Medical Care (*16*) and the United States Public Health Service, the record for each illness included 3 types of duration within the 12-month study period: (*a*) Total duration of symptoms (days sick), (*b*) days of inability to work or pursue other usual activities (disability), and (*c*) days confined to bed. These records of duration afford data for computing days of the various kinds per case of illness. A preceding paper (*14*) was devoted to days of sickness per 1,000 population.

The composition and characteristics of the group of 8,758 families which were kept under observation for 12 consecutive months in the years 1928–31 have been considered in some detail in the first report in the series (*1*). These families, including a total of 39,185 individuals, resided in 130 localities in 18 States representing all geographic sections. Every size of community was included, from metropolitan districts to small industrial and agricultural towns and rural unincorporated areas.[3] With respect to income, the distribution was reasonably similar to the estimated distribution of the general population of the United States at the time of the survey.

Each family was visited at intervals of 2 to 4 months for a period long enough to obtain a sickness record for 12 consecutive months. On the first call a record was made of the number of members of the household, together with sex, age, and other facts about each person. On succeeding visits the canvasser recorded all illness that had occurred since the preceding call, with such pertinent facts about each case as the date of onset, the total duration of symptoms, the days of disability, and the days of confinement to bed. Data about cases that were still sick at the preceding visit were brought up to date and when completed the termination was entered.

Definition of illness as recorded in survey.—An illness, for the purpose of this study, was defined as any symptom, disorder, or affection which

[2] The 18 States sampled and the number of canvassed families were as follows: California (890), Colorado (386), Connecticut (100), District of Columbia (99), Georgia (544), Illinois (463), Indiana (494), Kansas (301), Massachusetts (287), Michigan (329), Minnesota (224), New York (1,710), Ohio (1,148), Tennessee (212), Virginia (412), Washington (551), West Virginia (318), Wisconsin (290). Further details about the distribution of the canvassed population are included in a preceding paper (*1*).

[3] Every community that was included in the study had either a local health department or some other organization employing a visiting nurse or both; therefore, the most rural areas with no organized community services are not represented.

persisted for 1 or more days or for which medical service [4] was received or medicine purchased. Illness included the results of both disease and injury. What was actually included as illness, however, was necessarily influenced not only by the informant's (usually the housewife's) conception of sickness, but also by her memory. With visits as infrequent as 2 to 4 months, it was inevitable that many of the nondisabling illnesses would be terminated and forgotten before the next visit of the enumerator. However, if the record includes most of the real illnesses and excludes only the minor disorders, it may be as useful as a more complete one.

No special inquiry was made about mental defectives at home or about persons away from the family throughout the year in such resident institutions as hospitals for the insane, mental defective, or tuberculous; however, a few such cases were recorded.[5] Physical impairments such as blindness and lost and impaired limbs were not included as sickness unless the defect was treated or otherwise involved some status other than the mere presence of an impairment. These various factors made for a minimum of recorded cases that were sick, disabling, in bed, or in a hospital throughout the year of the study.[6] While such cases are always rare as compared with short illnesses, they have an important influence on the days of sickness, of disability, and of time in bed per case.[7]

Classification of causes of illness.—In the present study of 8,758 households visited periodically, the diagnosis as reported by the family informant was submitted to the attending physician for confirmation or correction and his diagnosis substituted for the one

[4] Exclusive of dental services, eye refractions, immunizations, and health examinations rendered when no symptoms were present.

[5] A total of 16 cases of all diagnoses were recorded as being in a hospital throughout the year of the study; 6 of these cases were nervous and mental, 8 tuberculous, and 2 orthopedic, of which 1 was of congenital origin and was complicated by mental defect.

[6] The numbers of illnesses from all causes (sole or primary diagnosis) that lasted throughout the study year were:

Type of case and of duration	Total cases of each type	Cases with 350 or more days of duration of the specified type during year	
		Number	Percent
All cases	32,752	1,551	4.74
Nondisabling	12,865	1,018	7.91
Disabling	19,887	116	.58
Bed	16,728	42	.25

The total of 1,551 cases with symptoms lasting 350 or more days during the year includes 417 cases that were disabling from 1 to 349 days.

Of the cases with diagnoses that are commonly considered as chronic, more than one-fourth were reported as sick 350 or more days during the year; and of the nondisabling cases of this "chronic" category, about one-third were so recorded. The cases that were disabling for 350 or more days constituted only about 5 percent of all "chronic" cases that disabled for 1 or more days; and the cases in bed for 350 or more days constituted only about 2 percent of all "chronic" cases that were in bed for 1 or more days.

[7] For a discussion of institutional cases and days in relation to sickness surveys, see preceding paper (*14*).

reported by the family. While not all cases were attended and reports could not be obtained from all attending physicians, the replies indicated that the housewife usually reported with reasonable accuracy the diagnosis which the physician had given to the family.[8]

Considering an illness in the sense of a continuous period of sickness, only 4.3 percent were designated as due to more than one cause. In general, the more important or more serious cause was assigned as primary, except where a disease like pneumonia is commonly recognized as following measles or influenza, in which case the antecedent condition was taken as primary.[9] In this series of papers, illness rates for all causes and for broad disease groups are based on sole or primary diagnoses only, but in computing the incidence of specific diseases, such as pneumonia, appendicitis, and whooping cough, all cases with the given diagnosis are counted whether it was the sole, primary, or contributory cause of the illness. However, it was found that the average duration per case of a given disease was almost always higher when there was a complicating diagnosis. Therefore, average days per case are computed in this paper for: (*a*) Illnesses with only one cause, designated as "sole diagnosis," and (*b*) illnesses with two or more diagnoses, designated as "complicated." This latter category includes all illnesses in which a given diagnosis was present, whether it was coded as the primary or as a contributory cause of the illness.

Methods of recording and computing duration.—The duration refers in all instances to the days *within the 12-month study period;* thus the maximum duration of any type is 365 days. In computing average days sick, disabled, or in bed per case, both complete and incomplete cases are included as cases but the days refer to those within the study year only. The incomplete cases (those with prior onset and those still sick at the last report) usually average considerably longer durations than the complete cases and an average which excluded them from the computation would be biased toward shorter cases. The only date of onset recorded was the onset of symptoms (nondisabling or disabling) of this attack. Thus for disabling and bed cases, prior onset does not necessarily mean that disability or confinement to bed began prior to the study year. Considering all diagnoses, 7 percent were recorded with onset of symptoms prior to the study year. The other 93 percent were recorded with the onset within the year;

[8] See comparison of diagnoses reported by families and by physicians in the Health Survey of 1935–36 (*18*, table 2).

[9] Further details on the method of classifying the causes of illness are included in the first report in the series (*1*).

however, this would not always mean, even for a chronic disease, that the individual never suffered previous attacks of symptoms of the disease.

For diagnosis categories commonly considered as consisting almost exclusively of chronic diseases, 33 percent had a prior onset, as compared with 3 percent for other (acute) cases. A preceding paper shows for detailed diagnoses the number of cases with prior onset (*1*). The percentages of cases still sick at the last report are of the same order of magnitude as those for prior onset.[10]

Durations usually represent specific attacks, even for chronic diseases. For example, a cardiac patient may have had the disease for 5 years, may have entered the study in reasonable health for such a person, and have had within the period an attack which lasted 2 weeks. Such a case was tabulated as having a duration of 2 weeks rather than a duration throughout the year. There were relatively

[10] The percentage of cases with onset of symptoms prior to the study year and the percentage that were incomplete for any reason varied with type of case and for sole, primary, and contributory diagnoses. In the following table "chronic" cases refer to diagnosis categories commonly considered as consisting almost exclusively of chronic diseases:

Type of case	Sole, primary, and contributory diagnoses			Sole and primary diagnoses			Contributory diagnoses		
	Total	Acute	Chronic	Total	Acute	Chronic	Total	Acute	Chronic
	Percentage of cases with onset of symptoms (nondisabling or disabling) prior to study year								
Total	7.1	3.2	32.9	6.6	2.9	32.5	18.2	9.5	36.7
Nondisabling	10.5	4.8	37.6	10.0	4.6	36.7	27.0	13.4	51.0
Disabling	5.0	2.2	28.2	4.4	2.0	27.7	15.2	8.2	30.9
Bed	4.8	2.1	27.5	4.2	1.8	26.9	15.0	7.8	30.8
	Percentage of cases with incomplete durations because of prior onset, still sick on last report, or both								
Total	9.7	4.6	43.2	9.0	4.3	42.6	25.1	14.0	48.5
Nondisabling	13.9	6.7	48.5	13.2	6.4	47.4	35.9	19.0	65.7
Disabling	7.1	3.4	37.8	6.3	3.0	37.2	21.3	12.3	41.4
Bed	6.9	3.2	36.9	6.0	2.8	36.2	20.8	12.0	40.3

Prior onset does not necessarily mean that onset of disability or confinement to bed was prior to the study year, and still sick does not necessarily mean still disabled or in bed. Last report on case is not always at end of year; some cases were incomplete because the record was left unfinished rather than because the patient was still sick at the end of the study.

TABLE 1.—*Mean durations of various types within the year of observation* [1] *for illnesses classified into broad groups of causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*

Disease group and whether sole cause or primary of 2 or more diagnoses [2]	Total case rate per 1,000 population during year		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
	Adjusted [3]	Crude		Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed: Per total case	Mean days in bed: Per bed case	Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability [4]: Per total case	Mean days of disability [4]: Per disabling case		
All causes:													
Sole or primary	822.5	849.7	32,752	16,728	51.1	4.3	8.5	19,887	60.7	8.7	14.3	31	14,310
Sole	-----	-----	31,344	15,810	50.4	3.9	7.8	18,853	60.1	7.9	13.2	39	13,598
Complicated	-----	-----	2,942	1,938	65.9	14.6	22.1	2,174	73.9	26.2	35.4	76	1,489
Minor respiratory diseases (11 pt. 97, 98, 99, pt. 107, pt. 109):													
Sole or primary	277.5	294.1	11,336	6,691	59.0	2.6	4.4	7,587	66.9	4.6	6.9	10	5,414
Sole	-----	-----	10,835	6,396	59.0	2.5	4.3	7,239	66.8	4.4	6.6	10	5,188
Complicated	-----	-----	618	385	62.3	5.0	8.0	447	72.3	10.0	13.9	23	284
Other respiratory diseases (31, pt. 97, 100–106, pt. 107, pt. 109):													
Sole or primary	51.0	54.3	2,091	1,508	72.1	9.2	12.8	1,607	76.9	17.0	22.1	45	949
Sole	-----	-----	1,981	1,412	71.3	8.6	12.1	1,510	76.2	16.0	21.0	44	889
Complicated	-----	-----	274	237	86.5	22.3	25.8	246	89.8	37.1	41.3	74	162
Minor digestive diseases (15, pt. 16, 112–114):													
Sole or primary	57.1	60.3	2,323	1,139	49.0	1.7	3.5	1,303	56.1	3.4	6.1	17	769
Sole	-----	-----	2,253	1,109	49.2	1.7	3.4	1,269	56.3	3.1	5.5	15	749
Complicated	-----	-----	184	89	48.4	4.3	8.9	108	58.7	10.8	18.5	56	67
Other digestive diseases (pt. 108, 110, 111, 115–127):													
Sole or primary	28.9	26.7	1,031	621	60.2	8.5	14.1	679	65.9	15.4	23.4	63	569
Sole	-----	-----	944	560	59.3	6.7	11.3	612	64.8	12.9	19.9	59	513
Complicated	-----	-----	160	114	71.3	24.2	34.0	120	75.0	38.9	51.8	95	94
Communicable diseases (1–10, 12–14, pt. 16, 17–30, 32–42):													
Sole or primary	71.4	95.2	3,671	2,241	61.0	4.6	7.5	2,826	77.0	13.8	18.0	23	1,889
Sole	-----	-----	3,537	2,135	60.4	4.4	7.2	2,708	76.6	13.3	17.4	22	1,821
Complicated	-----	-----	190	151	79.5	12.6	15.8	171	90.0	30.9	34.3	49	103

[1] Cases with onset prior to the study and those still sick on the last visit are included along with completed cases, but only for the days of the respective kinds of duration that came within the year of observation. Average durations tend to be greater for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit. Prior onset of illness does not necessarily mean prior onset of disability or of confinement to bed.

[2] A case is considered as complicated if another diagnosis is reported as occurring simultaneously with or as overlapping the period of sickness from the diagnosis listed regardless of which diagnosis was classified as the primary cause of the illness. The complication may have a definite relationship to the other diagnosis (as in measles and pneumonia), or be apparently unrelated (as in measles and chickenpox). The numbers in parentheses following the names of the diseases are those used in the International List of the Causes of Death, 1920 revision.

[3] Adjusted by the *direct* method to the age distribution of the white population of the death registration States in 1930 as a standard population; this population is given for specific ages in table 1 of a preceding paper (4). The adjustment method involves the weighting of the age specific rates for the canvassed population according to the age distribution of the standard population. The details of the process are given under the heading of "corrected death rates" in Pearl (17), pp. 269–271.

[4] Disability refers to inability to work, attend school, care for home, or pursue other usual activities, regardless of employment status and age.

In computing mean days of disability, disabling cases with an unknown number of days of disability were put in at an average based on cases of the same diagnosis group with known days of disability, exclusive of the few cases that disabled throughout the year of observation. The numbers of disabling cases with unknown days of disability were large; the numbers of disabling cases with known days of disability are shown in the last column of the table.

Bed cases with an unknown number of days in bed and cases with an unknown total duration of symptoms were handled in the same way, but the numbers of such cases were small.

Although the days of disability were coded in only broad class intervals, a hand tabulation was made for all the longer cases and their exact value used in computing the mean. Duration in bed was entered in days and weeks up to the whole year of observation and the means computed from summated days rather than from the distribution shown in table 4. Total duration was coded in broad class intervals but correct means for the broader classes were determined by a hand tabulation of a considerable sample of the cases with longer durations.

TABLE 1.—*Mean durations of various types within the year of observation for illnesses classified into broad groups of causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience*—Continued

Disease group and whether sole cause or primary of 2 or more diagnoses	Total case rate per 1,000 population during year		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
				Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed		Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability			
	Adjusted	Crude				Per total case	Per bed case			Per total case	Per disabling case		
Ear and mastoid diseases (86):													
Sole or primary	16.3	18.8	723	281	38.9	2.4	6.2	366	50.6	7.0	13.8	25	222
Sole	-----	-----	695	264	38.0	2.3	6.2	345	49.6	6.2	12.5	24	209
Complicated	-----	-----	212	139	65.6	6.3	9.6	154	72.6	12.6	17.3	26	87
Nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis (70–73, 76–81, 84):													
Sole or primary	14.1	12.9	499	201	40.3	13.8	34.3	241	48.3	23.6	48.9	96	173
Sole	-----	-----	478	185	38.7	12.2	31.5	225	47.1	21.9	46.6	95	163
Complicated	-----	-----	78	52	66.7	40.3	60.5	55	70.5	55.4	78.6	129	34
Rheumatism and related diseases (51, 52, 82, pt. 158):													
Sole or primary	25.8	20.7	797	326	40.9	5.2	12.7	403	50.6	10.3	20.3	70	349
Sole	-----	-----	769	309	40.2	4.9	12.1	384	49.9	9.3	18.6	67	333
Complicated	-----	-----	106	59	55.7	14.3	25.7	67	63.2	36.7	58.1	131	51
Degenerative diseases (43–50, 57, 74, 75, 83, 87–92, pt. 93, pt. 96, 128, 129, 130, pt. 131, 132, pt. 133, 135):													
Sole or primary	43.0	31.6	1,218	541	44.4	12.3	27.8	633	52.0	23.1	44.4	119	487
Sole	-----	-----	1,020	410	40.2	9.6	23.8	485	47.5	17.7	37.3	109	383
Complicated	-----	-----	410	284	69.3	25.5	36.9	320	78.0	43.6	55.8	148	235
Skin diseases (151–154, pt. 205):													
Sole or primary	33.2	34.8	1,341	176	13.1	1.0	7.4	381	28.4	4.2	14.7	39	316
Sole	-----	-----	1,329	173	13.0	1.0	7.3	374	28.1	4.1	14.7	39	309
Complicated	-----	-----	66	29	43.9	8.5	19.3	44	66.7	19.7	29.6	75	32
Female genital and puerperal diagnoses (137–150):													
Sole or primary	[1]82.3	[1]78.5	1,540	1,217	79.0	9.3	11.7	1,241	80.6	13.9	17.2	43	1,103
Sole	-----	-----	1,445	1,141	79.0	8.7	11.0	1,165	80.6	12.6	15.6	38	1,033
Complicated	-----	-----	197	153	77.7	18.0	23.1	154	78.2	33.0	42.2	115	140
Accidental injuries (pt. 85, 165–203):													
Sole or primary	73.7	74.7	2,880	866	30.1	2.9	9.8	1,387	48.2	7.8	16.3	19	1,170
Sole	-----	-----	2,837	833	29.4	2.7	9.2	1,349	47.6	7.5	15.8	18	1,143
Complicated	-----	-----	52	38	73.1	21.1	28.8	46	88.5	30.3	34.3	51	34
All other diseases (53–56, 58–69, 85, pt. 93, 94, 95, pt. 96, pt. 108, pt. 131, pt. 133, 134, 136, 155–157, pt. 158, 159–164, 204, 205):													
Sole or primary	85.8	85.7	3,302	920	27.9	3.6	12.9	1,233	37.3	5.6	15.1	53	900
Sole	-----	-----	3,221	883	27.4	3.3	11.9	1,188	36.9	5.3	14.3	51	865
Complicated	-----	-----	395	208	52.7	12.5	23.8	242	61.3	21.5	35.0	83	166

[1] Rates for female genital and puerperal diagnoses in the table are expressed as cases per *1,000 females;* rates per 1,000 total population are: Adjusted, 44.8; crude, 39.9.

few instances of second or later attacks [11] of the same disease within the study year. This is partly explained by the following: (*a*) Visits made at intervals of 2 to 4 months miss many of the mild nondisabling respiratory attacks that are given so frequently in weekly and bimonthly (*15*) reports, (*b*) many attacks of nondisabling chronic diseases in this study represent year-long durations of symptoms, (*c*) an attack may not represent a continuous period of disability; if symptoms were continuous it was counted as one attack even when disability was intermittent.

Bed cases with an unknown number of days in bed were put in at an average based on bed cases of the same diagnosis; disability and total duration were handled in a similar way. The numbers of cases with unknown durations were small except for disability among children and others not gainfully employed. In a few instances it was unknown whether the patient was confined to bed and such cases were counted as not in bed; similarly, cases in which it was unknown whether the patient was disabled were counted as not disabled. A day in a hospital was always counted as a day in bed regardless of whether the patient actually remained in bed. Mean durations for days in bed were computed from a tabulation of durations in actual days up to 45 and in weeks throughout the remainder of the 12 months. Mean durations for days of disability were computed from grouped data with a supplementary hand tabulation of actual durations of all cases in the broader class intervals. Mean total durations of symptoms were computed from grouped data, but centering points or averages for the broader class intervals were determined by a tabulation of a sample of cases in those classes. In all instances the cases with a full year's duration were used as a separate class and included at their actual value in computing average durations.

II. MEAN DURATIONS OF VARIOUS TYPES FOR ILLNESSES FROM SPECIFIC CAUSES

A considerable mass of data has been published on such epidemiological facts as the age incidence of various diseases. The important epidemiological facts about the durations of illnesses have not received equal attention. Table 1 shows average durations for each of the

[11] Out of a total of 34,287 diagnoses (sole, primary, or contributory), 1,470, or 4.3 percent, were second or later attacks of the same disease in the same individual. These 1,470 second or later attacks represent 1,323 instances of individuals having 2 or more attacks of the same disease during the year, or a total of 2,793 attacks for such persons; the other 31,494 attacks represent the only case of the given diagnosis for an individual during the year. Many of these second or later attacks were of the minor respiratory diseases; if the computation is limited to diagnosis categories commonly considered as chronic diseases, only about 2 percent of the "chronic" diagnoses represent second or later attacks of the same disease in the same individual within the study year. Thus it is seen that the method adopted in this study of counting *attacks* of chronic diseases has not materially changed the picture that would have been obtained by consolidating into a single chronic case all of an individual's attacks of the same chronic diagnosis.

TABLE 2.—*Mean durations of various types within the year of observation [1] for illnesses from specific [2] causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*

Disease and whether sole diagnosis or complicated by another disease [3]	Total case rate per 1,000 population during year (sole, primary or contributory)		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
				Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed		Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability [5]			
	Adjusted [4]	Crude				Per total case	Per bed case			Per total case	Per disabling case		
Minor respiratory diseases:													
Influenza and grippe (11)	84.06	86.1	3,320										
Sole			3,152	2,668	84.6	4.3	5.1	2,799	88.8	7.3	8.2	10	2,063
Complicated			168	142	84.5	8.9	10.5	151	89.9	16.6	18.4	32	102
Bronchitis and chest colds (99)	45.64	48.9	1,883										
Sole			1,801	1,066	59.2	2.6	4.3	1,190	66.1	4.6	7.0	12	771
Complicated			82	48	58.5	5.4	9.2	57	69.5	10.3	14.8	35	27
Coryza and colds, unqualified (pt. 97, pt. 107)	100.14	107.3	4,134										
Sole			3,906	1,532	39.2	1.2	2.9	1,940	49.7	2.3	4.5	8	1,390
Complicated			228	102	44.7	1.8	4.0	133	58.3	5.8	10.0	13	89
Cough (pt. 107)	2.26	2.7	104										
Sole			100	23	23.0	.9	4.1	37	37.0	3.7	10.1	19	28
Tonsillitis (pt. 109)	20.48	23.3	897										
Sole			841	640	76.1	2.8	3.7	699	83.1	4.8	5.8	7	506
Complicated			56	45	80.4	6.7	8.4	46	82.1	11.5	14.0	18	26
Quinsy (pt. 109)	1.96	1.8	70										
Sole			66	50	75.8	5.0	6.6	56	84.8	10.0	11.8	13	52
Sore throat (pt. 109)	16.68	17.0	656										
Sole			621	231	37.2	1.3	3.5	305	49.1	2.4	5.0	9	239
Complicated			35	18	51.4	2.7	5.3	27	77.1	6.8	8.9	12	20
Other pharynx and tonsil affections, except tonsillectomy (pt. 109)	4.11	4.5	173										
Sole			138	76	55.1	2.8	5.2	84	60.9	5.1	8.4	20	67
Complicated			35	19	54.3	5.7	10.6	21	60.0	8.7	14.5	33	11
Laryngitis (pt. 98)	2.96	2.8	109										
Sole			104	49	47.1	1.7	3.7	56	53.8	3.3	6.1	13	41
Croup (pt. 98)	1.92	2.9	112										
Sole			110	61	55.5	1.6	3.0	73	66.4	3.1	4.7	6	32
Other respiratory diseases:													
Tonsillectomy and adenoidectomy (pt. 109)	17.97	21.8	841										
Sole			791	770	97.3	3.1	3.2	774	97.9	8.1	8.3	8	371
Complicated			50	48	96.0	12.9	13.4	49	98.0	27.3	27.9	42	34
Pneumonia, all forms (100, 101)	7.31	8.2	316										
Sole			239	239	100.0	15.5	15.5	239	100.0	24.0	24.0	24	118
Complicated			77	77	100.0	31.8	31.8	77	100.0	44.0	44.0	45	40
Sinusitis (pt. 97)	10.85	10.3	395										
Sole			340	116	34.1	2.0	5.8	156	45.9	5.1	11.1	46	136
Complicated			55	39	70.9	10.7	15.1	42	76.4	21.6	28.3	91	34
Vincent's angina (pt. 109)	1.14	1.0	40										
Sole			38	10	26.3	1.5	5.8	14	36.8	3.9	10.6	50	11
Asthma (105)	4.19	3.9	150										
Sole			131	57	43.5	4.0	9.2	72	55.0	8.3	15.1	116	56
Complicated			19	14	73.7	28.5	38.7	15	78.9	(7)	(7)	134	9
Hay fever (pt. 107)	2.08	2.0	76										
Sole			75	6	8.0	(8)	(8)	8	10.7	(7)	(7)	73	8
Pleurisy (102)	3.48	3.0	114										
Sole			85	67	78.8	7.2	9.1	76	89.4	12.6	14.1	20	66
Complicated			29	27	93.1	22.4	24.0	28	96.6	32.9	34.0	50	25
Respiratory tuberculosis (pt. 31)	2.91	2.7	105										
Sole			92	60	65.2	88.2	135.2	68	73.9	142.4	192.7	247	53
Complicated			13	10	76.9	69.2	90.0	10	76.9	(7)	(7)	241	7
Suspected respiratory tuberculosis (pt. 31)	1.16	1.2	47										
Sole			39	12	30.8	(6)	(6)	15	38.5	22.0	57.2	148	12

See footnotes at end of table.

TABLE 2.—*Mean durations of various types within the year of observation for illnesses from specific causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*—Continued

Disease and whether sole diagnosis or complicated by another disease	Total case rate per 1,000 population during year (sole, primary or contributory)		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
				Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed		Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability			
	Adjusted	Crude				Per total case	Per bed case			Per total case	Per disabling case		
Minor digestive diseases:													
Indigestion, upset stomach, and nausea (pt. 112)	31.00	31.8	1,226										
Sole			1,135	546	48.1	1.3	2.6	642	56.6	3.0	5.2	11	407
Complicated			91	39	42.9	3.8	8.9	48	52.7	11.2	21.3	37	37
Biliousness (pt. 112)	3.78	3.8	145										
Sole			138	91	65.9	1.5	2.3	101	73.2	2.6	3.5	6	77
Other and ill-defined stomach diseases (pt. 112)	6.23	6.2	238										
Sole			208	64	30.8	2.5	8.0	88	42.3	4.7	11.0	53	53
Complicated			30	10	33.3	(5)	(5)	15	50.0	11.5	23.1	147	10
Diarrhea and enteritis (15, pt. 16, 113, 114)	18.92	21.5	829										
Sole			773	408	52.8	2.1	3.9	440	56.9	3.9	6.8	13	214
Complicated			56	34	60.7	6.1	10.1	38	67.9	12.3	18.2	44	17
Other digestive diseases:													
Ulcers of stomach and duodenum (111)	2.27	2.0	76										
Sole			70	32	45.7	6.9	15.2	41	58.6	19.1	32.6	154	38
Intestinal parasites, except hookworm (116)	.79	1.1	43										
Sole			41	8	19.5	(5)	(5)	11	26.8	(7)	(7)	32	7
Appendicitis (117)	9.62	9.1	352										
Sole			291	250	85.9	10.5	12.2	257	88.3	19.3	21.9	29	227
Complicated			61	56	91.8	35.9	39.1	56	91.8	56.0	61.0	88	46
Hernia, intestinal obstruction (118)	3.11	2.7	106										
Sole			89	53	59.6	12.2	20.5	57	64.0	22.9	35.8	107	42
Complicated			17	12	70.6	18.7	26.5	12	70.6	36.7	52.0	110	11
Constipation (pt. 119)	2.61	2.4	92										
Sole			82	13	15.9	.3	2.1	18	22.0	1.3	5.8	102	11
Biliary calculi, cholecystitis (123, pt. 124)	6.10	4.8	185										
Sole			162	110	67.9	7.0	10.3	115	71.0	11.6	16.3	59	97
Complicated			23	14	60.9	19.6	32.1	16	69.6	46.7	67.1	149	12
Other and ill-defined liver diseases (pt. 124)	2.28	2.1	79										
Sole			65	26	40.0	1.3	4.4	36	55.4	3.7	6.6	46	29
Diseases of the mouth except teeth and gums (pt. 108)	1.30	1.6	61										
Sole			55	11	20.0	.8	3.9	14	25.5	1.9	7.6	28	11
Communicable diseases:													
Measles (7)	16.90	24.4	940										
Sole			887	802	90.4	4.9	5.4	827	93.2	9.7	10.4	10	429
Complicated			53	43	81.1	9.5	11.8	46	86.8	22.2	25.5	35	23
German measles (pt. 25)	1.33	1.6	61										
Sole			58	32	55.2	1.6	2.8	47	81.0	4.0	5.0	6	42
Whooping cough (9)	12.87	19.2	739										
Sole			708	117	16.5	.9	5.7	325	45.9	13.7	29.9	39	204
Complicated			31	22	71.0	9.4	13.3	26	83.9	31.3	37.3	55	10
Chickenpox (pt. 25)	10.65	15.5	596										
Sole			578	309	53.5	2.0	3.7	444	76.8	8.7	11.4	13	316
Complicated			18	16	88.9	7.7	8.6	18	100.0	24.5	24.5	25	14
Mumps (13)	9.38	12.1	466										
Sole			446	275	61.7	3.1	5.1	380	85.2	8.9	10.4	12	308
Complicated			20	17	85.0	6.4	7.5	20	100.0	(7)	(7)	15	9
Scarlet fever (8)	4.47	6.0	232										
Sole			215	200	93.0	13.3	14.2	209	97.2	23.8	24.4	31	152
Complicated			15	14	93.3	25.0	26.8	15	100.0	28.3	28.3	29	11

See footnotes at end of table.

TABLE 2.—*Mean durations of various types within the year of observation for illnesses from specific causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*—Continued

Disease and whether sole diagnosis or complicated by another disease	Total case rate per 1,000 population during year (sole, primary or contributory)		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
				Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed		Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability			
	Adjusted	Crude				Per total case	Per bed case			Per total case	Per disabling case		
Communicable diseases—Continued													
Diphtheria (10)	1.45	1.8	70										
Sole			68	67	98.5	11.5	11.7	67	98.5	18.2	18.5	19	45
Smallpox (6)	.40	.4	17										
Sole			17	14	82.4	5.6	6.8	14	82.4	15.3	18.6	19	11
Typhoid fever (1)	.37	.4	15										
Sole			14	14	100.0	28.1	28.1	14	100.0	36.5	36.5	42	10
Malaria (5)	3.31	3.3	129										
Sole			118	95	80.5	4.5	5.6	97	82.2	6.7	8.2	11	76
Complicated			11	10	90.9	13.5	14.9	11	100.0	24.5	24.5	41	10
Erysipelas (21)	.86	.7	26										
Sole			25	21	84.0	8.1	9.7	22	88.0	17.3	19.6	24	19
Tuberculosis, nonrespiratory (32–37)	.67	.8	30										
Sole			23	14	60.9	71.4	117.4	17	73.9	112.0	151.5	235	11
Local and other infections not specified as accidental (41)	5.99	6.1	233										
Sole			219	83	37.9	2.3	6.1	126	57.5	6.5	11.4	19	109
Complicated			14	10	71.4	30.9	43.2	13	92.9	(?)	(?)	67	9
Smallpox vaccination (pt. 42)	1.58	2.0	76										
Sole			76	51	67.1	1.8	2.7	72	94.7	3.6	3.7	9	57
Ear and mastoid diseases:													
Earache (pt. 86)	3.22	4.0	154										
Sole			115	31	27.0	.6	2.2	51	44.3	1.6	3.6	8	34
Complicated			39	16	41.0	2.1	5.1	22	56.4	4.3	7.6	11	14
Otitis media (pt. 86)	10.52	13.4	518										
Sole			390	177	45.4	2.6	5.6	225	57.7	5.6	9.7	19	135
Complicated			128	89	69.5	6.7	9.6	95	74.2	14.4	19.5	30	47
Other ear diseases (pt. 86)	5.01	4.7	183										
Sole			150	20	13.3	.6	4.3	33	22.0	1.7	7.5	37	24
Complicated			33	23	69.7	3.5	5.0	25	75.8	6.7	8.9	17	17
Diseases of mastoid process (pt. 86)	1.14	1.3	52										
Sole			40	36	90.0	11.7	13.1	36	90.0	28.7	31.9	63	16
Complicated			12	12	100.0	23.9	23.9	12	100.0	(?)	(?)	56	9
Nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis:													
Nervousness (pt. 84)	7.39	6.5	249										
Sole			220	54	24.5	1.6	6.7	67	30.5	6.1	19.9	66	61
Complicated			29	12	41.4	6.1	14.8	14	48.3	6.7	13.8	132	11
Neurasthenia, nervous breakdown (pt. 84)	3.79	3.1	118										
Sole			103	55	53.4	6.7	12.5	67	65.0	29.6	45.5	88	56
Complicated			15	11	73.3	12.2	16.6	12	80.0	(?)	(?)	115	8
Convulsions, unqualified (79, 80)	.84	1.3	48										
Sole			40	29	72.5	4.2	5.8	31	77.5	(?)	(?)	16	8
Other nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis (70–73, 76–78, 81, pt. 84)	3.76	3.7	141										
Sole			115	47	40.9	42.4	103.8	60	52.2	54.1	103.7	183	39
Complicated			26	23	88.5	107.4	121.4	23	88.5	146.3	165.4	215	14

See footnotes at end of table.

TABLE 2.—*Mean durations of various types within the year of observation for illnesses from specific causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*—Continued

Disease and whether sole diagnosis or complicated by another disease	Total case rate per 1,000 population during year (sole, primary or contributory)		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
	Adjusted	Crude		Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed: Per total case	Mean days in bed: Per bed case	Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability: Per total case	Mean days of disability: Per disabling case		
Rheumatism and related diseases:													
Acute rheumatic fever (51)	1.12	1.0	38										
Sole			32	27	84.4	21.2	25.1	28	87.5	24.3	27.7	54	27
Chronic rheumatism and arthritis (pt. 52)	6.29	4.5	172										
Sole			141	50	35.5	9.9	27.9	62	44.0	20.8	47.3	190	51
Complicated			31	18	58.1	33.7	58.1	20	64.5	94.7	146.7	240	11
Rheumatism, unqualified (pt. 52)	7.13	5.9	229										
Sole			204	90	44.1	3.5	7.9	106	52.0	6.3	12.2	29	93
Complicated			25	15	60.0	6.7	11.2	17	68.0	17.3	25.4	50	13
Neuralgia and neuritis (82)	8.64	7.0	269										
Sole			235	77	32.8	2.6	8.0	102	43.4	6.2	14.2	58	84
Complicated			34	15	44.1	4.7	10.7	18	52.9	18.4	34.8	142	17
Lumbago (pt. 158)	4.18	3.3	126										
Sole			122	59	48.4	2.5	5.3	79	64.8	5.6	8.7	21	72
Myalgia and myositis (pt. 158)	1.13	1.1	41										
Sole			35	6	17.1	(6)	(6)	7	20.0	(7)	(7)	29	6
Degenerative diseases:													
Cancer, all sites (43–49)	2.15	1.3	52										
Sole			42	28	66.7	37.2	55.8	31	73.8	57.4	77.8	187	23
Benign tumors, except of female organs (50)	3.87	3.3	127										
Sole			114	28	24.6	2.3	9.4	39	34.2	4.0	11.6	43	30
Diabetes (57)	2.52	1.9	72										
Sole			57	22	38.6	14.0	36.4	23	40.4	21.4	53.0	253	19
Complicated			15	10	66.7	26.3	39.4	12	80.0	(7)	(7)	224	6
Diseases of the heart (87–90)	12.58	8.7	336										
Sole			205	103	50.2	10.2	20.2	121	59.0	26.6	45.1	148	95
Complicated			131	92	70.2	31.8	45.3	104	79.4	60.4	76.1	171	76
Arteriosclerosis and high blood pressure (pt. 91, pt. 96)	8.11	4.8	185										
Sole			111	35	31.5	5.9	18.7	37	33.3	8.0	24.1	160	25
Complicated			74	57	77.0	31.3	40.7	57	77.0	36.8	47.8	168	44
Cerebral hemorrhage and paralysis (74, 75)	2.79	1.7	65										
Sole			33	22	66.7	63.5	95.2	24	72.7	95.5	131.4	173	20
Complicated			32	27	84.4	29.7	35.1	29	90.6	68.6	75.7	126	22
Varicose veins or ulcer (pt. 93)	1.91	1.3	51										
Sole			44	10	22.7	5.8	25.5	13	29.5	14.9	50.5	147	13
Nephritis, acute and chronic (128, 129)	3.03	2.1	80										
Sole			47	26	55.3	14.6	26.4	30	63.8	35.5	55.7	91	23
Complicated			33	28	84.8	37.9	44.7	29	87.9	43.7	49.7	111	22
Other and unspecified kidney diseases except pyelitis (pt. 131)	5.43	4.8	184										
Sole			140	50	35.7	2.7	7.6	64	45.7	8.1	17.6	50	50
Complicated			44	22	50.0	6.7	13.4	31	70.5	30.2	42.9	91	25
Cystitis, and calculi of urinary passages (132, pt. 133)	4.96	4.1	158										
Sole			134	60	44.8	2.3	5.1	72	53.7	5.6	10.4	46	63
Complicated			24	12	50.0	14.3	28.5	16	66.7	(7)	(7)	137	8

See footnotes at end of table.

TABLE 2.—*Mean durations of various types within the year of observation for illnesses from specific causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*—Continued

Disease and whether sole diagnosis or complicated by another disease	Total case rate per 1,000 population during year (sole, primary or contributory)		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
	Adjusted	Crude		Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed: Per total case	Mean days in bed: Per bed case	Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability: Per total case	Mean days of disability: Per disabling case		
Degenerative diseases—Con.													
Other diseases of bladder (pt. 133)	1.99	1.9	73										
Sole			64	12	18.7	2.2	11.9	16	25.0	1.6	3.9	71	11
Skin diseases:													
Furuncle (152)	8.33	8.3	319										
Sole			307	52	16.9	.9	5.1	98	31.9	3.6	11.3	21	85
Abscesses and ulcers (153, pt. 154)	3.32	3.3	127										
Sole			116	41	35.3	2.3	6.4	60	51.7	5.5	10.6	24	46
Impetigo (pt. 154)	2.83	3.7	144										
Sole			138	5	3.6	(6)	(6)	37	26.8	3.7	13.7	23	30
Urticaria, hives (pt. 154)	1.64	1.8	69										
Sole			62	19	30.6	1.0	3.4	21	33.9	2.1	6.2	16	18
Scabies (pt. 154)	2.42	2.9	111										
Sole			106	4	3.8	(6)	(6)	43	40.6	7.4	18.3	29	39
Eczema (pt. 154)	3.73	4.1	160										
Sole			154	9	5.8	(6)	(6)	26	16.9	2.6	15.3	111	16
Other and ill-defined skin diseases (151, pt. 154, pt. 205)	12.38	12.1	465										
Sole			446	43	9.6	.9	8.9	89	20.0	2.5	12.7	40	75
Female genital and puerperal diagnoses:													
Cysts and tumors of ovary and uterus (137, 139)	[8] 2.77	[8] 2.3	46										
Sole			33	25	75.8	13.0	17.2	25	75.8	27.3	36.1	112	23
Complicated			13	13	100.0	24.2	24.2	13	100.0	47.2	47.2	113	11
Salpingitis and pelvic abscess (138)	[8] 1.62	[8] 1.6	32										
Sole			17	12	70.6	20.1	28.5	12	70.6	26.9	38.1	95	12
Complicated			15	15	100.0	25.3	25.3	15	100.0	57.8	57.8	85	13
Menstrual disorders (140, pt. 141)	[8] 13.18	[8] 11.8	231										
Sole			212	103	48.6	2.8	5.7	114	53.8	4.2	7.9	46	105
Other and ill-defined nonvenereal diseases of female organs, including chronic results of childbirth (pt. 141, 142, pt. 145, pt. 149)	[8] 16.65	[8] 16.4	322										
Sole			242	91	37.6	4.3	11.5	102	42.1	8.8	21.0	104	79
Complicated			80	48	60.0	13.2	22.0	48	60.0	23.4	39.0	153	45
Acute complications of pregnancy and childbirth (pt. 143, 144, pt. 145, 146–148, pt. 149)	[8] 3.25	[8] 3.2	63										
Sole			37	23	62.2	5.2	8.3	23	62.2	9.2	14.9	41	16
Complicated			26	24	92.3	22.7	24.6	24	92.3	45.0	48.7	72	21
Abortions, miscarriages, and stillbirths (pt. 143)	[8] 7.88	[8] 7.6	149										
Sole			136	133	97.8	10.3	10.5	135	99.3	16.0	16.1	21	121
Complicated			13	13	100.0	21.5	21.5	13	100.0	30.8	30.8	63	13
Live births (pt. 145, pt. 149)	[8] 40.17	[8] 38.8	761										
Sole			735	735	100.0	11.1	11.1	735	100.0	15.2	15.2	15	664
Complicated			26	26	100.0	24.8	24.8	26	100.0	34.6	34.6	49	24
Puerperal diseases of the breast (150)	[8] 2.06	[8] 1.9	38										
Sole			33	19	57.6	3.9	6.8	19	57.6	5.2	8.9	14	13

See footnotes at end of table.

TABLE 2.—*Mean durations of various types within the year of observation for illnesses from specific causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*—Continued

Disease and whether sole diagnosis or complicated by another disease	Total case rate per 1,000 population during year (sole, primary or contributory)		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
				Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed		Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability			
	Adjusted	Crude				Per total case	Per bed case			Per total case	Per disabling case		
Accidental injuries:													
Poisoning by ivy, oak, and other plants (pt. 177)	2.38	2.5	96										
Sole			96	17	17.7	.6	3.6	34	35.4	1.7	4.9	10	28
Other accidental poisonings (175, 176, pt. 177)	2.93	3.1	119										
Sole			117	57	48.7	1.3	2.7	64	54.7	2.1	3.8	7	53
Automobile accidents (pt. 188)	5.23	5.0	191										
Sole			189	135	71.4	8.8	12.3	153	81.0	19.1	23.6	29	132
Accidental burns (179)	3.73	4.0	155										
Sole			152	33	21.7	1.4	6.5	58	38.2	4.0	10.6	13	45
Accidental injuries by cutting or piercing instruments (184)	6.84	7.6	293										
Sole			288	57	19.8	1.1	5.6	106	36.8	4.5	12.1	11	77
Accidental falls (185)	5.41	5.1	197										
Sole			191	62	32.5	2.9	9.1	90	47.1	8.4	17.8	17	70
Eye accidents (pt. 85, pt. 202)	2.95	3.1	118										
Sole			118	17	14.4	.8	5.7	38	32.2	4.3	13.3	10	32
Injuries by animals (189)	1.14	1.4	53										
Sole			51	8	15.7	(6)	(6)	13	25.5	1.6	6.5	7	11
All other accidents (165–174, 178, 180–183, 186, 187, pt. 188, 190–200, 201, pt. 202)	43.36	43.2	1667										
Sole			1635	447	27.3	2.8	10.2	793	48.5	8.1	16.7	21	695
Complicated			32	23	71.9	25.0	34.8	28	87.5	29.8	34.0	51	20
All other diseases:													
Anemia, all forms (58)	4.34	3.8	146										
Sole			114	23	20.2	2.7	13.4	32	28.1	9.0	32.1	138	28
Complicated			32	15	46.9	15.1	32.2	19	59.4	45.5	76.6	148	16
Diseases of thyroid gland (60)	3.81	3.5	134										
Sole			113	30	26.5	4.7	17.6	33	29.2	9.5	32.5	186	26
Acidosis (pt. 69)	1.61	1.8	70										
Sole			62	19	30.6	1.1	3.7	22	35.5	2.2	6.3	24	11
Sty (pt. 85)	1.49	1.7	64										
Sole			61	5	8.2	(6)	(6)	15	24.6	1.2	4.8	18	13
Conjunctivitis, pink-eye, sore eye (pt. 85)	4.66	5.4	208										
Sole			199	14	7.0	.3	3.6	92	46.2	2.9	6.4	12	81
Other eye diseases (pt. 85)	4.93	4.6	176										
Sole			159	25	15.7	2.2	14.1	47	29.6	7.5	25.3	79	41
Hemorrhoids (pt. 93)	3.20	2.9	111										
Sole			100	30	30.0	2.9	9.7	37	37.0	5.2	14.0	55	34
Diseases of lymphatic system (94)	4.60	6.0	232										
Sole			171	87	50.9	3.8	7.5	102	59.6	6.3	10.6	23	57
Complicated			61	38	62.3	6.5	10.4	45	73.8	8.5	11.5	15	29
Diseases of the teeth and gums (pt. 108)	10.67	11.6	448										
Sole			395	64	16.2	.9	5.5	101	25.6	1.3	5.1	15	67
Complicated			53	22	41.5	3.3	7.9	24	45.3	8.2	18.2	12	10
Pyelitis (pt. 131)	2.20	2.4	93										
Sole			81	45	55.6	6.4	11.5	51	63.0	10.2	16.2	45	41
Circumcision (pt. 136)	[9] 3.21	[9] 5.0	95										
Sole			80	58	72.5	2.6	3.5	60	75.0	(7)	(7)	7	3
Complicated			15	15	100.0	6.9	6.9	15	100.0	(7)	(7)	12	8
Diseases of bones and joints, except tuberculosis and rheumatism (155, 156)	2.30	2.1	82										
Sole			73	22	30.1	16.7	55.3	28	38.4	28.5	74.2	137	22

See footnotes at end of table.

TABLE 2.—*Mean durations of various types within the year of observation for illnesses from specific causes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31 (38,544 person-years of experience)*—Continued

Disease and whether sole diagnosis or complicated by another disease	Total case rate per 1,000 population during year (sole, primary or contributory)		Total number of cases	Bed duration				Disabling duration				Total duration of symptoms (mean days sick per case)	Number of disabling cases with known number of days of disability
				Number of cases in bed for 1 or more days	Percent of cases in bed for 1 or more days	Mean days in bed		Number of cases disabling for 1 or more days	Percent of cases disabling for 1 or more days	Mean days of disability			
	Adjusted	Crude				Per total case	Per bed case			Per total case	Per disabling case		
All other diseases—Cont.													
Ill-defined orthopedic conditions and diseases of the organs of locomotion, except lumbago, myalgia and myositis (157, pt. 158, pt. 205)	4.96	4.7	183										
Sole			175	35	20.0	10.8	54.0	55	31.4	21.4	68.1	128	44
Congenital malformations and diseases of early infancy (159–163)	1.43	2.2	84										
Sole			69	36	52.2	17.6	33.6	38	55.1	(7)	(7)	98	6
Complicated			15	14	93.3	59.5	63.7	14	93.3	(7)	(7)	87	8
Foot trouble (pt. 205)	3.13	2.7	104										
Sole			104									11	
Headache (pt. 205)	6.95	6.3	243										
Sole			234	108	46.2	.9	1.9	132	56.4	1.4	2.5	21	122
Backache (pt. 205)	3.20	2.7	106										
Sole			102	21	20.6	.6	2.9	31	30.4	1.1	3.6	32	30
Debility, fatigue, exhaustion, malnutrition, loss of weight (pt. 205)	7.04	6.6	255										
Sole			233	48	20.6	3.2	15.7	63	27.0	4.1	15.0	57	56
Rash, unqualified (pt. 205)	2.18	2.7	106										
Sole			93	23	24.7	.8	3.3	29	31.2	1.5	4.9	13	15

[1] Cases with onset prior to the study and those still sick on the last visit are included along with completed cases, but only for the days of the respective kinds of duration that came within the year of observation. Average durations tend to be longer for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit. Prior onset of illness does not necessarily mean prior onset of disability or of confinement to bed.

[2] The table shows averages for all diagnoses that had 25 or more cases with known duration of symptoms, and for all other diagnoses that had 10 or more bed or 10 or more disabling cases with known days in bed or disabled, respectively. No average is computed for a given type of duration unless it is based on 10 or more cases with known days. No attempt is made to account for residual groups such as "other digestive" or "other communicable," only the fairly specific diagnoses being shown.

[3] A case is considered as complicated if another diagnosis is reported as occurring simultaneously with or as overlapping the period of sickness from the diagnosis listed regardless of which diagnosis was classified as the primary cause of the illness. The complication may have a definite relationship to the other diagnosis (as in measles and pneumonia), or be apparently unrelated (as in measles and chickenpox). The numbers in parentheses following the names of the diseases are those used in the International List of the Causes of Death, 1920 revision.

[4] Adjusted by the direct method to the age distribution of the white population of the death registration States in 1930 as a standard population; this population is given for specific ages in table 1 of a preceding paper (*4*). The adjustment method involves the weighting of the age specific rates for the canvassed population according to the age distribution of the standard population. The details of the process are given under the heading of "corrected death rates" in Pearl (*17*), pp. 269–271.

[5] Disability refers to inability to work, attend school, care for home, or pursue other usual activities, regardless of employment status and age.

In computing mean days of disability, disabling cases with an unknown number of days of disability were put in at an average based on cases of the same diagnosis with known days of disability, exclusive of the few cases that disabled throughout the year of observation. The numbers of disabling cases with unknown days of disability were large; the numbers of disabling cases with known days of disability are shown in the last column of the table.

Bed cases with an unknown number of days in bed and cases with an unknown total duration of symptoms were handled in the same way, but the numbers of such cases were small.

Although the days of disability were coded only in broad class intervals, a hand tabulation was made for all of the longer cases and their exact value used in computing the mean. Duration in bed was entered in days and weeks up to the whole year of observation and the means computed from summated days rather than from the distribution shown in table 4. Total duration was coded in broad class intervals but correct means for the broader classes were determined by a hand tabulation of a considerable sample of the cases with longer durations.

[6] Less than 10 bed cases with known number of days in bed—no mean computed.

[7] Less than 10 disabling cases with known number of days of disability—no mean computed.

[8] Rates for female genital and puerperal diagnoses are expressed as cases per 1,000 females.

[9] Rates for circumcision are expressed as cases per 1,000 males.

13 broad groups of causes used in the preceding paper (*14*); table 2 shows similar average durations for as many specific diagnoses as possible, each specific disease being classified under the broad category to which it belongs. Both tables show the several types of mean duration, i. e., days in bed per total case and per case in bed, days disabled per total case and per disabling case, and the average duration in days of symptoms of any kind. Along with the various mean durations are percentages of cases that were in bed and percentages that were disabling. Data are shown separately for illnesses of sole diagnosis and for those designated as "complicated," in which the given diagnosis was one of two or more causes. Table 2 includes all specific diagnoses with 25 or more cases of known total duration of symptoms and any others with 10 or more cases of known duration in bed or of known duration of disability.

The average duration in bed *within the study year* for the chronic diseases is not so large as one might expect. Considering all illnesses of sole diagnosis from degenerative diseases, 40 percent of the cases were in bed for 1 or more days, with an average of 9.6 days in bed per total case and 23.8 days per bed case. Complicated cases which may frequently represent the later stages of these diseases when various secondary ailments have developed show much higher averages, 25.5 days in bed per total case and 36.9 days in bed per bed case. Considering further the broad diagnosis groups shown in table 1, in terms of bed days per bed case for those with sole diagnosis, the nervous diseases have the longest average duration, 31.5 days,[12] and the minor digestive diseases the shortest average, 3.4 days, with minor respiratory diseases a close second with 4.3 bed days per case in bed. However, in bed days per total case (bed and nonbed), skin diseases (sole diagnosis) have the shortest average duration, 1.0 day per case. In terms of total duration of symptoms there are even greater differences between the diagnoses, the degenerative diseases (sole diagnosis), with an average duration of 109 days, being the longest, and minor respiratory diseases, with an average duration of 10 days, the shortest.

Figure 1 shows case incidence per 1,000 surveyed population for all cases of the given diagnosis, i. e., sole, primary, and contributory. Figure 2 shows mean days in bed *within the study year* per total case of the given diagnosis for illnesses with only one diagnosis. This particular average was selected from the several other types shown in table 2 because it best indicates the severity of the given disease, being affected by the proportion of the total cases that were in bed as well as the duration in bed for that fraction of the cases that went to bed.

[12] The durations for nervous and mental diseases of 31 days in bed (including hospital) per bed case for sole diagnoses, and 60 days in bed for complicated cases both seem short for these diseases. It must be remembered, however, that these data include only a few institutional cases (hospitalized throughout the year) because no inquiry was made about persons more or less permanently away from the family. For further details, see preceding paper (*14*).

Cases of sole diagnosis were selected because their durations more nearly represent the given disease than a duration perhaps prolonged by some other more or less unrelated disease that occurred at the same time. For the acute diseases, the average duration within the year probably represents very nearly the whole duration of the case, because only a small percentage of the durations are incomplete. However, both of these selections tend to understate the durations of the chronic diseases because (*a*) the sole diagnosis cases may represent earlier stages before complications have developed, and (*b*) the duration within the one study year does not adequately represent the duration of the whole case which may extend over several years.

In figure 1 the specific diseases included in each broad group are arrayed according to the case incidence per 1,000; in figure 2 the arrangement within the broad groups is according to the mean duration but the order of the broad classes is the same. The minor respiratory and minor digestive diseases which loom large in frequency nearly all have fairly short durations in bed. The communicable diseases, however, have considerable frequencies and the majority of them have fairly long durations in bed also. The other (major) respiratory and digestive groups contain several diseases of long duration, particularly respiratory tuberculosis and pneumonia in the respiratory group, and hernia, appendicitis, cholecystitis, and ulcer of the stomach in diseases of the digestive tract. The degenerative diseases are not so frequent but mean durations are long, particularly for cerebral hemorrhage and the resulting paralysis, and for cancer, nephritis, diabetes, and heart diseases. The nervous diseases show long durations in bed; it must be recalled in this connection that a day in a hospital is always counted as a day in bed.

More detailed data are shown in table 2. No extended comment on this table is necessary, but a few things might be pointed out: Illnesses with only one diagnosis are almost invariably of shorter average duration than those with the same diagnosis but complicated by another disease. Although the complications are often trivial, they appear to add considerably to the duration of the illness. In some instances the second diagnosis is a true complication, such as measles and pneumonia, or heart disease and nephritis, but in others the simultaneous occurrence of the two diagnoses may be a matter of chance only, as in measles and chickenpox. The consistency of the increased duration wherever there are two or more diagnoses suggests that it is essential in morbidity tabulations involving the duration of illness to take account of complications, whether they represent sequelae, later stages of the disease, or chance occurrences. The small percentages of cases in this general morbidity study that are complicated, as compared with the large percentages of complicated hospital cases and the still larger percentages of deaths in which two

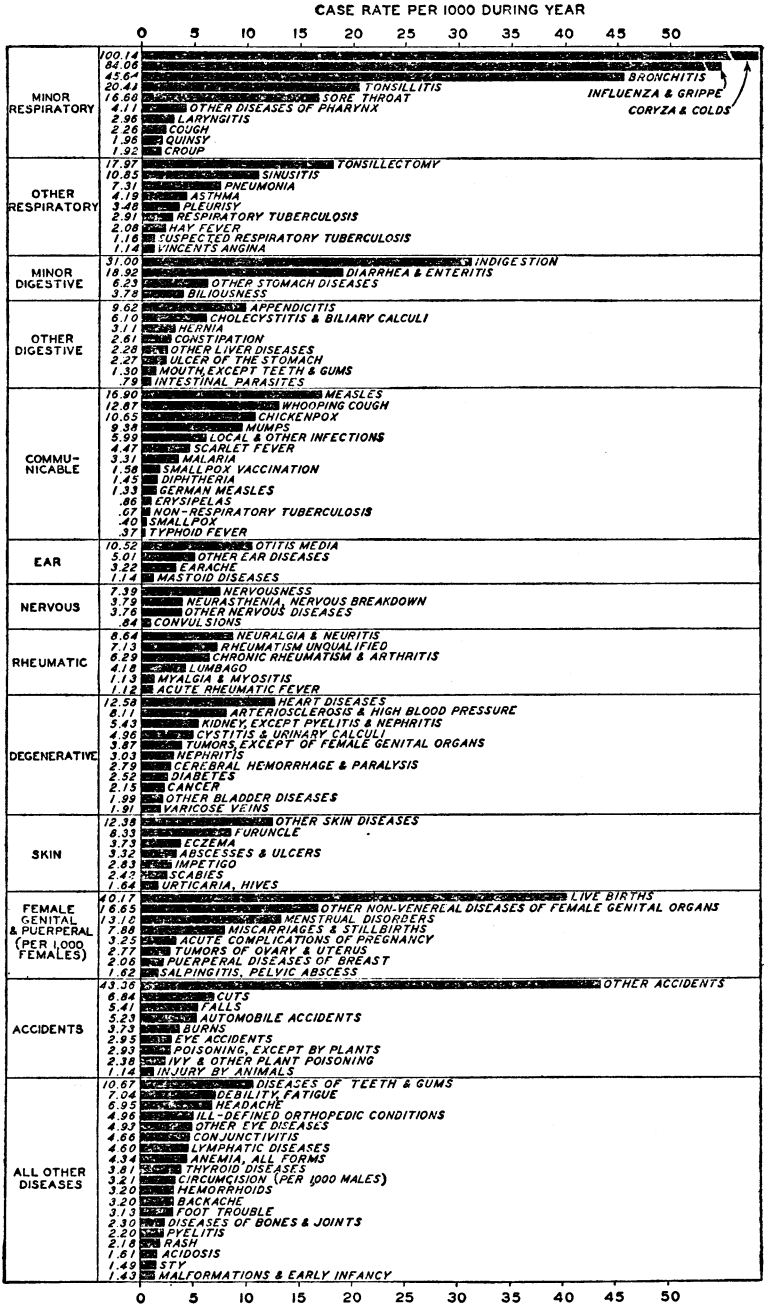

FIGURE 1.—Incidence of illness from specific causes arranged according to 13 broad disease groups—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Rates adjusted to the age distribution of the white population of the death registration States, 1930.)

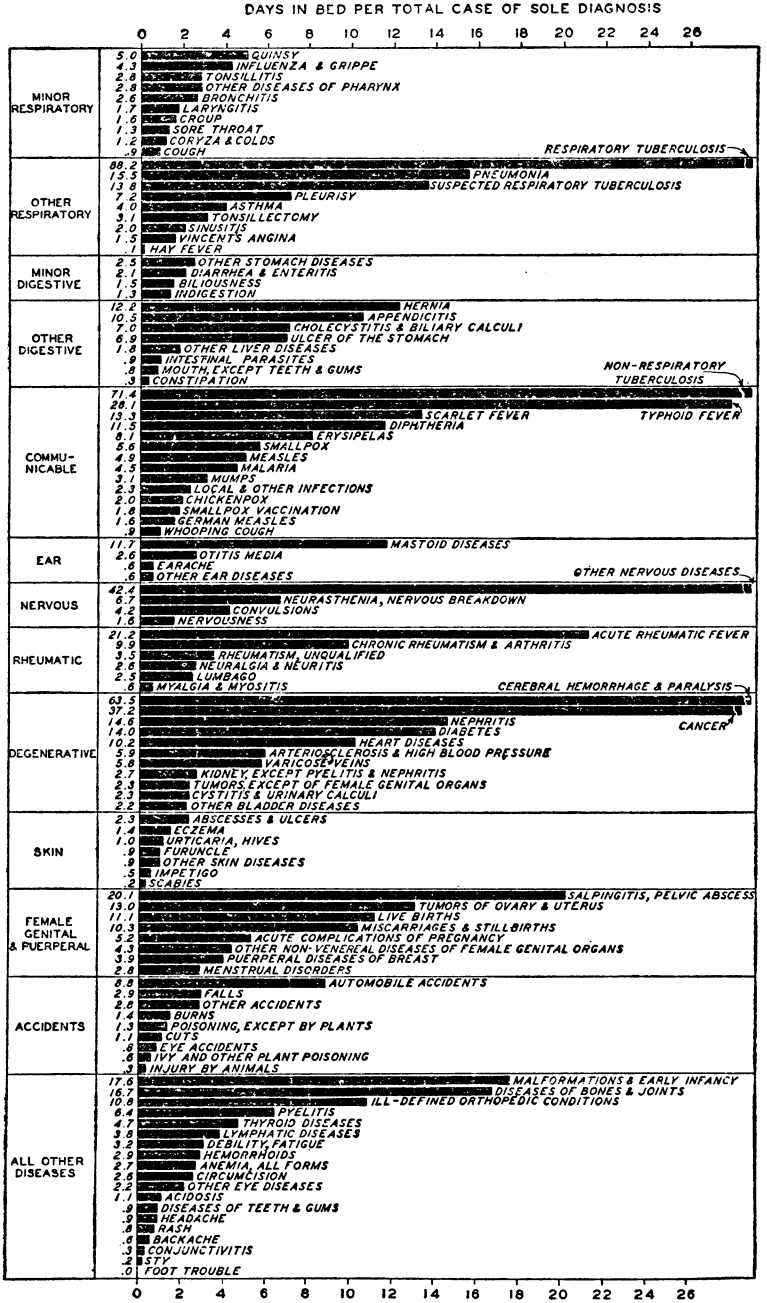

FIGURE 2.—Mean duration in bed per total illness of sole diagnosis for specific causes arranged according to 13 broad disease groups—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31.

or more causes are involved, suggest that the development of complications is an important factor in bringing the patient to the hospital and in causing fatal termination.

According to the different types of duration, tuberculosis, the nervous affections, and the degenerative diseases of old age are invariably the longest cases. The extreme length of these cases is particularly notable in the total duration of symptoms, but as noted above, tuberculosis, cancer, cerebral hemorrhage, and the nervous diseases also involve exceptionally long periods in bed. Acute diseases such as typhoid fever, acute rheumatic fever, pneumonia, scarlet fever, diphtheria, and mastoid diseases are among the diagnoses with the next longest durations in bed. Although the average time in bed is short for the various minor respiratory diseases, they occur so frequently that the aggregate days in bed per 1,000 persons under observation is greater than for any other disease group; this phase of the duration of illness was treated in the preceding paper (*14*).

III. DISTRIBUTIONS OF ILLNESSES ACCORDING TO VARIOUS TYPES OF DURATION

The approximate nature and the biases of durations as obtained in family canvasses have been discussed. In spite of these biases the average durations appear to be reasonably accurate. The tables presented in this section on the distribution of cases according to various types of duration will give some idea of the variability in the duration of cases of given diagnoses and will help the reader to evaluate the stability and usefulness of the averages.

Table 3 shows the distribution of cases of the 13 broad diagnosis groups according to the number of days in bed; data for all causes and for each diagnosis group are shown separately for illnesses of sole diagnosis, complicated cases (2 or more diagnoses), and for sole and primary diagnoses combined. Table 4 shows similar data for specific diseases but omits the small numbers of complicated cases, showing only those with a single diagnosis. It includes all diagnoses with 25 or more cases with a known number of days in bed; thus some diagnoses for which the average durations appear in table 2 are not included in this table because the numbers are too small to give a reliable distribution. Both tables show total cases, the percentage in bed for 1 or more days, and for those that were in bed the distribution according to days in bed. In computing this distribution, cases in bed, for an unknown number of days are omitted. The class intervals are irregular in length and in centering points; they were arranged in this way because of the approximate nature of the reports and the tendency of informants to give durations in round numbers such as 3, 5, and 7 days, 1, 2, and 3 weeks, and for the longer cases in months

TABLE 3.—*Distribution of illnesses from broad groups of causes according to duration of confinement to bed within the year of observation* [1]*—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

Disease group and whether sole cause or primary of 2 or more diagnoses [2]	Total number of cases	Percent of cases in bed for 1 or more days	Number of bed cases with known number of days in bed	Percent of bed cases with the specified number of days in bed during the year of observation								
				Bed cases with known days	1–2	3–5	6–8	9–11	12–17	18–24	25–45	46–365
All causes:												
Sole or primary	32,752	51.1	16,425	100	32.8	30.1	14.1	8.4	7.1	3.2	2.5	1.9
Sole	31,344	50.4	15,530	100	33.8	30.6	14.1	8.4	6.7	2.9	2.0	1.4
Complicated	2,942	65.9	1,891	100	15.4	19.8	12.9	8.6	13.8	8.7	10.2	10.8
Minor respiratory diseases:												
Sole or primary	11,336	59.0	6,618	100	38.1	37.2	14.7	5.0	3.4	1.1	.5	.1
Sole	10,835	59.0	6,331	100	38.8	37.4	14.6	4.7	3.1	.9	.4	-----
Complicated	618	62.3	374	100	21.1	29.7	17.6	10.7	10.7	5.1	4.5	.5
Other respiratory diseases:												
Sole or primary	2,091	72.1	1,481	100	36.1	29.2	9.8	5.5	7.7	4.2	3.3	4.3
Sole	1,981	71.3	1,385	100	37.7	29.3	9.8	5.4	7.5	3.9	2.7	3.7
Complicated	274	86.5	233	100	9.9	19.7	10.7	8.6	13.3	11.6	12.9	13.3
Minor digestive diseases:												
Sole or primary	2,323	49.0	1,103	100	56.4	28.4	9.2	2.8	1.6	1.0	.3	.4
Sole	2,253	49.2	1,074	100	56.9	28.7	8.9	2.7	1.3	.9	.3	.3
Complicated	184	48.4	87	100	39.1	25.3	10.3	4.6	11.5	2.3	1.1	5.7
Other digestive diseases:												
Sole or primary	1,031	60.2	619	100	21.5	16.6	8.1	9.2	19.5	12.3	9.5	3.2
Sole	944	59.3	553	100	23.3	17.6	8.6	9.9	18.5	12.2	8.8	1.3
Complicated	160	71.3	113	100	8.0	10.6	6.2	5.3	25.7	11.5	15.0	17.7
Communicable diseases:												
Sole or primary	3,671	61.0	2,203	100	19.8	36.0	22.3	8.3	7.1	3.6	2.1	.8
Sole	3,537	60.4	2,104	100	20.2	36.7	22.6	8.2	6.4	3.3	1.8	.8
Complicated	190	79.5	144	100	11.1	18.7	18.1	8.3	18.7	9.7	7.6	7.6
Ear and mastoid diseases:												
Sole or primary	723	38.9	274	100	33.2	24.5	19.7	9.9	5.8	5.1	1.8	-----
Sole	695	38.0	257	100	35.0	23.3	19.1	10.1	5.8	4.7	1.9	-----
Complicated	212	65.6	136	100	16.2	29.4	15.4	9.6	14.0	10.3	4.4	.7
Nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis:												
Sole or primary	499	40.3	193	100	27.5	18.7	10.4	8.8	10.4	3.6	9.3	11.4
Sole	478	38.7	177	100	29.9	18.1	11.3	8.5	9.6	4.0	8.5	10.2
Complicated	78	66.7	51	100	17.6	15.7	5.9	5.9	15.7	2.0	13.7	23.5
Rheumatism and related diseases:												
Sole or primary	797	40.9	326	100	28.5	26.7	14.7	4.6	10.1	6.1	5.5	3.7
Sole	769	40.2	309	100	28.0	27.8	14.9	4.5	10.0	5.8	5.2	2.9
Complicated	106	55.7	56	100	19.6	8.9	16.1	12.5	7.1	12.5	8.9	14.3
Degenerative diseases:												
Sole or primary	1,218	44.4	533	100	21.4	19.1	13.9	5.6	9.2	6.2	9.9	14.6
Sole	1,020	40.2	407	100	23.6	21.6	15.2	4.7	8.8	6.1	9.3	10.6
Complicated	410	69.3	276	100	14.9	10.5	10.1	9.4	10.9	8.7	12.0	23.6
Skin diseases:												
Sole or primary	1,341	13.1	162	100	35.2	30.9	11.1	4.9	6.8	4.9	4.3	1.9
Sole	1,329	13.0	159	100	35.8	30.8	11.3	5.0	6.3	4.4	4.4	1.9
Complicated	66	43.9	29	100	3.4	34.5	17.2	3.4	6.9	17.2	6.9	10.3
Female genital and puerperal diagnoses:												
Sole or primary	1,540	79.0	1,199	100	7.2	8.1	9.9	42.3	21.8	5.6	3.7	1.5
Sole	1,445	79.0	1,124	100	7.3	8.5	10.4	44.1	21.4	5.0	2.2	1.0
Complicated	197	77.7	151	100	4.0	4.6	4.0	11.9	25.8	14.6	25.2	9.9
Accidental injuries:												
Sole or primary	2,880	30.1	855	100	36.5	23.2	13.9	6.0	7.8	5.4	4.1	3.2
Sole	2,837	29.4	822	100	36.9	23.7	13.5	6.1	7.9	5.5	3.8	2.7
Complicated	52	73.1	38	100	23.7	7.9	21.1	7.9	5.3	2.6	13.2	18.4
All other diseases:												
Sole or primary	3,302	27.9	859	100	39.9	23.5	11.5	4.9	8.1	3.4	3.6	5.0
Sole	3,221	27.4	823	100	40.7	23.9	11.3	5.0	8.1	3.2	3.3	4.5
Complicated	395	52.7	203	100	15.3	26.6	14.8	4.4	9.9	7.4	9.9	11.8

[1] Cases with onset prior to the study and those still sick on the day of the last visit are included along with completed cases, but only for the days in bed that came within the study year. Average durations tend to be greater for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit. Prior onset of illness does not necessarily mean prior onset of confinement to bed.

[2] A case is considered as complicated if another diagnosis is reported as occurring simultaneously with or as overlapping the period of sickness from the diagnosis listed regardless of which diagnosis was classified as the primary cause of the illness. The complication may have a definite relationship to the other diagnosis (as in measles and pneumonia), or be apparently unrelated (as in measles and chickenpox). For inclusions in the diagnosis groups in terms of International List numbers, see table 1; table 2 and figs. 1 and 2 show the frequency and duration of specific causes included in the broad groups.

TABLE 4.—*Distribution of illnesses from specific causes*[1] *according to duration of confinement to bed within the year of observation—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

[Sole diagnosis only]

Diagnosis and International List numbers, 1920 revision	Total number of cases	Percent of cases in bed for 1 or more days	Number of bed cases with known number of days in bed	Percent of bed cases with the specified number of days in bed during the year of observation								
				Bed cases with known days	1–2	3–5	6–8	9–11	12–17	18–24	25–45	46–365
Minor respiratory diseases:												
Influenza and grippe (11)	3,152	84.6	2,661	100	26.1	41.3	18.9	7.1	4.7	1.3	0.6	0.1
Bronchitis and chest colds (99)	1,801	59.2	1,044	100	42.3	33.6	14.2	5.1	3.0	1.2	.5	.1
Coryza and colds, unqualified (pt. 97, pt. 107)	3,906	39.2	1,502	100	57.5	31.5	8.2	1.5	1.1	.2	----	----
Tonsillitis (pt. 109)	841	76.1	637	100	39.2	44.1	12.2	1.9	2.0	.5	----	----
Quinsy (pt. 109)	66	75.8	50	100	16.0	32.0	28.0	8.0	12.0	4.0	----	----
Sore throat (pt. 109)	621	37.2	230	100	51.7	32.2	11.3	2.2	1.3	----	1.3	----
Other pharynx and tonsil affections, except tonsillectomy (pt. 109)	138	55.1	76	100	25.0	38.2	22.4	10.5	1.3	2.6	----	----
Laryngitis (pt. 98)	104	47.1	49	100	42.9	36.7	16.3	4.1	----	----	----	----
Croup (pt. 98)	110	55.5	60	100	56.7	35.0	6.7	----	1.7	----	----	----
Other respiratory diseases:												
Tonsillectomy and adenoidectomy (pt. 109)	791	97.3	763	100	54.3	36.8	5.0	2.0	.9	.8	.3	----
Pneumonia, all forms (100, 101)	239	100.0	229	100	1.3	8.7	15.3	15.3	33.2	14.0	9.2	3.1
Sinusitis (pt. 97)	340	34.1	114	100	28.1	31.6	21.9	6.1	8.8	1.8	1.8	----
Asthma (105)	131	43.5	55	100	30.9	34.5	12.7	5.5	5.5	1.8	5.5	3.6
Pleurisy (102)	85	78.8	66	100	28.8	25.8	21.2	9.1	1.5	4.5	6.1	3.0
Respiratory tuberculosis (pt. 31)	92	65.2	59	100	8.5	1.7	----	3.4	6.8	8.5	8.5	62.7
Minor digestive diseases:												
Indigestion, upset stomach and nausea (pt. 112)	1,135	48.1	538	100	64.5	26.2	6.1	1.7	1.3	----	.2	----
Biliousness (pt. 112)	138	65.9	91	100	68.1	24.2	7.7	----	----	----	----	----
Other and ill-defined stomach diseases (pt. 112)	208	30.8	62	100	30.6	24.2	19.4	8.1	4.8	8.1	3.2	1.6
Diarrhea and enteritis (15, pt. 16, 113, 114)	773	52.8	383	100	47.8	33.9	11.5	3.9	1.0	1.3	----	.5
Other digestive diseases:												
Ulcers of stomach and duodenum (111)	70	45.7	32	100	9.4	21.9	6.3	12.5	21.9	18.7	3.1	6.3
Appendicitis (117)	291	85.9	250	100	14.0	14.4	8.0	14.0	28.0	13.2	7.6	.8
Hernia, intestinal obstruction (118)	89	59.6	51	100	7.8	5.9	5.9	5.9	23.5	27.5	19.6	3.9
Biliary calculi, cholecystitis (123, pt. 124)	162	67.9	110	100	30.9	20.0	11.8	4.5	8.2	11.8	11.8	.9
Other and ill-defined liver diseases (pt. 124)	65	40.0	26	100	57.7	23.1	15.4	----	----	----	3.8	----
Communicable diseases:												
Measles (7)	887	90.4	796	100	11.8	45.5	32.4	7.3	2.8	.3	----	----
German measles (pt. 25)	58	55.2	31	100	41.9	48.4	9.7	----	----	----	----	----
Whooping cough (9)	708	16.5	103	100	21.4	33.0	30.1	8.7	4.9	1.9	----	----
Chickenpox (pt. 25)	578	53.5	305	100	41.3	39.7	14.4	2.3	2.0	.3	----	----
Mumps (13)	446	61.7	274	100	24.8	41.2	21.5	7.7	2.9	1.5	.4	----
Scarlet fever (8)	215	93.0	199	100	4.5	8.0	13.1	17.1	26.1	20.1	10.1	1.0
Diphtheria (10)	68	98.5	67	100	4.5	17.9	22.4	17.9	23.9	11.9	----	1.5
Malaria (5)	118	80.5	95	100	27.4	42.1	12.6	8.4	5.3	3.2	1.1	----
Local and other infections not specified as accidental (41)	219	37.9	83	100	30.1	30.1	14.5	14.5	8.4	----	2.4	--
Smallpox vaccination (pt. 42)	76	67.1	51	100	51.0	41.2	5.9	2.0	----	----	----	----
Ear and mastoid diseases:												
Earache (pt. 86)	115	27.0	30	100	63.3	26.7	10.0	----	----	----	----	----
Otitis media (pt. 86)	390	45.4	173	100	31.8	26.6	21.4	11.0	6.4	2.3	.6	----
Diseases of the mastoid process (pt. 86)	40	90.0	35	100	8.6	11.4	20.0	17.1	11.4	22.9	8.6	----
Nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis:												
Nervousness (pt. 84)	220	24.5	53	100	34.0	28.3	9.4	5.7	13.2	7.5	1.9	----
Neurasthenia, nervous breakdown (pt. 84)	103	53.4	54	100	16.7	20.4	13.0	16.7	13.0	1.9	16.7	1.9
Convulsions, unqualified (79, 80)	40	72.5	29	100	62.1	17.2	10.3	3.4	----	----	3.4	3.4
Other nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis (70–73, 76–78, 81, pt. 84)	115	40.9	41	100	19.5	2.4	12.2	4.9	7.3	4.9	9.8	39.0

[1] The table includes only illnesses with a single diagnosis and with 25 or more bed cases with known number of days in bed. Cases with onset prior to the study and those still sick on the day of the last visit are included along with completed cases, but only for the days in bed that came within the study year. Average durations tend to be greater for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit. Prior onset of illness does not necessarily mean prior onset of confinement to bed.

TABLE 4.—*Distribution of illnesses from specific causes according to duration of confinement to bed within the year of observation—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*—Continued

Diagnosis and International List numbers, 1920 revision	Total number of cases	Percent of cases in bed for 1 or more days	Number of bed cases with known number of days in bed	Percent of bed cases with the specified number of days in bed during the year of observation								
				Bed cases with known days	1–2	3–5	6–8	9–11	12–17	18–24	25–45	46–365
Rheumatism and related diseases:												
Acute rheumatic fever (51)	32	84.4	27	100	18.5	3.7	22.2	3.7	14.8	3.7	25.9	7.4
Chronic rheumatism and arthritis (pt. 52)	141	35.5	50	100	12.0	26.0	14.0	2.0	24.0	10.0	2.0	10.0
Rheumatism, unqualified (pt. 52)	204	44.1	89	100	24.7	33.7	16.9	6.7	7.9	5.6	3.4	1.1
Neuralgia and neuritis (82)	235	32.8	77	100	44.2	19.5	11.7	5.2	7.8	7.8	2.6	1.3
Lumbago (pt. 158)	122	48.4	59	100	33.9	42.4	11.9	3.4	3.4	1.7	3.4	----
Degenerative diseases:												
Cancer, all sites (43–49)	42	66.7	28	100	3.6	----	14.3	----	7.1	10.7	25.0	39.3
Benign tumors, except of female organs (50)	114	24.6	28	100	35.7	14.3	28.6	----	7.1	7.1	3.6	3.6
Diseases of heart (87–90)	205	50.2	102	100	25.5	22.5	11.8	3.9	8.8	5.9	12.7	8.8
Arteriosclerosis and high blood pressure (pt. 91, pt. 96)	111	31.5	34	100	23.5	20.6	17.6	5.9	20.6	2.9	5.9	2.9
Nephritis, acute and chronic (128, 129)	47	55.3	26	100	23.1	23.1	11.5	11.5	7.7	7.7	7.7	7.7
Other and unspecified kidney diseases except pyelitis (pt. 131)	140	35.7	49	100	24.5	32.7	14.3	8.2	8.2	8.2	4.1	----
Cystitis and calculi of urinary passages (132, pt. 133)	134	44.8	60	100	33.3	33.3	21.7	5.0	1.7	5.0	----	----
Skin diseases:												
Furuncle (152)	307	16.9	51	100	47.1	31.4	3.9	5.9	7.8	2.0	2.0	----
Abscesses and ulcers (153, pt. 154)	116	35.3	38	100	23.7	39.5	18.4	5.3	5.3	2.6	5.3	----
Other and ill-defined skin diseases except impetigo, urticaria, scabies, and eczema (151, pt. 154, pt. 205)	446	9.6	41	100	31.7	24.4	12.2	4.9	7.3	9.8	9.8	----
Female genital and puerperal diagnoses:												
Cysts and tumors of ovary and uterus (137, 139)	33	75.8	25	100	8.0	20.0	12.0	8.0	20.0	4.0	20.0	8.0
Menstrual disorders (140, pt. 141)	212	48.6	103	100	41.7	26.2	13.6	6.8	5.8	3.9	1.0	1.0
Other and ill-defined nonvenereal diseases of female organs, including chronic results of childbirth (pt. 141, 142, pt. 145, pt. 149)	242	37.6	90	100	22.2	14.4	15.6	7.8	15.6	15.6	6.7	2.2
Abortions, miscarriages, and stillbirths (pt. 143)	136	97.8	133	100	4.5	19.5	21.1	19.5	21.8	9.0	3.8	.8
Live births (pt. 145, pt. 149)	735	100.0	719	100	.3	2.1	6.4	62.9	25.0	2.5	.4	.4
Accidental injuries:												
Other accidental poisonings (175, 176, pt. 177)	117	48.7	55	100	65.5	27.3	3.6	----	3.6	----	----	----
Automobile accidents (pt. 188)	189	71.4	134	100	29.1	20.9	15.7	5.2	11.2	4.5	7.5	6.0
Accidental burns (179)	152	21.7	31	100	22.6	38.7	19.4	3.2	9.7	----	6.5	----
Accidental injuries by cutting or piercing instruments (184)	288	19.8	57	100	38.6	26.3	17.5	3.5	7.0	5.3	1.8	----
Accidental falls (185)	191	32.5	62	100	33.9	22.6	12.9	9.7	4.8	4.8	9.7	1.6
All other accidents except ivy and other acute poisonings, eye injuries and injury by animals (165–174, 178, 180–183, 186, 187, pt. 188, 190–200, 201, pt. 202)	1,635	27.3	443	100	35.9	23.0	13.3	6.8	7.9	7.4	2.7	2.9
All other diseases:												
Diseases of thyroid gland (60)	113	26.5	28	100	7.1	10.7	21.4	7.1	28.6	10.7	7.1	7.1
Hemorrhoids (pt. 93)	100	30.0	30	100	20.0	20.0	16.7	6.7	23.3	3.3	10.0	----
Diseases of lymphatic system (94)	171	50.9	87	100	33.3	32.2	10.3	10.3	8.0	2.3	2.3	1.1
Diseases of the teeth and gums (pt. 108)	395	16.2	59	100	52.5	27.1	15.3	3.4	----	----	----	1.7
Pyelitis (pt. 131)	81	55.6	45	100	6.7	26.7	24.4	15.6	13.3	6.7	4.4	2.2
Circumcision (pt. 136)	80	72.5	29	100	55.2	24.1	10.3	6.9	3.4	----	----	----
Ill-defined orthopedic conditions and diseases of the organs of locomotion, except lumbago, myalgia, and myositis (157, pt. 158, pt. 205)	175	20.0	34	100	20.6	8.8	8.8	5.9	20.6	5.9	8.8	20.6
Congenital malformations and diseases of early infancy (159–163)	69	52.2	27	100	18.5	3.7	----	7.4	14.8	11.1	22.2	22.2
Headache (pt. 205)	234	46.2	108	100	84.3	12.0	1.9	----	1.9	----	----	----
Debility, fatigue, exhaustion, malnutrition, loss of weight (pt. 205)	233	20.6	46	100	41.3	30.4	13.0	----	6.5	2.2	----	6.5

only. Thus the intervals chosen put these points of concentration near the middle of the interval and give greater accuracy in classifying the cases.

In these and similar tables complete and incomplete cases are combined—thus some of the short cases may be explained by cases that were still incomplete on the last report from the family or that began prior to the study year with only part of the duration included within the period of observation. However, the incomplete cases average longer durations than the complete cases because the longer the case the greater the probability that the person will be still in bed at the last visit. Since all durations refer only to that part of the case that came within the study year, 365 days is the maximum

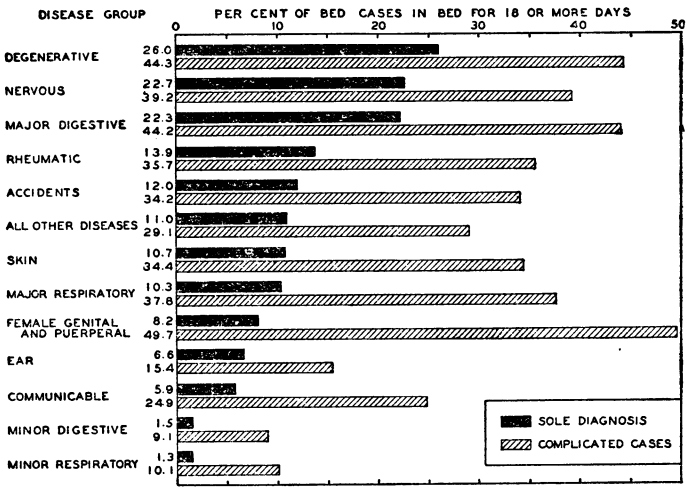

FIGURE 3.—Proportion of bed cases that were in bed for 18 or more days during the study year, for illnesses with sole diagnosis and for complicated cases—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31.

recorded duration of any case. No attempt is made to give a complete distribution—at the upper end the intervals are extremely large and give only an indication of how many cases fall into these rather long duration classes.

Table 3 indicates that for nearly all of the 13 broad diagnosis groups, a higher percentage of complicated cases were bed cases than was true of illnesses with only 1 diagnosis. Figure 3 shows the percentage of bed cases that were confined to bed for 18 days or longer. As already noted, the effect of a complication is to prolong the duration of the illness; in every instance a definitely higher percentage of complicated bed cases were in bed for 18 or more days than cases with only 1 diagnosis.

Tables 5 and 6 show distributions of cases according to the number of days of inability to work or pursue other usual activities (disa-

TABLE 5.—*Distribution of illnesses from broad groups of causes according to duration of disability* [1] *within the year of observation* [2]*—8,758 canvassed white families in 18 States during 12 consecutive months, 1938–31*

Disease group and whether sole or primary of 2 or more diagnoses [3]	Total number of cases	Percent of cases disabling for 1 or more days	Number of disabling cases with known number of days of disability	Percent of disabling cases with the specified number of days of disability during the year of observation								
				Disabling cases with known days	1–2	3–5	6–8	9–11	12–17	18–24	25–45	46–365
All causes:												
Sole or primary	32,752	60.7	14,310	100	20.1	22.3	15.9	10.2	13.7	6.7	6.7	4.4
Sole	31,344	60.1	13,598	100	20.6	22.8	16.2	10.3	13.8	6.4	6.3	3.6
Complicated	2,942	73.9	1,489	100	10.3	12.8	10.3	8.0	12.8	10.9	14.2	20.6
Minor respiratory diseases:												
Sole or primary	11,336	66.9	5,414	100	24.1	31.7	20.7	8.9	9.6	2.6	1.9	.4
Sole	10,835	66.8	5,188	100	24.5	32.0	20.9	8.9	9.4	2.5	1.6	.3
Complicated	618	72.3	284	100	13.4	21.8	16.5	10.9	14.8	8.8	9.9	3.9
Other respiratory diseases:												
Sole or primary	2,091	76.9	949	100	12.3	19.8	19.5	10.7	12.3	7.5	7.6	10.2
Sole	1,981	76.2	889	100	12.8	20.4	20.1	11.0	11.9	7.5	6.7	9.4
Complicated	274	89.8	162	100	5.6	9.9	9.9	7.4	13.6	9.3	19.8	24.7
Minor digestive diseases:												
Sole or primary	2,323	56.1	769	100	47.9	28.0	11.2	3.6	5.3	1.6	1.3	1.2
Sole	2,253	56.3	749	100	48.2	28.4	11.1	3.7	4.9	1.5	1.3	.8
Complicated	184	58.7	67	100	34.3	22.4	11.9	1.5	11.9	3.0	3.0	11.9
Other digestive diseases:												
Sole or primary	1,031	65.9	569	100	16.0	14.4	9.7	5.3	11.1	14.1	18.5	11.1
Sole	944	64.8	513	100	17.3	15.4	10.5	5.3	11.3	13.5	18.3	8.4
Complicated	160	75.0	94	100	3.2	5.3	3.2	4.3	10.6	18.1	22.3	33.0
Communicable diseases:												
Sole or primary	3,671	77.0	1,889	100	5.3	11.6	11.3	17.9	24.0	12.6	14.2	3.0
Sole	3,537	76.6	1,821	100	5.4	11.9	11.4	18.2	24.0	12.5	13.9	2.6
Complicated	190	90.0	103	100	1.9	5.8	6.8	8.7	21.4	15.5	21.4	18.4
Ear and mastoid diseases:												
Sole or primary	723	50.6	222	100	22.1	21.6	17.1	9.9	15.3	3.6	7.2	3.2
Sole	695	49.6	209	100	23.4	22.5	17.2	9.6	14.8	2.9	7.2	2.4
Complicated	212	72.6	87	100	5.7	18.4	17.2	11.5	17.2	12.6	9.2	8.0
Nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis:												
Sole or primary	499	48.3	173	100	13.3	15.0	13.3	5.2	9.8	5.2	16.2	22.0
Sole	478	47.1	163	100	14.1	15.3	14.1	4.3	10.4	5.5	16.0	20.2
Complicated	78	70.5	34	100	11.8	8.8	-----	8.8	8.8	5.9	11.8	49.1
Rheumatism and related diseases:												
Sole or primary	797	50.6	349	100	16.3	22.6	18.3	5.7	11.2	8.6	7.7	9.5
Sole	769	49.9	333	100	16.5	23.4	18.6	5.7	11.7	7.8	8.1	8.1
Complicated	106	63.2	51	100	7.8	9.8	17.6	9.8	3.9	9.8	13.7	27.5
Degenerative diseases:												
Sole or primary	1,218	52.0	487	100	16.4	15.6	12.7	6.0	9.4	8.2	9.7	22.0
Sole	1,020	47.5	383	100	17.5	17.0	15.4	6.0	9.9	7.6	9.4	17.2
Complicated	410	78.0	235	100	15.7	8.9	3.8	7.2	10.2	11.1	10.2	32.8
Skin diseases:												
Sole or primary	1,341	28.4	316	100	15.5	24.1	16.1	8.9	15.5	10.1	6.6	3.2
Sole	1,329	28.1	309	100	15.9	24.3	16.2	8.1	15.5	10.0	6.8	3.2
Complicated	66	66.7	32	100	3.1	15.6	18.7	21.9	3.1	12.5	6.3	18.7
Female genital and puerperal diagnoses:												
Sole or primary	1,540	80.6	1,103	100	5.2	6.1	7.9	20.2	34.1	13.4	9.5	3.6
Sole	1,445	80.6	1,033	100	5.2	6.4	8.1	21.2	35.4	13.2	8.0	2.4
Complicated	197	78.2	140	100	2.9	3.6	4.3	5.7	14.3	15.0	32.9	21.4
Accidental injuries:												
Sole or primary	2,880	48.2	1,170	100	23.7	19.1	14.3	8.1	10.1	8.3	9.3	7.2
Sole	2,837	47.6	1,143	100	24.1	19.2	14.3	8.1	10.2	8.1	9.3	6.7
Complicated	52	88.5	34	100	5.9	11.8	17.6	8.8	2.9	14.7	8.8	29.4
All other diseases:												
Sole or primary	3,302	37.3	900	100	33.1	20.3	13.2	6.0	10.1	5.2	5.1	6.9
Sole	3,221	36.9	865	100	33.8	20.6	13.1	5.9	10.3	5.0	5.1	6.4
Complicated	395	61.3	166	100	13.3	16.9	13.3	5.4	12.0	8.4	7.2	23.5

[1] Disability refers to inability to work, attend school, care for home, or pursue other usual activities, regardless of employment status and age.

[2] Cases with onset prior to the study and those still sick on the last visit are included along with completed cases but only for the days of disability that came within the study year. Average durations tend to be greater for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit. Prior onset of illness does not necessarily mean prior onset of disability.

[3] A case is considered as complicated if another diagnosis is reported as occurring simultaneously with or as overlapping the period of sickness from the diagnosis listed regardless of which diagnosis was classified as the primary cause of the illness. The complication may have a definite relationship to the other diagnosis (as in measles and pneumonia), or be apparently unrelated (as in measles and chickenpox). For inclusions in the diagnosis groups in terms of International List numbers, see table 1; table 2 and figs. 1 and 2 show the frequency and duration of specific causes included in the broad groups.

TABLE 6.—*Distribution of illnesses from specific causes [1] according to duration of disability [2] within the year of observation—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

[Sole diagnosis only]

Diagnosis and International List numbers, 1920 revision	Total number of cases	Percent of cases disabling for 1 or more days	Number of disabling cases with known number of days of disability	Percent of disabling cases with the specified number of days of disability during the year of observation								
				Disabling cases with known days	1–2	3–5	6–8	9–11	12–17	18–24	25–45	46–365
Minor respiratory diseases:												
Influenza and grippe (11)	3,152	88.8	2,063	100	14.8	30.2	23.1	12.3	13.3	3.4	2.4	0.5
Bronchitis and chest colds (99)	1,801	66.1	771	100	24.0	27.5	23.5	10.1	10.5	2.5	1.6	.4
Coryza and colds, unqualified (pt. 97, pt. 107)	3,906	49.7	1,390	100	39.6	38.5	16.2	4.8	4.7	.6	.5	----
Cough (pt. 107)	100	37.0	28	100	17.9	39.3	10.7	10.7	7.1	3.6	7.1	3.6
Tonsillitis (pt. 109)	841	83.1	506	100	21.1	40.1	22.5	7.1	6.3	2.4	.4	----
Quinsy (pt. 109)	66	84.8	52	100	3.8	19.2	32.7	5.8	15.4	15.4	7.7	----
Sore throat (pt. 109)	621	49.1	239	100	34.3	38.1	16.3	4.6	4.2	1.3	1.3	----
Other pharynx and tonsil affections, except tonsillectomy (pt. 109)	138	60.9	67	100	20.9	25.4	22.4	9.0	13.4	6.0	1.5	1.5
Laryngitis (pt. 98)	104	53.8	41	100	19.5	39.0	22.0	7.3	9.8	2.4	----	----
Croup (pt. 98)	110	66.4	32	100	31.3	43.7	15.6	3.1	3.1	3.1	----	----
Other respiratory diseases:												
Tonsillectomy and adenoidectomy (pt. 109)	791	97.9	371	100	8.6	27.0	31.8	15.4	12.1	2.4	2.4	.3
Pneumonia, all forms (100, 101)	239	100.0	118	100	1.7	2.5	6.8	6.8	24.6	25.4	22.9	9.3
Sinusitis (pt. 97)	340	45.9	136	100	21.3	24.3	14.7	8.1	14.7	8.8	4.4	3.7
Asthma (105)	131	55.0	56	100	30.4	19.6	16.1	5.4	7.1	10.7	1.8	8.9
Pleurisy (102)	85	89.4	66	100	27.3	19.7	19.7	7.6	9.1	9.1	1.5	6.1
Respiratory tuberculosis (pt. 31)	92	73.9	55	100	----	1.8	----	1.8	1.8	7.3	7.3	80.0
Minor digestive diseases:												
Indigestion, upset stomach and nausea (pt. 112)	1,135	56.6	407	100	56.5	24.1	9.1	4.2	4.2	.7	.5	.7
Biliousness (pt. 112)	138	73.2	77	100	44.2	44.2	7.8	1.3	2.6	----	----	----
Other and ill-defined stomach diseases (pt. 112)	208	42.3	53	100	28.3	30.2	15.1	3.8	9.4	5.7	5.7	1.9
Diarrhea and enteritis (15, pt. 16, 113, 114)	773	56.9	214	100	38.8	30.4	15.4	3.7	6.1	2.3	2.3	.9
Other digestive diseases:												
Ulcers of stomach and duodenum (111)	70	58.6	38	100	7.9	21.1	15.8	2.6	13.2	7.9	13.2	18.4
Appendicitis (117)	291	88.3	227	100	10.1	11.0	11.5	5.7	12.3	17.2	27.3	4.8
Hernia, intestinal obstruction (118)	89	64.0	42	100	11.9	2.4	----	4.8	4.8	21.4	26.2	28.6
Biliary calculi, cholecystitis (123, pt. 124)	162	71.0	97	100	25.8	15.5	11.3	4.1	13.4	9.3	12.4	8.2
Other and ill-defined liver diseases (pt. 124)	65	55.4	29	100	37.9	24.1	17.2	6.9	10.3	----	3.4	----
Communicable diseases:												
Measles (7)	887	93.2	429	100	1.9	20.5	17.9	32.4	22.8	3.7	.2	.5
German measles (pt. 25)	58	81.0	42	100	14.3	64.3	9.5	4.8	7.1	----	----	----
Whooping cough (9)	708	45.9	204	100	3.4	2.9	5.4	1.5	8.8	11.8	58.3	7.8
Chickenpox (pt. 25)	578	76.8	316	100	1.9	9.2	15.2	29.7	35.4	8.5	----	----
Mumps (13)	446	85.2	308	100	5.5	18.8	17.2	22.1	25.6	9.4	1.3	----
Scarlet fever (8)	215	97.2	152	100	2.0	2.6	3.3	7.9	8.6	32.9	42.1	.7
Diphtheria (10)	68	98.5	45	100	2.2	4.4	2.2	4.4	37.8	31.1	15.6	2.2
Malaria (5)	118	82.2	76	100	14.5	34.2	25.0	9.2	9.2	1.3	6.6	----
Local and other infections not specified as accidental (41)	219	57.5	109	100	13.8	13.8	23.9	13.8	15.6	11.9	6.4	.9
Smallpox vaccination (pt. 42)	76	94.7	57	100	40.4	40.4	15.8	1.8	1.8	----	----	----
Ear and mastoid diseases:												
Earache (pt. 86)	115	44.3	34	100	47.1	38.2	8.8	2.9	2.9	----	----	----
Otitis media (pt. 86)	390	57.7	135	100	20.0	20.0	18.5	10.4	20.0	3.7	7.4	----
Nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis:												
Nervousness (pt. 84)	220	30.5	61	100	21.3	21.3	13.1	3.3	11.5	6.6	18.0	4.9
Neurasthenia, nervous breakdown (pt. 84)	103	65.0	56	100	5.4	12.5	17.9	7.1	12.5	7.1	14.3	23.2
Other nervous diseases except cerebral hemorrhage, paralysis, neuralgia, neuritis, and convulsions (70–73, 76–78, 81, pt. 84)	115	52.2	39	100	10.3	10.3	7.7	2.6	5.1	2.6	15.4	46.2

[1] The table includes only illnesses with a single diagnosis and with 25 or more disabling cases with known number of days of disability. Cases with onset prior to the study and those still sick on the last visit are included along with completed cases but only for the days of disability that came within the study year. Average durations tend to be greater for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit. Prior onset of illness does not necessarily mean prior onset of disability.

[2] Disability refers to inability to work, attend school, care for home, or pursue other usual activities, regardless of employment status and age.

TABLE 6.—*Distribution of illnesses from specific causes according to duration of disability within the year of observation—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*—Continued

Diagnosis and International List numbers, 1920 revision	Total number of cases	Per-cent of cases dis-abling for 1 or more days	Number of dis-abling cases with known number of days of dis-ability	Percent of disabling cases with the specified number of days of disability during the year of observation								
				Dis-abling cases with known days	1–2	3–5	6–8	9–11	12–17	18–24	25–45	46–365
Rheumatism and related diseases:												
Acute rheumatic fever (51)	32	87.5	27	100	----	11.1	22.2	----	14.8	11.1	25.9	14.8
Chronic rheumatism and arthritis (pt. 52)	141	44.0	51	100	5.9	13.7	17.6	3.9	15.7	3.9	13.7	25.5
Rheumatism, unqualified (pt. 52)	204	52.0	93	100	9.7	24.7	19.4	9.7	15.1	12.9	5.4	3.2
Neuralgia and neuritis (82)	235	43.4	84	100	31.0	27.4	13.1	2.4	7.1	7.1	7.1	4.8
Lumbago (pt. 158)	122	64.8	72	100	22.2	29.2	20.8	8.3	9.7	4.2	2.8	2.8
Degenerative diseases:												
Benign tumors, except of female organs (50)	114	34.2	30	100	33.3	6.7	23.3	10.0	6.7	10.0	3.3	6.7
Diseases of heart (87–90)	205	59.0	95	100	13.7	15.8	16.8	5.3	12.6	3.2	10.5	22.1
Arteriosclerosis and high blood pressure (pt. 91, pt. 96)	111	33.3	25	100	24.0	16.0	20.0	4.0	8.0	12.0	8.0	8.0
Other and unspecified kidney diseases except pyelitis (pt. 131)	140	45.7	50	100	16.0	20.0	14.0	10.0	14.0	12.0	12.0	2.0
Cystitis, and calculi of urinary passages (132, pt. 133)	134	53.7	63	100	23.8	30.2	19.0	6.3	9.5	6.3	1.6	3.2
Skin diseases:												
Furuncle (152)	307	31.9	85	100	21.2	32.9	10.6	7.1	15.3	7.1	1.2	4.7
Abscesses and ulcers (153, pt. 154)	116	51.7	46	100	6.5	21.7	28.3	15.2	15.2	4.3	8.7	----
Impetigo (pt. 154)	138	26.8	30	100	6.7	13.3	13.3	13.3	20.0	26.7	6.7	----
Scabies (pt. 154)	106	40.6	39	100	10.3	23.1	7.7	----	17.9	20.5	10.3	10.3
Other and ill-defined skin diseases except urticaria and eczema (151, pt. 154, pt. 205)	446	20.0	75	100	18.7	18.7	24.0	6.7	17.3	4.0	8.0	2.7
Female genital and puerperal diagnoses:												
Menstrual disorders (140, pt. 141)	212	53.8	105	100	27.6	31.4	15.2	3.8	11.4	5.7	3.8	1.0
Other and ill-defined nonvenereal diseases of female organs, including chronic results of childbirth (pt. 141, 142, pt. 145, pt. 149)	242	42.1	79	100	22.8	8.9	6.3	10.1	12.7	11.4	16.5	11.4
Abortions, miscarriages, and stillbirths (pt. 143)	136	99.3	121	100	3.3	7.4	24.0	10.7	22.3	16.5	12.4	3.3
Live births (pt. 145, pt. 149)	735	100.0	664	100	----	.9	3.5	28.9	46.4	13.9	6.0	.5
Accidental injuries:												
Poisoning by ivy, oak, and other plants (pt. 177)	96	35.4	28	100	32.1	42.9	10.7	7.1	3.6	3.6	----	----
Other accidental poisonings (175, 176, pt. 177)	117	54.7	53	100	45.3	35.8	13.2	3.8	----	1.9	----	----
Automobile accidents (pt. 188)	189	81.0	132	100	17.4	13.6	14.4	6.1	12.9	11.4	11.4	12.9
Accidental burns (179)	152	38.2	45	100	22.2	22.2	20.0	4.4	8.9	11.1	11.1	----
Accidental injuries by cutting or piercing instruments (184)	288	36.8	77	100	22.1	19.5	11.7	13.0	15.6	7.8	6.5	3.9
Accidental falls (185)	191	47.1	70	100	18.6	22.9	14.3	5.7	14.3	10.0	5.7	8.6
Eye accidents (pt. 85, pt. 202)	118	32.2	32	100	37.5	15.6	6.3	12.5	9.4	----	12.5	6.3
All other accidents except injury by animals (165–174, 178, 180–183, 186, 187, pt. 188, 190–200, 201, pt. 202)	1,635	48.5	695	100	23.7	17.6	14.2	8.6	9.9	8.3	10.5	7.1
All other diseases:												
Anemia, all forms (58)	114	28.1	28	100	10.7	21.4	7.1	7.1	14.3	----	10.7	28.6
Diseases of thyroid gland (60)	113	29.2	26	100	----	7.7	7.7	3.8	23.1	19.2	15.4	23.1
Conjunctivitis, pinkeye, sore eye (pt. 85)	199	46.2	81	100	24.7	34.6	14.8	11.1	12.3	1.2	1.2	----
Other eye diseases (pt. 85)	159	29.6	41	100	24.4	19.5	14.6	----	17.1	7.3	4.9	12.2
Hemorrhoids (pt. 93)	100	37.0	34	100	29.4	20.6	2.9	----	20.6	2.9	20.6	2.9
Diseases of lymphatic system (94)	171	59.6	57	100	15.8	17.5	26.3	10.5	14.0	8.8	5.3	1.8
Diseases of the teeth and gums (pt. 108)	395	25.6	67	100	41.8	26.9	17.9	3.0	4.5	6.0	----	----
Pyelitis (pt. 131)	81	63.0	41	100	4.9	14.6	19.5	12.2	24.4	7.3	12.2	4.9
Ill-defined orthopedic conditions and diseases of the organs of locomotion, except lumbago, myalgia, and myositis (157, pt. 158, pt. 205)	175	20.0	44	100	13.6	2.3	11.4	11.4	15.9	4.5	9.1	31.8
Headache (pt. 205)	234	56.4	122	100	79.5	13.9	3.3	----	2.5	.8	----	----
Backache (pt. 205)	102	30.4	30	100	43.3	36.7	16.7	3.3	----	----	----	----
Debility, fatigue, exhaustion, malnutrition, loss of weight (pt. 205)	233	27.0	56	100	25.0	30.4	10.7	7.1	12.5	3.6	5.4	5.4

TABLE 7.—*Distribution of illnesses from broad groups of causes according to total duration of symptoms within the year of observation* [1]*—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

Disease group and whether sole cause or primary of 2 or more diagnoses [2]	Number of cases with known duration of symptoms	Percent of cases with the specified total duration of symptoms, in days, during the year of observation									
		All cases of known duration	Less than 3	3–5	6–8	9–11	12–17	18–24	25–45	46–75	76–365
All causes:											
Sole or primary	30,782	100	8.9	19.4	20.4	9.9	15.0	6.7	8.9	2.8	8.2
Sole	29,429	100	9.2	19.8	20.8	10.0	15.0	6.6	8.6	2.5	7.4
Complicated	2,825	100	3.3	9.5	10.7	7.2	13.2	8.0	14.3	7.5	26.3
Minor respiratory diseases:											
Sole or primary	11,037	100	6.8	28.4	30.0	11.4	13.8	4.9	3.5	.6	.6
Sole	10,551	100	7.0	28.8	30.6	11.5	13.5	4.7	3.1	.4	.5
Complicated	596	100	3.0	16.6	17.1	11.2	20.8	8.9	13.6	4.2	4.5
Other respiratory diseases:											
Sole or primary	1,930	100	4.6	16.6	21.4	8.9	14.5	7.6	9.2	3.4	13.9
Sole	1,822	100	4.8	17.0	22.0	9.1	14.7	7.6	8.6	3.0	13.3
Complicated	269	100	2.6	5.9	9.3	6.7	9.7	9.3	20.4	10.0	26.0
Minor digestive diseases:											
Sole or primary	2,245	100	26.5	30.5	17.8	5.3	7.0	3.5	3.9	1.2	4.3
Sole	2,181	100	27.1	31.1	18.1	5.0	7.1	3.3	3.7	1.0	3.6
Complicated	173	100	7.5	16.8	16.8	8.1	10.4	6.9	10.4	5.2	17.9
Other digestive diseases:											
Sole or primary	975	100	8.5	10.6	11.6	5.8	12.5	9.7	15.3	5.9	20.0
Sole	892	100	9.2	11.0	12.4	6.1	13.0	9.5	15.5	5.4	17.9
Complicated	155	100	2.6	8.4	3.9	3.9	8.4	11.0	14.8	10.3	36.8
Communicable diseases:											
Sole or primary	3,581	100	1.6	9.6	14.5	12.8	25.6	9.3	19.7	4.6	2.4
Sole	3,447	100	1.6	9.8	14.7	12.9	25.9	9.3	19.4	4.4	2.0
Complicated	189	100	.5	3.2	6.9	9.5	19.6	9.0	28.6	10.6	12.2
Ear and mastoid diseases:											
Sole or primary	693	100	14.0	16.9	17.6	9.2	15.0	7.4	11.1	2.3	6.5
Sole	666	100	14.6	17.6	17.6	9.2	15.0	7.4	10.5	2.3	6.0
Complicated	204	100	2.5	11.3	15.2	11.3	21.6	11.8	15.7	6.4	4.4
Nervous diseases, except cerebral hemorrhage, paralysis, neuralgia, and neuritis:											
Sole or primary	451	100	8.2	10.2	8.4	4.0	8.0	6.4	10.9	8.2	35.7
Sole	432	100	8.3	10.2	8.8	3.9	7.9	6.5	11.1	8.1	35.2
Complicated	72	100	4.2	9.7	1.4	4.2	13.9	2.8	8.3	5.6	50.0
Rheumatism and related diseases:											
Sole or primary	747	100	4.1	11.2	13.5	8.2	13.9	7.6	12.6	4.4	24.4
Sole	721	100	4.3	11.7	13.7	8.5	14.1	7.8	12.6	4.4	22.9
Complicated	101	100	2.0	5.0	9.9	4.0	6.9	7.9	11.9	3.0	49.5
Degenerative diseases:											
Sole or primary	1,110	100	4.8	6.2	9.9	4.8	7.7	6.7	10.1	5.1	44.7
Sole	923	100	5.1	6.7	10.8	5.5	8.9	7.4	10.7	4.4	40.4
Complicated	394	100	4.3	3.8	6.1	2.3	5.3	4.3	9.1	8.6	56.1
Skin diseases:											
Sole or primary	1,229	100	6.4	9.8	16.8	9.8	14.8	10.3	14.6	6.2	11.3
Sole	1,218	100	6.4	9.9	16.8	9.9	14.9	10.3	14.6	6.0	11.2
Complicated	63	100	------	7.9	20.6	1.6	15.9	3.2	7.9	19.0	23.8
Female genital and puerperal diagnoses:											
Sole or primary	1,420	100	3.7	4.4	6.1	17.8	32.3	9.1	9.9	4.2	12.5
Sole	1,328	100	3.8	4.7	6.5	18.7	33.7	9.3	9.1	3.5	10.7
Complicated	190	100	1.1	1.1	1.1	3.7	11.6	6.3	18.9	13.2	43.2
Accidental injuries:											
Sole or primary	2,679	100	10.9	17.4	18.4	9.4	14.3	9.9	12.9	3.5	3.3
Sole	2,639	100	11.0	17.5	18.5	9.4	14.3	9.9	12.9	3.4	3.0
Complicated	49	100	4.1	6.1	10.2	10.2	12.2	12.2	12.2	8.2	24.5
All other diseases:											
Sole or primary	2,685	100	19.4	15.5	12.9	5.8	9.5	5.3	8.4	3.5	19.6
Sole	2,609	100	19.8	15.7	13.0	5.7	9.6	5.3	8.3	3.6	19.0
Complicated	370	100	5.2	12.4	10.8	7.6	9.7	8.1	10.5	5.7	30.0

[1] Cases with onset prior to the study and those still sick on the last visit are included along with completed cases, but only for the days of sickness that came within the study year. Average durations tend to be greater for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit.

[2] A case is considered as complicated if another diagnosis is reported as occurring simultaneously with or as overlapping the period of sickness from the diagnosis listed regardless of which diagnosis was classified as the primary cause of the illness. The complication may have a definite relationship to the other diagnosis (as in measles and pneumonia), or be apparently unrelated (as in measles and chickenpox). For inclusions in the diagnosis groups in terms of International List numbers, see table 1; table 2 and figs. 1 and 2 show the frequency and duration of specific causes included in the broad groups.

bility); the arrangement and inclusions in the tables are similar to those already discussed in connection with duration in bed. Table 6 for specific diseases includes all diagnoses with 25 or more cases with a known number of days of disability. Because there were rather large numbers of disabling cases in which the actual number of days of disability was unknown, diagnoses are missing from this table which might be expected from the total number of cases if all had been of known disabling duration.

Tables 7 and 8 show the distribution of cases according to the total duration of symptoms, including nondisabled as well as disabled days. The extremely approximate nature of this item has already been discussed.

IV. SUMMARY

Data on the frequency and duration of illness during a 12-month period between 1928 and 1931 were obtained for 8,758 white families in 130 localities in 18 States. Durations within the study year were recorded in three ways: (*a*) Days in bed, (*b*) days of inability to work or pursue other usual activities (disability), and (*c*) the total duration of symptoms. Each family was visited at intervals of 2 to 4 months to obtain the information.

The mean duration [13] for illness from all causes was 4.3 days in bed per total case, and 8.5 days in bed per bed case; 51 percent of the total recorded cases were in bed for 1 or more days. For 13 broad diagnosis groups, the duration in bed per total case of sole diagnosis ranged from 1.0 days for skin diseases and 1.7 days for minor digestive cases to 9.6 days for the degenerative diseases of old age and 12.2 for the nervous diseases. Of specific diseases, respiratory tuberculosis showed the longest duration in bed per total case. Fortunately, the diseases with the highest incidence, such as the minor respiratory and minor digestive affections, have the shortest average durations in bed (figs. 1 and 2). Their frequent occurrence, however, makes them responsible for a large aggregate number of days in bed per year.

Considering broad diagnosis groups, the nervous diseases, with 39 percent of the cases of sole diagnosis in bed for 1 or more days, show the longest duration in bed or hospital per bed case, 31.5 days; the minor digestive diseases, with 49 percent in bed for 1 or more days, show the shortest duration with 3.4 days in bed per bed case. In terms of disability also, the nervous diseases, with 47 percent causing disability for 1 or more days, show the longest duration of disability, 46.6 disabled days per disabling case; the minor digestive diseases, with 56 percent causing disability for 1 or more days, show the shortest duration with 5.5 days disabled per disabling case. In total duration

[13] In a preceding paper (*14*) some mean durations were quoted that represented ratios between case and day rates per 1,000 that had been adjusted to a standard population; the durations in the present paper are based on actual cases and days and thus differ somewhat from that study.

TABLE 8.—*Distribution of illnesses from specific causes* [1] *according to total duration of symptoms within the year of observation—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

[Sole diagnosis only]

Diagnosis and International List numbers, 1920 revision	Number of cases with known duration of symptoms	Percent of cases with the specified total duration of symptoms, in days, during the year of observation									
		All cases of known duration	Less than 3	3–5	6–8	9–11	12–17	18–24	25–45	46–75	76–365
Minor respiratory diseases:											
Influenza and grippe (11)	3,098	100	4.0	24.0	30.7	14.5	17.3	5.6	3.6	0.3	0.1
Bronchitis and chest colds (99)	1,772	100	3.3	20.7	31.0	14.3	18.1	6.6	4.4	.7	.9
Coryza and colds, unqualified (pt. 97, pt. 107)	8,747	100	9.9	34.5	31.7	8.5	9.5	3.2	1.9	.3	.4
Cough (pt. 107)	93	100	8.6	20.4	16.1	8.6	18.3	11.8	7.5	4.3	4.3
Tonsillitis (pt. 109)	830	100	8.0	36.7	31.9	9.8	9.6	3.1	.8	----	----
Quinsy (pt. 109)	65	100	----	6.2	29.2	20.0	21.5	15.4	7.7	----	----
Sore throat (pt. 109)	614	100	11.2	32.9	26.7	9.6	10.7	3.3	4.6	.3	.7
Other pharynx and tonsil affections, except tonsillectomy (pt. 109)	128	100	4.7	29.7	20.3	9.4	15.6	7.0	5.5	3.1	4.7
Laryngitis (pt. 98)	100	100	7.0	32.0	27.0	11.0	9.0	5.0	7.0	1.0	1.0
Croup (pt. 98)	108	100	24.1	35.2	29.6	4.6	2.8	.9	2.8	----	----
Other respiratory diseases:											
Tonsillectomy and adenoidectomy (pt. 109)	727	100	7.0	29.0	37.0	10.6	10.7	2.8	2.6	.3	----
Pneumonia, all forms (100, 101)	235	100	.9	2.1	8.9	6.4	26.4	26.4	21.3	6.0	1.7
Sinusitis (pt. 97)	813	100	3.2	10.5	14.4	11.2	18.8	6.7	15.0	6.1	14.1
Asthma (105)	122	100	8.2	10.7	12.3	4.1	12.3	5.7	4.9	2.5	39.3
Hay fever (pt. 107)	58	100	5.1	8.6	----	1.7	12.1	8.6	25.9	8.6	29.3
Pleurisy (102)	85	100	3.5	18.8	27.1	11.8	15.3	14.1	3.5	1.2	4.7
Respiratory tuberculosis (pt. 31)	84	100	----	1.2	----	----	----	----	1.2	2.4	95.2
Minor digestive diseases:											
Indigestion, upset stomach and nausea (pt. 112)	1,102	100	31.7	30.3	17.1	4.7	6.6	3.5	3.4	.9	1.7
Biliousness (pt. 112)	134	100	33.6	39.6	20.1	2.2	.7	----	2.2	.7	.7
Other and ill-defined stomach diseases (pt. 112)	191	100	15.1	14.7	16.8	6.8	9.9	4.2	9.9	3.7	18.8
Diarrhea and enteritis (15, pt. 16, 113, 114)	755	100	22.4	35.0	19.5	5.6	8.1	3.2	2.8	.5	3.0
Other digestive diseases:											
Ulcers of stomach and duodenum (111)	64	100	----	4.7	4.7	3.1	6.3	4.7	14.1	7.8	54.7
Appendicitis (117)	282	100	5.7	9.6	11.7	5.7	17.0	17.7	23.8	3.9	5.0
Hernia, intestinal obstruction (118)	82	100	2.4	1.2	4.9	3.7	9.8	12.2	18.3	11.0	36.6
Constipation (pt. 119)	73	100	24.6	17.8	6.8	1.4	5.5	5.5	1.4	1.4	35.6
Biliary calculi, cholecystitis (123, pt. 124)	157	100	13.4	8.3	14.0	5.7	12.7	3.8	16.6	5.7	19.7
Other and ill-defined liver diseases (pt. 124)	61	100	4.9	14.8	14.8	18.0	21.3	1.6	8.2	4.9	11.5
Diseases of the mouth except teeth and gums (pt. 108)	53	100	7.5	24.5	28.3	11.3	13.2	3.8	3.8	----	7.5
Communicable diseases:											
Measles (7)	875	100	.8	16.5	21.9	23.3	33.0	3.5	.8	.1	----
German measles (pt. 25)	58	100	----	56.9	29.3	6.9	6.9	----	----	----	----
Whooping cough (9)	680	100	.4	.3	.3	1.6	5.4	7.2	63.5	18.8	2.4
Chickenpox (pt. 25)	561	100	.7	4.1	10.7	19.6	51.7	11.9	1.2	----	----
Mumps (13)	434	100	1.2	11.8	23.7	13.6	32.9	14.7	2.1	----	----
Scarlet fever (8)	211	100	.9	.5	1.9	1.4	10.4	20.4	61.1	2.8	.5
Diphtheria (10)	68	100	----	4.4	10.3	4.4	32.4	30.9	16.2	1.5	----
Malaria (5)	117	100	6.0	26.5	34.2	9.4	10.3	4.3	7.7	.9	.9
Local and other infections not specified as accidental (41)	214	100	1.4	10.7	23.8	12.1	22.4	7.5	15.4	4.7	1.9
Smallpox vaccination (pt. 42)	70	100	22.9	31.4	25.7	2.9	7.1	4.3	4.3	----	1.4
Ear and mastoid diseases:											
Earache (pt. 86)	104	100	27.9	36.5	14.4	6.7	8.7	1.0	3.8	----	1.0
Otitis media (pt. 86)	380	100	3.9	16.1	21.6	11.6	20.0	8.4	12.9	2.1	3.4
Other ear diseases (pt. 86)	143	100	36.4	12.6	11.2	7.0	8.4	6.3	4.9	1.4	11.9

[1] The table includes only illnesses with a single diagnosis and with 50 or more cases of known duration of symptoms. Cases with onset prior to the study and those still sick on the last visit are included along with completed cases, but only for the days of sickness that came within the study year. Average durations tend to be greater for incomplete than for complete cases because the longer the case the greater the probability that it will be still sick at the last visit.

TABLE 8.—*Distribution of illnesses from specific causes according to total duration of symptoms within the year of observation—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*—Continued

Diagnosis and International List numbers, 1920 revision	Number of cases with known duration of symptoms	Percent of cases with the specified total duration of symptoms, in days during the year of observation									
		All cases of known duration	Less than 3	3–5	6–8	9–11	12–17	18–24	25–45	46–75	76–365
Nervous diseases except cerebral hemorrhage, paralysis, neuralgia, and neuritis:											
Nervousness (pt. 84)	190	100	4.2	14.2	10.5	4.7	10.0	10.5	14.7	7.9	23.2
Neurasthenia, nervous breakdown (pt. 84)	97	100	4.1	3.1	10.3	5.2	9.3	4.1	12.4	16.5	35.1
Other nervous diseases except cerebral hemorrhage, paralysis, neuralgia, neuritis and convulsions (70–73, 76–78, 81, pt. 84)	107	100	6.5	4.7	2.8	2.8	3.7	2.8	6.5	1.9	68.2
Rheumatism and related diseases:											
Chronic rheumatism and arthritis (pt. 52)	128	100	.8	1.6	4.7	2.3	4.7	2.3	9.4	3.9	70.3
Rheumatism, unqualified (pt. 52)	189	100	1.6	9.5	15.9	10.1	20.6	15.9	14.8	4.2	7.4
Neuralgia and neuritis (82)	226	100	8.8	13.7	11.5	9.3	11.1	5.8	14.2	4.9	20.8
Lumbago (pt. 158)	118	100	1.7	20.3	22.0	11.9	20.3	7.6	7.6	5.1	3.4
Degenerative diseases:											
Benign tumors, except of female organs (50)	98	100	15.3	9.2	13.3	10.2	8.2	8.2	15.3	5.1	15.3
Diabetes (57)	56	100	----	----	1.8	1.8	----	----	1.8	3.6	91.1
Diseases of heart (87–90)	194	100	7.2	6.2	10.8	2.6	6.7	3.1	5.7	5.7	52.1
Arteriosclerosis and high blood pressure (pt. 91, pt. 96)	95	100	2.2	2.1	5.3	2.1	6.3	4.2	11.6	2.1	64.2
Other and unspecified kidney diseases except pyelitis (pt. 131)	124	100	3.2	12.1	13.7	11.3	14.5	11.3	13.7	2.4	17.7
Cystitis, and calculi of urinary passages (132, pt. 133)	125	100	4.0	14.4	19.2	6.4	16.0	11.2	10.4	3.2	15.2
Other diseases of bladder (pt. 133)	54	100	11.1	9.3	9.3	3.7	11.1	13.0	20.4	----	22.2
Skin diseases:											
Furuncle (152)	294	100	1.4	13.6	21.4	13.6	17.7	11.6	12.6	4.4	3.7
Abscesses and ulcers (153, pt. 154)	111	100	2.7	6.3	25.2	17.1	14.4	9.9	15.3	6.3	2.7
Impetigo (pt. 154)	130	100	----	10.8	20.0	10.0	16.9	14.6	19.2	5.4	3.1
Urticaria, hives (pt. 154)	61	100	23.0	26.2	18.0	4.9	13.1	6.6	1.6	----	6.6
Scabies (pt. 154)	92	100	----	13.0	14.1	9.8	14.1	15.2	17.4	9.8	6.5
Eczema (pt. 154)	134	100	2.2	3.0	3.7	3.7	10.4	6.7	20.1	6.0	44.0
Other and ill-defined skin diseases (151, pt. 154, pt. 205)	396	100	13.8	7.1	14.9	7.8	14.1	8.8	13.9	7.3	12.1
Female genital and puerperal diagnoses:											
Menstrual disorders (140, pt. 141)	180	100	18.9	17.2	14.4	5.0	11.7	6.1	6.1	3.3	17.2
Other and ill-defined nonvenereal diseases of female organs, including chronic results of childbirth (pt. 141, 142, pt. 145, pt. 149)	215	100	3.3	4.7	4.7	3.3	10.7	8.8	16.7	9.8	38.1
Abortions, miscarriages, and stillbirths (pt. 143)	133	100	1.5	3.0	15.0	19.5	21.8	16.5	15.0	6.0	1.5
Live births (pt. 145, pt. 149)	697	100	----	1.0	2.4	29.6	52.4	9.5	4.3	.3	.6
Accidental injuries:											
Poisoning by ivy, oak, and other plants (pt. 177)	96	100	2.1	21.9	41.7	9.4	11.5	8.3	5.2	----	----
Other accidental poisoning (175, 176, pt. 177)	110	100	28.2	27.3	25.5	2.7	5.5	6.4	3.6	.9	----
Automobile accidents (pt. 188)	175	100	8.6	8.0	13.1	9.1	17.7	13.1	16.6	7.4	6.3
Accidental burns (179)	139	100	9.4	14.4	22.3	9.4	20.9	12.9	10.1	----	.7
Accidental injuries by cutting or piercing instruments (184)	274	100	16.8	21.2	20.8	9.9	14.2	7.7	7.7	1.5	.4
Accidental falls (185)	174	100	10.9	21.8	16.7	6.9	17.8	9.8	8.6	4.6	2.9
Eye accidents (pt. 85, pt. 202)	98	100	38.8	22.4	13.3	8.2	8.2	1.0	5.1	1.0	2.0
All other accidents except injury by animals (165, 174, 178, 180–183, 186, 187, pt. 188, 190–200, 201, pt. 202)	1,529	100	7.9	15.9	17.0	10.1	14.4	10.7	16.1	4.2	3.9
All other diseases:											
Anemia, all forms (58)	92	100	2.2	2.2	3.3	----	7.6	2.2	10.9	15.2	56.5
Diseases of thyroid gland (60)	100	100	7.0	----	----	2.0	2.0	2.0	12.0	5.0	70.0
Acidosis (pt. 69)	55	100	1.8	25.5	21.8	10.9	18.2	5.5	5.5	7.3	3.6
Sty (pt. 85)	57	100	5.3	28.1	31.6	7.0	14.0	3.5	3.5	3.5	3.5
Conjunctivitis, pinkeye, sore eye (pt. 85)	179	100	6.1	35.2	25.7	10.6	10.6	3.9	4.5	2.2	1.1
Other eye diseases (pt. 85)	128	100	12.5	14.8	10.9	5.5	4.7	4.7	13.3	1.6	32.0
Hemorrhoids (pt. 93)	86	100	5.8	11.6	15.1	8.1	9.3	5.8	17.4	5.8	20.9
Diseases of lymphatic system (94)	165	100	3.0	18.8	17.6	9.7	19.4	11.5	12.1	4.2	3.6

TABLE 8.—*Distribution of illnesses from specific causes according to total duration of symptoms within the year of observation—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*—Continued

Diagnosis and International List numbers, 1920 revision	Number of cases with known duration of symptoms	Percent of cases with the specified total duration of symptoms, in days, during the year of observation									
		All cases of known duration	Less than 3	3–5	6–8	9–11	12–17	18–24	25–45	46–75	76–365
All other diseases:—Cont.											
Diseases of the teeth and gums (pt. 108)	205	100	21.0	25.9	19.5	7.3	11.7	4.9	4.4	1.5	3.9
Pyelitis (pt. 131)	76	100	1.3	7.9	15.8	7.9	21.1	14.5	14.5	5.3	11.8
Circumcision (pt. 136)	54	100	5.6	35.2	37.0	11.1	7.4	3.7	----	----	----
Diseases of bones and joints except tuberculosis and rheumatism (155, 156)	68	100	5.8	5.9	7.4	1.5	5.9	4.4	11.8	4.4	52.9
Ill-defined orthopedic conditions and diseases of the organs of locomotion, except lumbago, myalgia, and myositis (157, pt. 158, pt. 205)	124	100	9.7	.8	2.4	4.0	9.7	4.0	8.9	4.0	56.5
Congenital malformations and diseases of early infancy (159–163)	61	100	24.6	11.5	1.6	----	4.9	1.6	11.5	4.9	39.3
Foot trouble (pt. 205)	74	100	93.2	----	----	----	----	1.4	1.4	----	4.1
Headache (pt. 205)	214	100	56.1	18.7	7.9	3.7	2.3	2.3	1.9	.9	6.1
Backache (pt. 205)	87	100	12.6	20.7	23.0	6.9	10.3	5.7	8.0	2.3	10.3
Debility, fatigue, exhaustion, malnutrition, loss of weight (pt. 205)	185	100	16.7	5.9	10.8	4.9	11.4	8.6	13.5	7.0	21.1
Rash, unqualified (pt. 205)	89	100	13.5	31.5	15.7	9.0	13.5	3.4	11.2	----	2.2

of symptoms the degenerative diseases show the longest duration, 109 days within the study year per case of sole diagnosis, and the minor respiratory diseases show the shortest duration of symptoms with 10 days per case.

Tables for specific diagnoses give average durations of the different types (table 2) and distributions of cases according to the durations of the various types (tables 4, 6, and 8).

V. REFERENCES

Preceding Papers in this Series

(*1*) Collins, Selwyn D.: Causes of illness in 9,000 families. Pub. Health Rep., **48**: 283–308 (Mar. 24, 1933) (Reprint 1563).

(*2*) ————: Frequency of health examinations in 9,000 families. Pub. Health Rep., **49**: 321–346 (Mar. 9, 1934) (Reprint 1618).

(*3*) ————: Frequency of eye refractions in 9,000 families. Pub. Health Rep., **49**: 649–666 (June 1, 1934) (Reprint 1627).

(*4*) ————: A general view of the causes of illness and death at specific ages. Pub. Health Rep., **50**: 237–255 (Feb. 22, 1935) (Reprint 1673).

(*5*) ————: Age incidence of illness and death considered in broad disease groups. Pub. Health Rep., **50**: 507–525 (Apr. 12, 1935) (Reprint 1681).

(*6*) ————: Age incidence of specific causes of illness. Pub. Health Rep., **50**: 1404–1427 (Oct. 11, 1935) (Reprint 1710).

(*7*) ————: History and frequency of smallpox vaccinations and cases in 9,000 families. Pub. Health Rep., **51**: 443–479 (Apr. 17, 1936) (Reprint 1740).

(*8*) ————: History and frequency of typhoid fever immunizations and cases in 9,000 families. Pub. Health Rep., **51**: 897–926 (July 10, 1936) (Reprint 1758).

(*9*) ————: History and frequency of diphtheria immunizations and cases in 9,000 families. Pub. Health Rep., **51**: 1736–1773 (Dec. 18, 1936) (Reprint 1789).

(*10*) Collins, Selwyn D.: History and frequency of clinical scarlet fever cases and of injections for artificial immunization among 9,000 families. Pub. Health Rep., **53**: 409–427 (Mar. 18, 1938) (Reprint 1917).
(*11*) ————: Frequency of surgical procedures among 9,000 families. Pub. Health Rep., **53**: 587–628 (Apr. 22, 1938) (Reprint 1926).
(*12*) ————: Percentage of illnesses treated surgically among 9,000 families. Pub. Health Rep., **53**: 1593–1616 (Sept. 9, 1938) (Reprint 1981).
(*13*) ————: Frequency of dental services among 9,000 families. Pub. Health Rep., **54**: 629–657 (Apr. 21, 1939) (Reprint 2058).
(*14*) ————: Cases and days of illness among males and females, with special reference to confinement to bed. Pub. Health Rep., **55**: 47–93 (Jan. 12, 1940) (Reprint No. 2129).

Other References

(*15*) Collins, S. D., and Gover, Mary: Incidence and clinical symptoms of minor respiratory attacks with special reference to variation with age, sex, and season. Pub. Health Rep., **48**: 1155–1178 (Sept. 22, 1933) (Reprint 1594).
(*16*) Falk, I. S., Klem, M. C., and Sinai, N.: The incidence of illness and receipt and costs of medical care among representative families. Publication No. 26 of the Committee on the Costs of Medical Care, University of Chicago Press, 1933.
(*17*) Pearl, Raymond: Medical Biometry and Statistics, 2d edition, W. B. Saunders Co., 1930.
(*18*) Perrott, G. St. J., Tibbitts, Clark, and Britten, R. H.: The National Health Survey. Scope and method of the Nation-wide canvass of sickness in relation to its social and economic setting. Pub. Health Rep., **54**: 1663–1687 (Sept. 15, 1939) (Reprint 2098).

SOME DEVELOPMENTS IN THE WATER POLLUTION RESEARCH PROGRAM OF THE PUBLIC HEALTH SERVICE [1]

By J. K. Hoskins, *Senior Sanitary Engineer, United States Public Health Service, Stream Pollution Investigations Station, Cincinnati, Ohio*

The headquarters station of the Public Health Service for research in matters pertaining to water, sewage, and stream pollution, now a section of the National Institute of Health, is located at Cincinnati, Ohio. This type of research has been a gradual development of the original pollution and natural purification study of the Ohio River organized and directed by the late Dr. Wade H. Frost. The same building then occupied is still in use but enlarged activities have rendered it inadequate. An allotment of $275,000 from the general public building fund has been made for a laboratory building, construction of which will be started on a new site as soon as agreements for acquirement of the 8-acre property are consummated and plans can be completed.

The research work in which the station is engaged is concerned with sanitary problems pertaining to the uses of water, its pollution and purification. Recently the fundamental mechanism of the biochemical

[1] Prepared for presentation before the Public Health Engineering Section, American Public Health Association, Pittsburgh, Pa., Oct. 17–20, 1939. Published in the American Journal of Public Health, May 1940.

221743°—40——8

oxidation of organic matter, as it functions in biological methods of sewage treatment, has been under observation. Considerable experimental work has been completed concerning determination of the rates of oxygen withdrawal from flowing water by underlying sludge deposits. A field study of the sanitary condition of the Scioto River as affected by installation of modern methods of treatment of contributed sewage has been completed. A Nation-wide continuing census of water and sewage treatment plants has been inaugurated. The station is also conducting an extensive laboratory study of the sanitary condition of the waters of the Ohio River and its tributaries as a part of the pollution survey being undertaken jointly by the Public Health Service and the U. S. Army Engineer Corps.

Sewage treatment studies.—The primary objective of this research has been to determine the factors that impair the efficiency of the activated sludge method of sewage purification. Exploration of these interfering agencies has led to an investigation of the basic mechanism of the biological oxidation of organic matter in liquids and the conditions which stimulate or retard its progress. It has been found advisable to work with individual parts of the complex biological and biochemical principles comprising the activated sludge process and to study the functioning of some of these separate parts free from interference and under controlled environment, and then gradually to assemble these parts and observe the resulting effect. Following this procedure and employing apparatus developed for observing the rate of oxygen use (*1*) and using pure cultures obtained from individual cells isolated from activated sludge have made it possible to develop certain conclusions concerning the oxidation process.

The predominant type of organisms in activated sludge appear to belong to the zoogleal group of bacteria. These bacteria, when aerated in pure culture in a clear synthetic medium or in sterilized sewage, produce a growth which exhibits the characteristic properties of activated sludge such as flocculation, rapid settling, and clear supernatant with high rates of oxidation and total purification of the contained soluble organic matter (*2*). Following this lead, it has been possible to demonstrate the exceedingly high rate of oxidation of organic matter effected by activated sludge in comparison with the removal rate of biochemical oxygen demand (B. O. D.) regularly observed in streams or in the dilution process. It appears that the massed or clumped zoogleal bacteria maintained by proper aeration necessary for their rapid growth explains the high rate of biochemical oxidation obtained in the activated sludge process (*3*, *4*). Pursuing this line of study further, the similarity of the clarification mechanism of normal activated sludge and of that occurring with the elementary pure bacterial culture sludge has been demonstrated. Moreover, it has been possible to trace the component rates of total purification,

including the oxidation rate as distinguished from those of net adsorption and synthesis of organic matter occurring in the activated sludge process (*5*). Further studies are now in progress which appear to demonstrate the close similarity in characteristics and functions of the zoogleal bacteria as obtained from activated sludge flocs and from the slime coatings of sewage sprinkling filters.

The problem of developing some practicable method for ascertaining quickly the condition of activated sludge by the plant operator has been given consideration. The B. O. D. reduction test appears to be an insensitive indicator of the change in purification capacity of activated sludge. The quantity of oxygen used per gram of suspended matter during a short aeration period of the sewage-sludge mixture was found to be a better index of activated sludge condition (*6*).

Aside from devices for observing the rate of oxygen used, determination of the capacity of activated sludge for glucose removal from the substrate appears to offer some promise as a sludge index, as well as an explanation of the mechanism of removal of soluble organic constituents in sewage. Studies of the ash content of both pure culture zoogleal and normal activated sludge have indicated no definite relation between ash volume or composition and oxidation or total purification capacities.

The relationship of fungus growths of the *Sphaerotilus* type to sludge bulking are being studied. Our observations appear to indicate that *Sphaerotilus* requires very little oxygen for its growth, is therefore of small value as an oxidizing agent, and flourishes best when conditions detrimental to the normal growth and functioning of the zoogleal bacteria prevail in the sludge-sewage mixture. The previous work of Ruchhoft has been confirmed concerning the stimulation of *Sphaerotilus* growth afforded by carbohydrates in the sewage liquor. Results indicate that this growth stimulation is not directly proportional to the amount of mono- or di-saccharoses present, but is an indirect stimulus by a substance or substances present when excessive amounts of carbohydrate material upset the usual biological balance in normal activated sludge.

In research of this nature, development of suitable methods and exploration of incidental observations are generally necessary and profitable. Thus, it has been determined that the modified azide procedure (*7*) is of value in increasing the accuracy of the B. O. D. test in the presence of nitrites. It has also been discovered that the Winkler method for determination of the B. O. D. of river muds may be quite inaccurate owing to interference of contained substances such as insoluble sulfides with the reagents but that many of these interfering compounds can be removed by coagulation previous to beginning the test for dissolved oxygen. Again, the dissolved

oxygen saturation value of sewage was found to be approximately equal to that of clear water (*8*).

Stream oxidation study.—Experimental studies have been in progress over a considerable period designed to develop practical methods for evaluation of the capacities of flowing streams for natural oxidation of sewage and other organic wastes. Past studies have shown that the rate of natural oxidation of organic materials in solution and suspension in a natural body of water can be measured directly by the ordinary B. O. D. test of representative samples. The most uncertain element is the oxygen demand exerted by underlying sludge deposits which are not included in the water sample and are for this reason extremely difficult to measure, both as to their extent and their rates of oxidation under the conditions in which they exist naturally. Starting with the development of a rational method for calculating the deoxygenating effect of sludge deposits based upon observations of the B. O. D. of the supernatant water (*9*) and proceeding to the explanation of formulae by which rates of oxidation and reaeration and the trend of the resultant oxygen curve may be calculated from observations of progressive changes in the biochemical oxygen demand and dissolved oxygen content of a polluted stream (*10*) the results of experimental work have been presented showing the effect of various factors on the oxygen depletion and reaeration rates occurring (*11*). Later direct experimental evidence on the oxidation rates of river bottom sediments now awaits critical analysis and publication. A complementary study has indicated that the rates of reaeration of sewage-polluted streams particularly when flowing at higher velocities are materially lower than reaeration rates of unpolluted waters (*12*).

Scioto River study.—The evaluation of sewage treatment in definite terms of stream improvement has been the objective of a comprehensive field study of the sanitary condition of the Scioto River in Ohio during the past 2 years or more. The city of Columbus discharges its liquid wastes into the Scioto River. The original sewage treatment plant was entirely inadequate and obsolete and has been recently replaced by a modern one of the activated sludge type. Observations of the bacteriological, biological, and biochemical condition of the river waters and channel sediments were undertaken for a complete year throughout the 100-mile river stretch below Columbus, both prior to and following completion of the new sewage treatment works. The extensive analytical data are now being assembled and critically analysed in preparation for publication of the results obtained and the conclusions possible to be drawn. A preliminary review of the data indicates that although the old Imhoff tank sprinkling filter plant was entirely inadequate, the effect of this effluent on the river was not so detrimental as that discharged from the new

plant when plain sedimentation only was employed during the first few months of its operation. However, when complete activated sludge treatment was begun, a profound improvement in the sanitary condition of the stream promptly occurred. This improvement was definitely reflected in the bacteriological and plankton content and biochemical reactions of the water as well as in the animal life in the bottom sediments. Some incidental observations pertaining to stream biology and the verification of certain organisms as pollution indicators have been published (*13*, *14*, *15*).

Inventory of water and sewage treatment plants.—Although the recently inaugurated continuing census of water and sewage treatment plants and stream pollution conditions throughout the United States is not a strictly fundamental research activity, it is intended to serve as a useful tool to locate problems in these fields and record progress made in their solution as well as to serve as an aid to the engineering divisions of State health departments. Work is in progress on the collection of basic data on each individual plant. As soon as sufficient data have been made available by the States, it is proposed to summarize them for publication and to revise such publications periodically. It is hoped that eventually the Public Health Service may act as a clearing house for the exchange of such information and thereby relieve the individual States of some requests for data of this nature.

Ohio River pollution survey.—Legislation enacted by the 75th Congress, first session, directed the Secretary of War to have made a comprehensive survey of the pollution of the Ohio River and its tributaries for determination of necessary corrective measures. Provision was also made for obtaining the cooperation and assistance of the Public Health Service in this activity. This survey is now being carried on jointly by the U. S. Engineer Corps and the Public Health Service. To the Stream Pollution Investigations Station has been assigned the direction and conduct of all analytical work of the survey. Although this assignment is not primarily one of research, but rather one of fact finding, it does afford some possibilities of employing the assembled data for critical study. The central third of the watershed at present under observation extends from the mouth of the Kanawha at Point Pleasant, W. Va., to the mouth of the Kentucky at Carrollton, Ky., including the tributaries within this river stretch of about 280 miles, and comprises a watershed area of over 30,000 square miles. It is proposed to cover the upper section of the watershed in 1940 and the lower third in 1941.

The central laboratory for this field study is located at Cincinnati, to which point samples are brought by motorboats and automobiles from accessible main river sampling stations and tributaries. The upper section of this river stretch and tributary area is served similarly by a completely equipped floating laboratory. The fringes

of the watershed not readily accessible to the two large laboratories are being covered by mobile laboratory units moving from place to place. Coincidental with the analytical work, the Public Health Service is collecting detailed data pertaining to the sources, nature, and extent of pollution contributed throughout the watershed.

A supplementary part of this Ohio River study is an epidemiological and bacteriological investigation now in progress of the endemic and epidemic occurrence of intestinal disorders which may be water-borne. Such outbreaks of undetermined origin are occurring with increasing frequency and while many of them have certain characteristics which cast suspicion on the drinking-water supply, the causative factors are frequently obscure.

Miscellaneous activities.—In the conduct of any research program opportunities are always presented for exploring some interesting problems more or less directly related to the main objectives. In our bacteriological laboratories the enumeration of the coliform group of organisms in water samples comprises an appreciable portion of the routine work. The possibility of making direct counts of this group on some solid differential medium is being investigated. The results of such plate counts on duplicate samples from a large variety of sources are being correlated with those obtained by the standard methods dilution procedure. The data thus far accumulated appear to indicate that the direct counts on brilliant green lactose bile agar are sufficiently accurate to justify serious consideration of this shortened procedure when the density of coliforms in the sample is sufficient to provide for accurate plate counts.

In the coverage of certain parts of the Ohio River watershed an opportunity was afforded to explore the plankton life existing in the acid mine waters draining from coal mines. It was found that such microscopic life was restricted to only a few specific forms (*16*, *17*).

The methods of preparation of plankton specimens for microscopic examination and the changes in appearance of some of them induced by formalin used for their preservation has also been the subject of a separate publication (*18*). Another interesting study has been an endeavor to evaluate the contribution of dissolved oxygen contributed to water by a definite species of algae (*19*).

The results of the research work of the station are generally published in the PUBLIC HEALTH REPORTS and are usually available in the form of reprints. Certain of the technical papers pertaining to sewage research are printed simultaneously in the Sewage Works Journal or separately in appropriate professional journals.

REFERENCES

(1) Studies of sewage purification. I. Apparatus for the determination of dissolved oxygen in sludge-sewage mixtures. By E. J. Theriault and P. D. McNamee. Pub. Health Rep., **50**: 480–89 (April 5, 1935). (Reprint No. 1680.)

(2) Studies of sewage purification. VI. Biochemical oxidation by sludges developed by pure cultures of bacteria isolated from activated sludge. By C. T. Butterfield, C. C. Ruchhoft, and P. D. McNamee. Pub. Health Rep., **52**: 387–412 (April 4, 1937). (Reprint No. 1812.)

(3) Studies of sewage purification. VII. Biochemical oxidation by activated sludge. By C. C. Ruchhoft, P. D. McNamee, and C. T. Butterfield. Pub. Health Rep., **53**: 1690–1718 (September 23, 1938). (Reprint No. 1987.)

(4) Studies of sewage purification. VIII. Observations on the effect of variations in the initial numbers of bacteria and of the dispersion of sludge flocs on the course of oxidation of organic material by bacteria in pure culture. By C. T. Butterfield and Elsie Wattie. Pub. Health Rep., **53**: 1912–34 (October 28, 1938). (Reprint No. 1999.)

(5) Studies of sewage purification. IX. Total purification, oxidation, adsorption, and synthesis of nutrient substrates by activated sludge. By C. C. Ruchhoft, C. T. Butterfield, P. D. McNamee, and Elsie Wattie. Pub. Health Rep., **54**: 468–96 (March 24, 1939). (Reprint No. 2050.)

(6) Studies of sewage purification. X. Changes in characteristics of activated sludge induced by variations in applied load. By C. C. Ruchhoft and R. S. Smith. Pub. Health Rep., **54**: 924–38 (June 2, 1939). (Reprint No. 2074.)

(7) Determination of dissolved oxygen by the Rideal-Stewart and Alsterberg modifications of the Winkler method. By C. C. Ruchhoft, W. A. Moore, and O. R. Placak. Ind. and Eng. Chemistry, Anal. Ed., **10**: 701–03 (December 15, 1938).

(8) The solubility of atmospheric oxygen in sewage. By W. A. Moore. Sewage Works J., **10**: 241–46 (March 1938).

(9) Measures of natural oxidation in polluted streams. I. The oxygen demand factor. By H. W. Streeter. Sewage Works J., **7**: 251–79 (March 1935).

(10) Measures of natural oxidation in polluted streams. II. The reaeration factor and oxygen balance. By H. W. Streeter. Sewage Works J., **7**: 534–52 (May 1935).

(11) Measures of natural oxidation in polluted streams. III. An experimental study of stream-flow conditions. By H. W. Streeter. Sewage Works J., **8**: 282–316 (March 1936).

(12) Measures of natural oxidation in polluted streams. IV. Effect of sewage on atmospheric reaeration rates under stream-flow conditions. By R. W. Kehr. Sewage Works J., **10**: 228–40 (March 1938).

(13) Scioto River forms of Chrysococcus. By J. B. Lackey. Am. Midland Naturalist, **20**: 619–23 (November 1938).

(14) Notes on plankton flagellates from the Scioto River. By J. B. Lackey. Lloydia, **2**: 128–43 (June 1939).

(15) Protozoan plankton as indicators of pollution in a flowing stream. By J. B. Lackey. Pub. Health Rep., **53**: 2037–58 (November 18, 1938). (Reprint No. 2004.)

(16) The flora and fauna of surface waters polluted by acid mine drainage. By J. B. Lackey. Pub. Health Rep., **53**: 1499–1507 (August 26, 1938). (Reprint No. 1976.)

(17) Aquatic life in waters polluted by acid mine waste. By J. B. Lackey. Pub. Health Rep., **54**: 740–46 (May 5, 1939). (Reprint No. 2064.)

(18) The manipulation and counting of river plankton and changes in some organisms due to formalin preservation. By J. B. Lackey. Pub. Health Rep., **53**: 2080–93 (November 25, 1938). (Reprint No. 2007.)

(19) Experimental studies of natural purification in polluted waters. X. Reoxygenation of polluted waters by microscopic algae. By W. C. Purdy. Pub. Health Rep., **52**: 945–78 (July 16, 1937). (Reprint No. 1839.)

VIABILITY OF *AËDES AEGYPTI* EGGS

By JAMES H. LE VAN, *Passed Assistant Sanitary Engineer, United States Public Health Service*

Aëdes aegypti eggs laid on June 12, 1938, in four small wooden troughs containing water were put aside and were not disturbed for exactly one year's time. The troughs were kept in the humid air of the insectary. On June 12, 1939, these egg troughs were immersed in tap water. A few larvae hatched out from two of the troughs. Hatching was slightly delayed. Several larvae that were set aside were reared through to the adult stage.

The experiment was carried out in the insectary of the Aëdes Aegypti Control Unit attached to the Miami, Fla., Quarantine Station. It was begun by Sanitary Engineer H. A. Johnson when he was stationed in Miami and was completed by the author. The care of the egg troughs was entrusted to Attendant Jacob M. Detzel.

CONCLUSION

This experiment disclosed that it is possible for *Aëdes aegypti* mosquito eggs to remain viable in the vicinity of Miami, Fla., for at least one year. No freezing weather occurred during the experimental period.

THE THIRTY-EIGHTH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS

The thirty-eighth annual conference of State and Territorial Health Officers with the Surgeon General of the Public Health Service was held in Washington, D. C., on May 9, coming between the sessions of the conference of State and Provincial Health Officers, which met on May 8, 10, and 11.

The conference this year was strictly an executive meeting, with attendance limited to State health officers and administrative officers of the Public Health Service and the Children's Bureau who are directly responsible for the activities relating to State's relations. This restriction was made because of an expressed desire on the part of the State health officers and the practical necessity of accomplishing in a single day the work of the conference dealing with the manifold topics listed for discussion and the exchange of counsel on matters of health administration.

The conference was called to order by the Surgeon General. Mr. Wayne Coy, Assistant Administrator of the Federal Security Agency, representing Administrator Paul V. McNutt, gave the speech of welcome.

In his prefatory remarks the Surgeon General mentioned briefly several of the problems which confront public health administrators in general and which should be given attention. Among the most important of these are the extension of the areas of known plague infection in the western States, endemic typhus fever in the South, the potential danger from yellow fever as the result of increasing airplane travel, the lack of vaccination against smallpox, nutrition, industrial hygiene, housing and health, stream sanitation, hospital facilities, health insurance, medical care, programs for special diseases, the increasing importance of the chronic diseases of the older age groups and the need for adopting measures against these disorders for which the usual preventive measures that characterize long-established programs of health departments are not especially applicable. The Surgeon General mentioned the reorganization and coordination of Government agencies concerned primarily with health, education, and public welfare, and internal coordination through common service units, conference committees, and the assignment of personnel across division lines. He suggested that there is reason to believe that this pattern of organization will also find expression in State and local health services.

The annual conferences of State and Territorial Health Officers are held in accordance with the act of July 1, 1902. The first conference met in Washington on June 3, 1903, at which 22 States and Territories were represented. These meetings have developed a spirit of harmony and cooperation between the State and National Governments in matters of public health which has been of great value in developing a more closely integrated national health program under recent Federal Legislation.

At the recent meeting, it was agreed that the next conference should be executive in character. The date and place of meeting will be determined later.

COURT DECISION ON PUBLIC HEALTH

Employee held not to have suffered "injury" within meaning of workmen's compensation law.—(United States Circuit Court of Appeals, 5th Circuit; *Lux* v. *Western Casualty Co.*, 107 F.2d 1002; decided December 7, 1939.) In a suit by a widow to secure compensation under the Texas workmen's compensation law for the death of her husband it appeared that the deceased, a packing house employee, had to pass back and forth from a high temperature in the smokehouse to a near freezing temperature in the cooling room, that he was furnished a supposedly waterproof apron which was defective, and that he got wet through it and took a cold which passed into fatal pneumonia.

The compensation law granted compensation only for injury suffered in the course of employment and declared that "injury" should be construed to mean "damage or harm to the physical structure of the body and such diseases or infection as naturally result therefrom." The appellate court denied compensation, saying that for one merely to get wet or to pass from one commonly experienced temperature to another was not an "injury" as no damage to the physical structure of the body was done thereby. "Although," said the court, "a cold or pneumonia may naturally follow and may itself do damage to the physical structure of the body, it remains true that there was no initial industrial injury. Such infections and diseases can be added to an 'injury,' but they cannot substitute it under the statutory definition."

DEATHS DURING WEEK ENDED APRIL 27, 1940

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Apr. 27, 1940	Corresponding week, 1939
Data from 88 large cities of the United States:		
Total deaths	8,486	8,680
Average for 3 prior years	8,689	
Total deaths, first 17 weeks of year	158,257	158,639
Deaths under 1 year of age	523	500
Average for 3 prior years	502	
Deaths under 1 year of age, first 17 weeks of year	8,721	9,258
Data from industrial insurance companies:		
Policies in force	65,664,534	67,385,436
Number of death claims	13,544	15,976
Death claims per 1,000 policies in force, annual rate	10.8	12.4
Death claims per 1,000 policies, first 17 weeks of year, annual rate	10.7	11.7

PREVALENCE OF DISEASE

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

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED MAY 11, 1940

Summary

For the country as a whole no unusual incidence is shown for the current week in the communicable diseases reported weekly by the State health officers. The figures for each of the nine diseases included in the following table, with the exception of influenza, were below the 5-year (1935–39) median expectancy.

Kentucky reported 12 cases of meningococcus meningitis, as compared with 3 cases for the preceding week, but no other State reported more than 4 cases. The number of reported cases of smallpox dropped from 95 for the preceding week to 48, of which 13 cases occurred in Iowa. Sixteen cases of Rocky Mountain spotted fever were reported, of which 15 occurred in 5 northwestern States and 1 case in Maryland. Of 17 cases of endemic typhus fever, 6 were reported in Georgia and 5 in Texas.

For the week ended May 11, the number of deaths in 88 large cities, as reported to the Bureau of the Census, was 8,617, as compared with 8,459 for the preceding week and with a 3-year average (1937–39) of 8,370. The total number of deaths for the first 19 weeks of the current year is 175,331 as compared with 175,368 for the corresponding period last year and with a cumulative 3-year weekly average to date of 176,806. The infant mortality in these cities for the current week was 518, as compared with 496 for the preceding week and with a 3-year average of 509, while the cumulative total for the first 19 weeks of this year is 9,716, as compared with 10,252 for the same period last year.

Telegraphic morbidity reports from State health officers for the week ended May 11, 1940, and comparison with corresponding week of 1939 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none were reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939	
NEW ENG.												
Maine	0	1	1	1	44	1	454	140	134	0	0	0
New Hampshire	0	0	0	-	-	-	38	1	23	0	0	0
Vermont	0	0	1	-	-	-	12	142	142	0	0	0
Massachusetts	4	7	7	-	-	-	713	1,048	763	1	1	2
Rhode Island	0	1	0	-	-	-	159	93	76	0	0	0
Connecticut	2	0	5	1	2	1	84	1,129	333	0	0	1
MID. ATL.												
New York	23	26	38	[1] 16	[1] 12	[1] 8	945	2,320	3,027	4	4	6
New Jersey	6	9	14	5	4	7	759	66	934	0	0	2
Pennsylvania	20	30	28	-	-	-	417	135	1,530	4	8	7
E. NO. CEN.												
Ohio	17	9	20	44	-	26	22	40	1,544	1	2	5
Indiana	1	7	9	6	8	11	22	14	376	0	0	3
Illinois	17	32	36	7	77	30	198	43	296	1	2	3
Michigan [2]	3	20	8	7	10	-	661	481	481	0	1	3
Wisconsin	2	1	2	65	79	32	776	903	903	0	0	0
W. NO. CEN.												
Minnesota	1	2	2	2	3	2	135	293	293	0	0	1
Iowa	3	1	4	-	5	3	260	147	147	0	0	0
Missouri	12	1	16	2	2	32	24	7	41	2	0	3
North Dakota	0	2	1	6	37	15	5	90	30	0	1	0
South Dakota	1	0	0	1	5	-	1	233	4	0	0	0
Nebraska	1	2	3	-	4	1	23	399	215	0	0	0
Kansas	6	5	8	3	5	4	509	83	83	2	0	2
SO. ATL.												
Delaware	0	2	1	-	-	-	0	9	19	0	0	0
Maryland [2,3]	0	1	6	2	-	8	5	241	241	0	1	2
Dist. of Col	4	6	6	-	-	-	5	312	104	0	0	1
Virginia	9	8	9	114	154	-	298	760	496	3	0	6
West Virginia [2]	4	4	4	20	23	27	88	2	76	3	1	5
North Carolina	5	3	12	-	6	6	227	356	257	2	2	5
South Carolina [4]	2	6	6	393	389	115	88	22	74	0	1	1
Georgia [4]	4	11	8	56	117	-	144	74	-	1	0	2
Florida [4]	1	1	6	1	41	4	166	154	50	0	1	1
E. SO. CEN.												
Kentucky	4	10	9	12	3	9	120	47	286	12	2	6
Tennessee	2	2	7	42	77	77	181	105	105	2	0	4
Alabama [4]	3	4	8	47	199	51	103	149	149	0	2	2
Mississippi [2]	5	2	5	-	-	-	-	-	-	2	1	0
W. SO. CEN.												
Arkansas	3	6	6	46	96	70	120	55	55	0	0	1
Louisiana [4]	3	8	11	3	8	15	11	67	63	0	2	2
Oklahoma	5	10	5	40	111	51	13	305	66	0	0	1
Texas [4]	26	13	28	335	402	230	1,574	506	450	3	3	3
MOUNTAIN												
Montana [2]	2	2	1	31	32	2	57	626	42	0	0	0
Idaho [3]	0	0	0	-	1	6	33	83	22	1	0	0
Wyoming [3]	0	1	1	1	-	-	14	60	28	0	1	0
Colorado [5]	3	14	7	4	4	-	47	424	299	1	0	1
New Mexico	0	1	2	11	6	5	63	13	38	0	0	0
Arizona	1	0	1	73	39	35	73	22	22	0	0	0
Utah [2,3]	0	0	0	3	13	-	635	86	40	0	0	0

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended May 11, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939	
PACIFIC												
Washington	0	1	1	1			659	1,235	330	0	0	2
Oregon [3]	5	0	2	12	50	30	572	67	67	0	0	0
California	17	16	24	63	53	53	373	2,213	1,682	0	1	3
Total	227	288	386	1,386	2,121	959	11,806	15,800	15,800	45	37	115
19 weeks	6,412	8,468	10,035	162,162	143,546	132,715	139,147	258,610	258,610	759	934	2,664

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939	
NEW ENG.												
Maine	0	0	0	9	5	11	0	0	0	0	1	1
New Hampshire	0	0	0	1	5	7	0	0	0	0	0	0
Vermont	0	0	0	4	10	9	0	0	0	0	4	0
Massachusetts	0	0	0	153	191	233	0	0	0	4	1	1
Rhode Island	0	0	0	8	13	13	0	0	0	0	0	0
Connecticut	0	0	0	106	65	108	0	0	0	2	1	1
MID. ATL.												
New York	0	1	0	1,091	572	904	0	0	0	6	7	7
New Jersey	0	1	0	449	261	241	0	0	0	2	3	1
Pennsylvania	1	0	1	467	327	381	0	0	0	7	5	8
E. NO. CEN.												
Ohio	0	1	0	380	371	371	0	18	0	4	2	5
Indiana	0	0	0	107	158	129	1	52	21	0	2	2
Illinois	1	2	0	676	420	575	2	11	18	2	3	6
Michigan [2]	0	0	1	335	350	369	2	25	0	1	2	2
Wisconsin	1	0	0	131	146	285	1	4	5	2	2	1
W. NO. CEN.												
Minnesota	0	0	0	56	61	163	1	4	8	1	1	2
Iowa	0	0	0	61	75	91	13	45	31	1	6	2
Missouri	0	0	0	65	64	64	7	43	1	1	0	2
North Dakota	0	0	0	2	6	36	2	0	5	0	1	0
South Dakota	0	1	0	7	16	16	1	7	7	0	0	0
Nebraska	0	0	0	24	23	76	4	6	7	0	0	0
Kansas	1	0	0	55	54	83	0	4	11	3	0	1
SO. ATL.												
Delaware	0	0	0	5	2	3	0	0	0	0	0	0
Maryland [2,3]	0	0	0	28	32	46	0	0	0	1	1	2
Dist. of Col.	0	0	0	47	12	17	0	0	0	0	0	0
Virginia	0	0	0	30	16	21	0	0	0	4	2	6
West Virginia [2]	2	0	0	27	18	32	0	0	0	2	1	4
North Carolina	0	1	1	20	17	22	0	0	0	2	2	3
South Carolina [4]	1	22	0	3	0	3	1	0	0	2	7	3
Georgia [4]	1	5	0	11	7	7	0	1	0	3	5	9
Florida [4]	0	6	1	6	8	7	0	0	0	1	4	4

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended May 11, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939		May 11, 1940	May 13, 1939	
E. SO. CEN.												
Kentucky	0	0	0	76	48	38	0	3	1	8	2	4
Tennessee	0	0	0	55	57	20	0	2	1	0	6	3
Alabama [4]	0	1	1	8	4	6	0	0	0	5	5	4
Mississippi [3]	0	1	1	3	1	5	0	2	0	1	3	3
W. SO. CEN.												
Arkansas	0	0	0	13	7	7	0	14	1	6	4	2
Louisiana [4]	0	1	0	5	10	10	0	0	0	1	12	12
Oklahoma	0	0	0	15	23	21	1	40	2	1	9	3
Texas [4]	1	0	1	24	37	63	2	5	5	9	13	7
MOUNTAIN												
Montana [3]	0	0	0	21	29	17	0	2	9	2	1	0
Idaho [3]	0	0	0	5	9	9	0	0	1	1	0	0
Wyoming [3]	0	0	0	14	2	7	0	0	5	0	0	0
Colorado [3]	0	0	0	34	47	47	7	5	5	1	1	1
New Mexico	0	0	0	4	13	21	0	1	0	0	1	1
Arizona	0	0	0	15	7	16	0	9	0	2	2	1
Utah [2 3]	0	0	0	16	21	21	1	2	0	0	0	0
PACIFIC												
Washington	0	0	0	55	38	38	1	1	9	2	3	3
Oregon [3]	0	1	0	17	18	37	0	22	19	0	1	1
California	5	3	3	143	147	197	1	4	18	9	8	8
Total	14	47	22	4,887	3,823	5,783	48	332	272	99	134	134
19 weeks	439	371	375	91,674	94,223	129,276	1,380	6,778	5,987	1,560	2,210	2,210

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended May 11, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Whooping cough	
	Week ended	
	May 11, 1940	May 13, 1939
NEW ENG.		
Maine	8	49
New Hampshire	32	2
Vermont	37	62
Massachusetts	179	204
Rhode Island	4	96
Connecticut	27	100
MID. ATL.		
New York	346	481
New Jersey	114	272
Pennsylvania	313	307
E. NO. CEN.		
Ohio	218	220
Indiana	26	55
Illinois	95	229
Michigan [1]	199	172
Wisconsin	94	138
W. NO. CEN.		
Minnesota	36	30
Iowa	26	19
Missouri	44	23
North Dakota	11	5
South Dakota	0	0
Nebraska	16	6
Kansas	39	28
SO. ATL.		
Delaware	1	11
Maryland [2 3]	125	14
Dist. of Col	12	33
Virginia	48	40
West Virginia [2]	85	20
North Carolina	109	230
South Carolina [4]	23	96
Georgia [4]	25	56
Florida [4]	12	45
E. SO. CEN.		
Kentucky	78	13
Tennessee	62	49
Alabama [4]	18	35
Mississippi [2]		
W. SO. CEN.		
Arkansas	19	21
Louisiana [4]	31	10
Oklahoma	8	14
Texas [4]	344	175
MOUNTAIN		
Montana [3]	1	4
Idaho [3]	20	5
Wyoming [3]	6	0
Colorado [5]	16	68
New Mexico	62	46
Arizona	38	8
Utah [2 3]	190	76
PACIFIC		
Washington	49	27
Oregon [3]	29	36
California	479	199
Total	3,754	3,820
19 weeks	58,956	76,445

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended May 11, 1940, 16 cases as follows: Maryland, 1; Montana, 2; Idaho, 3; Wyoming, 5; Utah, 3; Oregon, 2.
[4] Typhus fever, week ended May 11, 1940, 17 cases as follows: South Carolina, 2; Georgia, 6; Florida, 1; Alabama, 1; Louisiana, 2; Texas, 5.
[5] Colorado tick fever, week ended May 11, 1940, Colorado, 3 cases.

PLAGUE INFECTION IN FLEAS AND GROUND SQUIRRELS IN ELKO COUNTY, NEVADA

Under date of May 1, 1940, Surgeon L. B. Byington reported plague infection found in tissue from 2 ground squirrels, *C. beldingi oregonus*, found dead on April 18 on ranches 6 and 10 miles, respectively, northeast of Lamoille; in a pool of 20 fleas from 6 ground squirrels of the same species, shot on the same date, on a ranch 8 miles northeast of Lamoille; and in tissue from 1 ground squirrel, *C. richardsoni nevadensis*, also shot on April 18, on a ranch 5 miles west of Wells. All localities are in Elko County, Nevada.

WEEKLY REPORTS FROM CITIES

City reports for week ended Apr. 27, 1940

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	138	170	60	7,140	686	2,242	21	403	23	1,248	------
Current week [1]	55	93	36	2,737	436	2,087	3	354	15	1,053	------
Maine:											
Portland	0	------	0	178	2	0	0	0	0	2	31
New Hampshire:											
Concord	0	------	0	0	2	0	0	1	0	0	12
Manchester	0	------	0	0	1	0	0	0	0	0	10
Nashua	0	------	0	4	0	0	0	0	0	0	9
Vermont:											
Barre	0	------	0	4	0	1	0	0	0	3	1
Burlington	0	------	0	0	0	0	0	0	0	2	7
Rutland	0	------	0	0	0	0	0	0	0	0	7
Massachusetts:											
Boston	0	------	1	137	18	40	0	14	0	72	246
Fall River	0	------	1	53	1	0	0	3	0	4	32
Springfield	0	------	0	4	0	6	0	1	0	1	32
Worcester	0	------	0	41	4	4	0	1	0	0	54
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	19
Providence	2	------	1	81	2	5	0	0	0	9	66
Connecticut:											
Bridgeport	0	1	1	0	0	0	0	0	1	0	33
Hartford	0	------	0	0	1	18	0	0	0	2	40
New Haven	0	1	0	0	1	2	0	1	0	2	36
New York:											
Buffalo	0	------	0	1	8	15	0	3	0	2	124
New York	20	16	2	180	74	702	0	76	4	122	1,453
Rochester	4	1	0	8	4	13	0	1	0	19	70
Syracuse	0	------	0	0	5	7	0	0	0	1	45
New Jersey:											
Camden	0	------	0	0	1	8	0	1	0	3	30
Newark	0	------	0	403	10	27	0	15	1	22	119
Trenton	0	------	0	0	2	7	0	1	0	0	34
Pennsylvania:											
Philadelphia	0	3	2	91	14	129	0	24	0	20	481
Pittsburgh	0	1	0	3	13	33	0	12	1	9	164
Reading	0	------	1	1	2	0	0	1	0	10	23
Scranton	1	------	------	0	------	0	0	------	0	0	------
Ohio:											
Cincinnati	1	------	0	2	6	13	0	3	0	15	144
Cleveland	0	10	0	5	8	45	0	7	1	30	175
Columbus	1	1	1	2	4	11	0	0	0	6	95
Toledo	0	------	0	2	5	30	0	3	0	8	68
Indiana:											
Anderson	0	------	0	1	0	3	0	0	0	3	9
Fort Wayne	0	------	1	3	2	5	0	0	0	3	31
Indianapolis	2	------	1	2	11	17	0	6	0	18	129
Muncie	0	------	0	0	2	1	1	0	0	1	18
South Bend	0	------	0	0	0	0	0	1	0	1	18
Terre Haute	0	------	0	0	1	2	1	0	0	1	30
Illinois:											
Alton	0	------	0	0	0	3	0	0	0	4	6
Chicago	2	2	1	58	42	578	0	29	2	37	698
Elgin	0	------	0	0	1	1	0	0	0	0	5
Moline	0	------	0	3	0	0	0	0	0	0	7
Springfield	0	------	0	0	7	1	0	1	0	0	83
Michigan:											
Detroit	0	2	1	111	8	75	0	15	0	81	257
Flint	0	------	0	8	4	16	0	0	0	18	19
Grand Rapids	0	------	0	5	1	18	0	1	0	17	32
Wisconsin:											
Kenosha	0	------	0	58	2	1	0	0	0	0	14
Madison	0	------	0	9	------	3	0	0	0	6	24
Milwaukee	0	------	0	65	9	15	0	2	0	0	108
Racine	0	------	0	0	0	5	0	0	0	4	11
Superior	0	------	0	66	0	0	0	0	0	0	8

[1] Figures for Little Rock estimated; report not received.

City reports for week ended Apr. 27, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth	0	----	0	23	1	4	0	0	0	0	23
Minneapolis	0	----	0	4	2	20	0	1	0	3	93
St. Paul	0	----	0	1	13	8	0	0	0	7	68
Iowa:											
Cedar Rapids	0	----	----	34	----	1	0	----	0	3	----
Davenport	0	----	----	19	----	5	1	----	0	0	----
Des Moines	0	----	0	15	0	8	3	0	0	0	31
Sioux City	0	----	----	0	----	0	0	----	0	0	----
Waterloo	0	----	----	7	----	3	0	----	0	1	----
Missouri:											
Kansas City	0	----	1	3	9	15	0	5	0	0	101
St. Joseph	1	----	0	0	2	2	0	0	0	0	27
St. Louis	1	2	0	1	7	27	0	11	1	7	200
North Dakota:											
Fargo	0	----	0	0	2	0	1	0	0	0	6
Grand Forks	0	----	----	0	----	0	0	----	0	0	----
Minot	0	----	0	0	0	0	0	0	0	0	8
South Dakota:											
Aberdeen	0	----	----	0	----	0	1	----	0	1	----
Nebraska:											
Lincoln	0	----	----	2	----	3	0	----	0	1	----
Omaha	0	----	0	13	2	9	0	4	0	2	61
Kansas:											
Lawrence	0	----	0	0	0	0	0	0	0	0	3
Topeka	0	----	0	21	4	3	0	1	0	0	22
Wichita	0	----	0	29	5	2	0	0	0	10	29
Delaware:											
Wilmington	0	----	0	0	0	5	0	1	0	4	22
Maryland:											
Baltimore	1	2	2	1	24	13	0	7	1	123	226
Cumberland	0	----	0	0	0	0	0	0	0	0	15
Frederick	0	----	0	0	0	1	0	0	0	0	4
District of Columbia:											
Washington	1	----	0	1	12	30	0	11	0	7	198
Virginia:											
Lynchburg	0	----	0	0	0	1	0	1	0	15	13
Norfolk	0	20	0	59	3	4	0	3	0	8	32
Richmond	0	----	0	0	4	1	0	2	0	0	54
Roanoke	0	----	0	16	1	2	0	0	0	0	12
West Virginia:											
Charleston	0	----	0	0	1	1	0	0	1	0	16
Huntington	1	----	----	0	----	6	0	----	0	0	----
Wheeling	0	----	0	0	1	1	0	0	0	0	24
North Carolina:											
Gastonia	0	----	----	0	----	0	0	----	0	0	----
Raleigh	1	----	0	0	3	0	0	1	0	6	11
Wilmington	0	----	0	0	0	1	0	0	0	0	9
Winston-Salem	0	----	0	0	2	4	0	1	0	0	21
South Carolina:											
Charleston	1	15	0	0	1	0	0	0	0	0	20
Florence	0	----	0	0	1	0	0	0	0	0	17
Greenville	0	----	0	0	2	0	0	0	0	1	10
Georgia:											
Atlanta	1	3	1	5	3	1	0	9	0	0	75
Brunswick	0	----	0	0	0	0	0	0	0	0	1
Savannah	0	3	1	0	0	1	0	3	0	0	27
Florida:											
Miami	0	2	0	0	2	0	0	3	0	0	45
Tampa	0	----	0	45	0	1	0	1	0	1	29
Kentucky:											
Ashland	1	2	0	0	0	3	0	0	0	0	4
Covington	0	----	0	5	0	2	0	2	0	0	12
Lexington	0	----	0	12	1	0	0	0	0	4	16
Louisville	0	1	0	4	2	34	0	3	0	46	73
Tennessee:											
Knoxville	1	----	0	1	2	8	0	1	0	3	30
Memphis	0	2	3	24	3	24	0	7	0	14	94
Nashville	0	----	0	3	5	6	0	4	0	2	36
Alabama:											
Birmingham	0	2	0	3	3	4	0	6	0	2	75
Mobile	0	----	3	0	2	0	0	0	0	0	27
Montgomery	1	1	----	0	----	1	0	----	0	0	----

See footnotes at end of table.

City reports for week ended Apr. 27, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Arkansas:											
Fort Smith	0	------	--------	0	-------	0	0	-------	0	0	--------
Little Rock	-------	------	--------	-------	-------	-------	-------	-------	-------	-------	--------
Louisiana:											
Lake Charles	0	------	0	0	0	0	0	0	0	0	5
New Orleans	0	1	1	12	8	5	0	11	0	61	120
Shreveport	0	------	0	0	1	0	0	2	1	0	34
Oklahoma:											
Oklahoma City	0	------	1	2	4	0	0	0	1	7	42
Tulsa	0	------	--------	2	-------	2	0	-------	0	19	--------
Texas:											
Dallas	4	1	1	267	3	1	0	3	0	28	69
Fort Worth	0	------	0	5	3	0	0	0	0	34	24
Galveston	0	------	0	4	3	0	0	1	0	0	8
Houston	2	2	0	13	4	2	0	5	0	6	67
San Antonio	0	------	2	10	10	0	0	3	0	0	76
Montana:											
Billings	0	------	0	0	0	0	0	0	0	0	13
Great Falls	0	------	0	8	1	3	0	0	0	0	6
Helena	0	------	0	1	0	1	0	0	0	0	3
Missoula	0	------	0	0	0	0	0	0	0	0	8
Idaho:											
Boise	0	------	0	0	1	0	0	0	0	0	9
Colorado:											
Colorado Springs	0	------	0	0	2	3	0	4	0	0	20
Denver	7	------	1	14	8	6	0	5	0	0	78
Pueblo	0	------	1	5	5	4	0	0	0	0	15
New Mexico:											
Albuquerque	0	------	0	0	0	0	0	5	0	18	16
Utah:											
Salt Lake City	0	------	0	236	0	5	1	0	0	72	31
Washington:											
Seattle	0	------	1	343	2	4	0	3	0	25	92
Spokane	0	------	0	6	3	7	0	1	0	13	34
Tacoma	0	------	0	7	0	5	0	0	0	1	33
Oregon:											
Portland	0	1	0	180	4	1	0	2	0	3	83
Salem	0	------	--------	2	-------	0	0	-------	0	0	--------
California:											
Los Angeles	1	15	4	29	4	26	0	18	1	61	349
Sacramento	0	------	0	13	1	4	0	1	0	28	21
San Francisco	2	------	0	5	7	6	0	5	0	21	182

State and city	Meningitis, meningococcus		Poliomyelitis cases	State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
New Hampshire:				South Carolina:			
Nashua	1	0	0	Florence	0	1	0
New York:				Alabama:			
Buffalo	2	1	0	Birmingham	1	0	0
New York	1	1	0	Louisiana:			
New Jersey:				Shreveport	0	1	0
Newark	1	0	0	Texas:			
Pennsylvania:				Galveston	1	0	0
Philadelphia	2	0	0	Houston	1	0	0
Illinois:				Oregon:			
Chicago	2	1	0	Portland	1	0	0
Missouri:				California:			
St. Louis	1	0	0	Los Angeles	0	0	1

Dengue.—Cases: Charleston, S. C., 1.
Encephalitis, epidemic or lethargic.—Cases: New York, 1; Rochester, 1; St. Paul, 1; Sacramento, 1; San Francisco, 3.
Pellagra.—Cases: Boston, 2.
Typhus fever.—Cases: New York, 1; Birmingham, 1; Houston, 1.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended April 13, 1940.—During the week ended April 13, 1940, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1	1	2						4
Chickenpox		7	1	241	339	19	11	5	95	718
Diphtheria		1		37		2	3		4	47
Dysentery				5	1					6
Influenza		26			40	1			19	86
Measles		12	1	182	361	577	256		47	1,436
Mumps				45	445	19	19		14	542
Pneumonia		7			26	4			16	53
Poliomyelitis				1						1
Scarlet fever	1	20	5	41	157	15	10	8	5	262
Trachoma									1	1
Tuberculosis		1	6	86	72	2	2	1		170
Typhoid and paratyphoid fever		1	1	25	2	5	1	2		37
Whooping cough		8		110	86	22	43	9	33	311

CUBA

Habana—Communicable diseases—4 weeks ended April 6, 1940.—During the 4 weeks ended April 6, 1940, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	15		Scarlet fever	3	
Malaria	1	1	Tuberculosis		3
Rabies	1		Typhoid fever	52	6

EGYPT

Infectious diseases—Third quarter 1939.—During the third quarter of 1939, the following cases of infectious diseases were reported in Egypt:

Disease	Cases	Disease	Cases
Anthrax	11	Mumps	277
Cerebrospinal fever	39	Poliomyelitis	1
Chickenpox	68	Puerperal septicemia	131
Dengue	1	Rabies	9
Diphtheria	493	Scarlet fever	5
Dysentery	701	Tetanus	137
Erysipelas	1,119	Tuberculosis (all forms)	1,728
Influenza	2,353	Typhoid fever	1,939
Leprosy	175	Typhus fever	392
Lethargic encephalitis	2	Undulant fever	16
Malaria	6,199	Whooping cough	242
Measles	2,927		

Vital statistics—Third quarter 1939.—The following table shows the numbers of births and deaths for the third quarter of 1939 for all places in Egypt having a health bureau:

Number of live births	56,388	Deaths from—Cont.	
Live births per 1,000 population	45.2	Diphtheria	178
Number of stillbirths	1,035	Dysentery	109
Number of deaths	45,545	Heart disease	854
Deaths per 1,000 population	36.5	Homicide	328
Deaths under 2 years of age	16,203	Influenza	18
Deaths under 2 years of age per 1,000 live births	287	Malaria	8
		Measles	632
Deaths from:		Nephritis	1,011
Appendicitis	63	Pneumonia	3,628
Cancer and other malignant tumors	274	Suicide	27
Cerebral hemorrhage, embolism, and cerebral thrombosis	667	Syphilis	114
		Tuberculosis (all forms)	522
Cirrhosis of the liver	85	Typhoid fever	422
Diabetes	212	Typhus fever	28
Diarrhea and enteritis (under 2 years)	15,436	Whooping cough	14

JAMAICA

Communicable diseases—4 weeks ended March 16, 1940.—During the 4 weeks ended March 16, 1940, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		1	Leprosy		3
Chickenpox	5	9	Poliomyelitis	1	1
Diphtheria	6	2	Puerperal sepsis		2
Dysentery	12	39	Tuberculosis	31	97
Erysipelas		2	Typhoid fever	10	41

LATVIA

Vital statistics—1939—Comparative.—The following table shows the numbers of marriages, births, and deaths in Latvia for the year 1939 as compared with 1938:

	1939	1938		1939	1938
Number of marriages	18,111	16,735	Number of deaths	27,894	26,703
Number of births	36,864	36,386	Number of deaths per 1,000 population	13.09	13.42
Number of births per 1,000 population	18.43	18.30			

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—A cumulative table giving current information regarding the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS of April 26, 1940, pages 745–749. A similar table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Plague

Senegal—Thies.—During the week ended May 4, 1940, 1 case of plague was reported in Thies, Senegal.

United States—Nevada—Elko County.—A report of plague infection in Elko County, Nevada, appears on page 907 of this issue of PUBLIC HEALTH REPORTS.

×