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LOCATION AND MOVEMENT OF PHYSICIANS, 1923 AND 1938—GENERAL OBSERVATIONS [1]

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Where are physicians likely to locate? How long do they remain in the same place? To which types of communities do they tend to migrate? In the answers to these and similar questions may be found a partial explanation of one problem associated with medical care, namely, the availability of professional skill. This and allied subjects have given rise to spirited discussions and an extensive literature.

Under a laissez-faire scheme of economy, it is to be expected that pecuniary reward will be a potent influence in determining the distribution and movement of physicians. Some apologists for the present dispensation even say, in effect, "Wherever a physician can earn a livelihood, there you will find a physician." The direct counterpart of this statement would be that a physician will not settle in a community where he cannot make a living. Other factors which no doubt affect the distribution of physicians are the facilities afforded by the community in the way of accessories to living and medical practice, such as schools, roads, hospitals, and professional associates. From the standpoint of actual or potential patients, medical resources present quite a different aspect. All substantial morbidity studies have shown that underprivileged groups experience illness more frequently than those higher on the economic scale. Accordingly, communities with large proportions of the population in the low income groups are at a disadvantage in attracting physicians, even though their needs for medical service are great. These influences may be multiple and varied for one community as contrasted with another. It should be of interest to determine the degree to which needs for service and medical resources have become adjusted spontaneously under the free play of social and economic forces.

While the availability of physicians has been a subject of considerable study, relatively few factual data of a quantitative character have

[1] Assistance in the preparation of these materials was furnished by the personnel of Work Projects Administration Official Project No. 65-2-23-356.

appeared in the literature which would serve to measure either the influence of factors involved in this distribution or the changes that have taken place within recent years. The United States Public Health Service, through a grant from the Work Projects Administration, had the good fortune of being enabled to peruse the mass of basic data contained in the several issues of the American Medical Directory (*1*) published by the American Medical Association during the period 1923 through 1938. This represents the longest period for which a continuous series of directories was available at the time the study was initiated. Among data included for each physician in a directory are the year of birth, year of graduation in medicine, specialty, type of service, and office address. Reports published by the United States Department of Commerce furnished population figures (*2*, *3*) and economic indices (*4*) for the several States. The Hospital Register (*5*) of the American Medical Association provided statistics pertaining to hospital accommodations. A combination of data from these sources supplied the material from which this preliminary analysis evolved.

There were about 227,000 physicians listed in the directories at one time or another during the period under consideration. In preparing for this study, the information published for the individual physicians in each directory in which their names appeared was posted on single file cards. From the material so assembled a tabulation card was punched for each physician. Thereon were coded data published for four index years; those chosen were the first, second, and last year of listing, and the year 1931 if his name appeared in that directory. In addition, specific items were coded for selected characteristics of the State, county, and city in which his office was located. A particular section of the punched card was used for the summarization of the number of listings recorded, and the number of intercity, intercounty, and interstate changes, which were implied by the one or more business addresses given in the directories in which his name appeared.

The number of changes in location made by physicans has been used to express their movement from one place to another. As the different listings in the several directories afford the sole criterion of change, the count of moves made in this way perhaps infers some understatement of the changes that actually occurred. Some physicians may have made more than one change between two consecutive directory listings. Moreover, the changes made by physicians before their first listings in the 15-year period are beyond possibility of enumeration from the sources available. It is believed, however, that the great majority of physicians whose names were first recorded after 1923 represent recent graduates.

LOCATION OF PHYSICIANS, 1923 AND 1938

As expressed in terms of physicians per unit of population, the potential medical service available in the continental United States was essentially the same in 1938 as in 1923. In both years there were 131 physicians per 100,000 population (equivalent to 764 persons per physician) in the country, indicating that the total net change in the number of physicians was proportional to the change in population. However, some fluctuation in this ratio was evident at various intervals within the 15-year period. Leland (*6*) records a slight decline in the number of physicians per 100,000 population from 1923 to 1929, followed by an increase up to 1934. While gross totals may not accurately represent the number of physicians who give medical service directly to patients, such totals should provide a satisfactory measure of the general availability of physicians' services for comparisons between States. Of those physicians listed in the 1938 directory,[2] 81 percent were designated as engaged in private practice. An additional 9 percent either rendered service as interns and residents, or were active in some other capacity in hospitals, infirmaries, dispensaries, or teaching clinics. Of the others, 5 percent were employed in Federal service or other professional work not involving private practice, and 5 percent were designated as retired or otherwise not active. While comparable data are not readily available for other years, it is believed that variations in these proportions during the 15-year period are of insufficient consequence to limit seriously the use of gross totals as indices in the comparisons that follow. Throughout the study, therefore, physicians in the aggregate have been construed to express professional resources.

It is recognized that the population unit served by a physician is variable. For this reason, any analysis of the extent and trend of medical resources on the basis of data assembled from State totals can be considered in only a general way. On the other hand, State totals represent composites of local situations and reflect the behavior of those groups in the population that predominate within the State. Consequently, it is purposed to present the findings resulting from preliminary tabulations on a State basis. These disclosures will be investigated further in later reports dealing with data for local areas.

Differences in the physician-population ratio which exist among the various areas of the country are masked by the ratio for the United States as a whole. Marked variations in the degree of professional resources are manifest when the States are grouped into four

[2] Percentages based upon total number of physicians in the United States in 1938 as published by the American Medical Association (*7*).

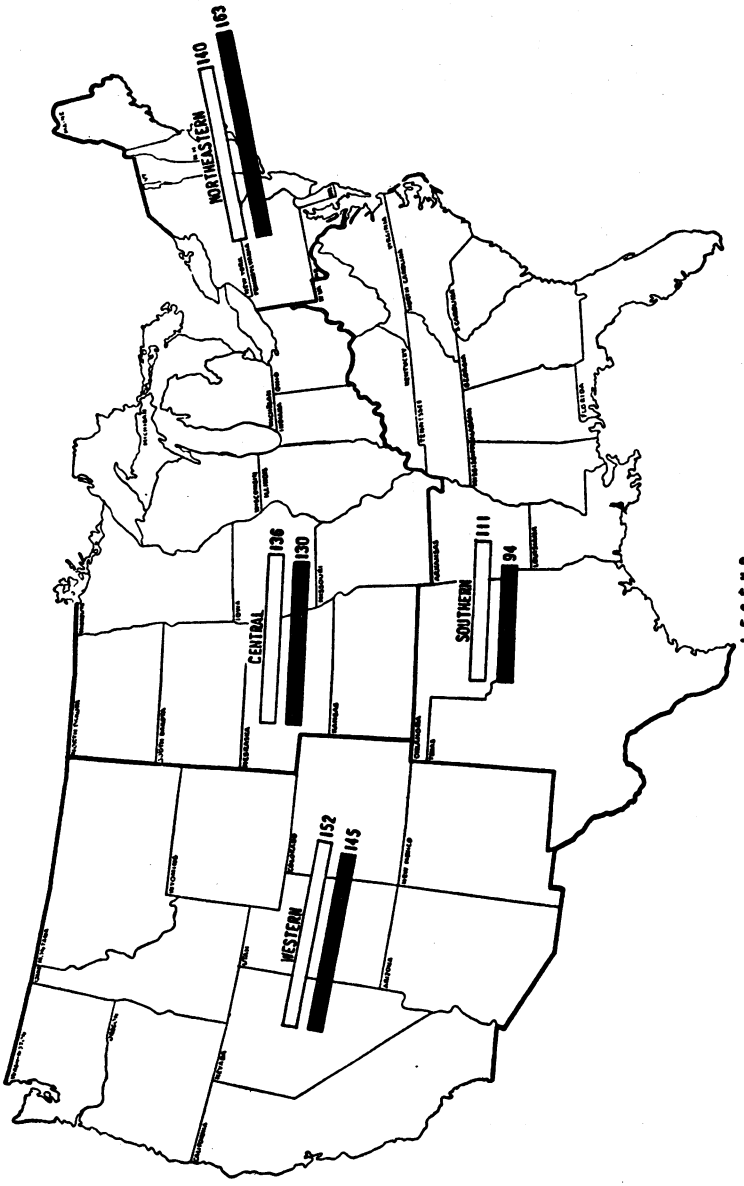

FIGURE 1.—Physicians per 100,000 population 1923 and 1938 for States in four broad geographic areas of the United States.

geographic sections,[3] namely, the Northeastern, Southern, Central, and Western (figure 1). On the assumption that the gross ratio of physicians to population represents an index of the availability of their services to the general population, the amount of physicians' services available to those persons residing in the Southern States is much more limited than in other areas. In 1923 there were 111 physicians per 100,000 population in the Southern group as contrasted with 152 in the Western, 140 in the Northeastern, and 136 in the Central region. When these computations are converted into persons per physician the figures are, respectively, 904, 661, 717, and 738. By 1938, however, the situation had changed materially. In this year, 163 physicians per 100,000 population in the Northeastern area indicated greater medical resources than existed in any other geographic group of States, whereas in the Southern area the number had been decreased to 94. Although the Western and Central regions likewise experienced decreases in the physician-population ratio, the net losses were not large. To paraphrase, the situation in areas sustaining the less favorable provisions of physicians in 1923 had become even worse by 1938, whereas in areas maintaining the more generous provisions for medical care, these resources were considerably increased over the 15-year period: the situation in 1923 represented a more equable distribution than that which existed in 1938.

Obviously, there must be factors which influence physicians in their selection of locality. Among those that are commonly thought to govern this distribution are the economic, as associated with financial gain, and the professional, as related to physicians' opportunities to practice medicine as they think best for themselves and the general population. Effective per capita income has been selected as the most apparent and proper measure of the ability of individuals to purchase professional services. States ranking high in this index, however, are not only those which evince the higher degrees of urbanization, but also those that realize the more generous medical facilities. In this latter category may be included hospitals and clinics, and the presence in the community of physicians who restrict their practices to specialized medicine and avail others of consultation service. Medical schools, though not of major importance, should not be overlooked. In its annual presentation of educational data, the Council on Medical Education and Hospitals published a table

[3] The established geographic areas with the States contained therein are as follows:

Northeastern: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia.

Southern: Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.

Central: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

Western: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

showing from which States the students came who were in attendance at each medical college during the session of 1922 to 1923. From this study "the influence of the proximity of the medical school is seen in the fact that States having medical colleges contribute more students in proportion to the population than those which have no colleges" (*8*). In 1910, Dr. Abraham Flexner (*9*) acknowledged the tendency for students to study medicine in their own States or in States located within the same geographic section of the country. No doubt there is also some inclination on the part of physicians to enter practice in or near the city in which they served their hospital internships. Finally, the increase or decline of population within States affords an index of the extent to which the potential patient load for all physicians may have varied over the period.

In view of the significant influence which urban character, hospital facilities, and population change appear to exercise upon the distribution of physicians in the several geographic sections of the country, the States have been classified successively on these characteristics and data are presented to demonstrate the differences associated with these factors. Income has not been omitted from consideration but because of its close correlation with urban character, the latter has been used as the criterion to illustrate their allied influence.

Previous studies of physician distribution (*6*, *9*, *10*, *11*, *12*) reveal a striking increase in the number of physicians practicing in urban

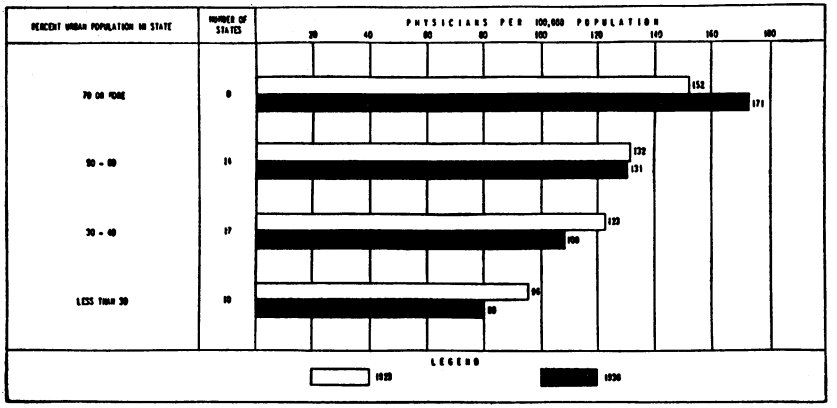

FIGURE 2.—Physicians per 100,000 population in 1923 and 1938 for States of different urban character.

centers and a corresponding decline in the number engaged in rural practice since the beginning of this century. Data for 1923 and 1938 are consistent with this trend (figure 2). For both years there was a high degree of association between the urban character of a State and the amount of physicians' services available therein. The physician-population ratio was large when the percentage of urban population

was high, and as States were characterized by smaller fractions of their population in the urban category the ratio declined in a progressive manner. That the factors associated with urban character had become increasingly potent in determining the relative number of physicians in States is indicated by a greatly broadened spread of the ratios for 1938 as contrasted with 1923. The physician-population ratio for the most urban States exceeded that in the most rural group by more than one-half in 1923. During the study period the ratio for the former had been increased and for the latter had been diminished until the one was more than twice as great as the other. It would thus appear that large urban populations with their concomitant high incomes and relatively plentiful accessory facilities for the practice of medicine have proved increasingly attractive to physicians establishing practice during recent years.

For further analysis, the urban and rural States[4] have been subdivided on the bases of (a) beds in general hospitals per 1,000 population in the State in 1930, and (b) percentage of population change over the period 1920 to 1940 (figure 3).

The amount of hospital facilities in States appeared to have an important bearing upon the distribution of physicians, although this

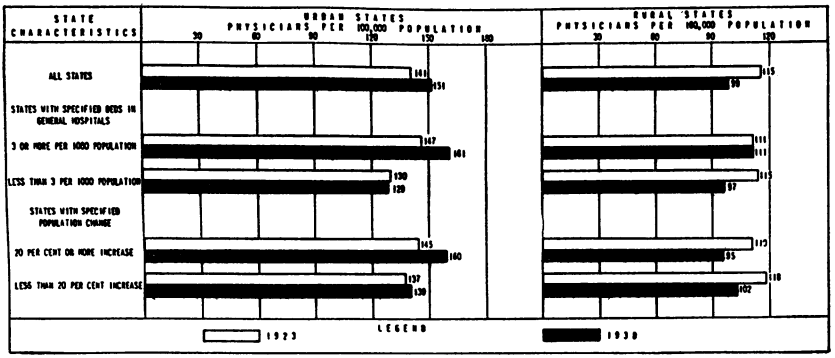

FIGURE 3.—Physicians per 100,000 population in 1923 and 1938 in urban and rural States (a) with different hospital facilities in 1930 and (b) with different population change from 1920 to 1940.

influence was less apparent in those States predominantly rural in character. The presence of large numbers of beds in general hospitals not only reflects a greater physician-population ratio for urban States than for any other group of States, but it is also associated with an increase of about one-tenth in this ratio over the period. Even in those urban States where there were fewer hospital beds, the physician-population ratio in 1923 was still considerably higher than for either group of rural States and was maintained at the same level in 1938. For rural States with large numbers of hospital beds, the ratio was

[4] States in which 50 percent or more of the population was enumerated in urban areas in 1930 are classified as urban States; all other States are classified as rural States.

lower than for either urban group, but it remained at the same level in both years. For that group of rural States having less numerous hospital beds, the ratio for the earlier year had declined by 1938 to a value which was below that for any other group.

The influence of population change varied between urban and rural States. In the urban States, large population increase (20 percent or more) was associated with a high ratio of physicians to population for both 1923 and 1938, with a considerable increase over the period (145 to 160). The average (137) for urban States with less than 20 percent increase in population was somewhat lower in 1923 than for corresponding States with large increases, and it remained at about the same level in 1938. In rural States, on the other hand, both large and small population increases were associated with low ratios in 1923 (110 and 118 respectively) and with losses of about one-seventh over the period. Contrary to the findings for urban States, the ratio was at a somewhat higher level for both years in States with small population increases as contrasted with those expanding 20 percent or more. A reasonable deduction to draw from these comparisons is that physicians, like other groups of the population, are being drawn to the cities, while the increase in population of the less wealthy States through high birth rates offers little or no inducement to physicians seeking opportunities to practice medicine.

PHYSICIANS MAKING INTERSTATE CHANGES

Although the foregoing delineation regarding availability of physicians represents a remarkable synthesis of distribution and attendant characteristics, the significance of the existing conditions assumes greater prominence when supplemented by a discussion of the extent to which physicians in a State have moved thereto during the 15-year period. In the movement of all population groups are contained many points of economic and social importance, but in the case of physicians this phenomenon was explored to determine what factors might be operative and the extent to which normal migration might be relied upon to correct inequalities in the availability of professional services. Determination of this behavior entailed a count of those physicians showing no movement that involved crossing State lines, and those changing locations in this way one or more times during the study period.

Interstate movements have been chosen for presentation on this occasion. Such movements are likely to represent, in the main, initial adjustments. After graduation a physician usually moves to a hospital to complete his training, and within a year or two goes to a place to pursue his professional career. Depending upon emoluments and opportunities offered by the community, and personal character-

istics of the individual, he may move subsequently before becoming settled. For a few States, the interstate change incident to final retirement may be an important factor, though it is probably of little significance in the national picture.

Of the physicians listed in the 1938 directory, 18 percent had made one or more interstate changes during the preceding 15-year period. The findings for the several geographic areas show rather remarkable variations which do not parallel those so far described. An average of 29 percent of the physicians in Western States had moved from some other State during the period, a proportion which was one-third greater than that for States in the Southern group, and almost twice as great as that prevailing in the Northeastern and Central regions.

The proportion of physicians who had recently moved from other States seems to be associated with urban character in an inverse way. Data for predominantly urban States reflected only 17 percent of physicians who had moved from other States, while in rural States the corresponding proportion was 22 percent.

Variation in the amount of hospital facilities in urban States did not seem to influence the movement of physicians to a great extent. However, the proportion of physicians in rural States who had moved from other States was 26 percent where hospital facilities were plentiful (3 beds or more per 1,000 population), and 21 percent where they were less generous (less than 3 beds).

Expanding populations in both urban and rural States were associated with high proportions of physicians coming from other States. In the urban group showing population increases of 20 percent or more, 19 percent of the physicians had moved from another State within the preceding 15 years, whereas in States showing small population gains, 14 percent had made changes. In rural States showing large population increases 24 percent had moved from other States, and where the increase was smaller 21 percent had changed locations.

Disclosures resulting from the above-described classifications would indicate that greater fractions of physicians have been attracted from outside the State in rural States than in urban States. The high and expanding physician-population ratios in the most urban group, as revealed in the preceding section, suggest that the educational and training facilities are such that, in a large part, physicians receive their education and special training in these States and establish practice therein without interstate migration, whereas rural States with the more restricted facilities must depend upon migration from other States to maintain the number of physicians at an existing level. In fact, the findings suggest that in rural areas the features which attract physicians were too limited to maintain a constant number over the study period.

NEW REGISTRANTS

Consensus of opinion acknowledges that, other factors being equal, the more favorable situation is evident in those localities that realize the greater numbers of young or middle-aged physicians in relation to their needs. The presence of a large proportion of young physicians assures reserves for future medical aid and reduces somewhat the problem of recruitment to maintain or improve the level of adequacy which exists at a given time. In order to ascertain the extent to which variation in such physician reserves may be associated with the State characteristics selected for study, it seemed apposite to investigate further the distribution of physicians in 1938 by discriminating between those who were graduated recently and others whose graduation had occurred prior to 1923. Differentiation of ages on these bases was effected by counting those who were listed in both the 1923 and 1938 directories, and others who were listed in 1938 but who were not listed in 1923. This was done on the assumption that the former group was comprised of those who had entered the professional field 15 or more years ago, while the latter group included, principally, recent graduates. Of the total 169,628 physicians listed in the 1938 directory, 75,267, or 44 percent, were classified as young physicians on the basis of this separation. It is recognized that a fraction of those whose first listing was after 1923 represented individuals who may have been graduated before 1923 but for some reason were not listed in the directories of the American Medical Association until after that date.

In 1938, there was present in the Northeastern area a high proportion (51 percent) of young physicians as contrasted with a relatively low proportion (36 percent) in the Southern group, while the Central and Western States occupied intermediate positions. These differences are particularly outstanding when it is recalled that the physician-population ratios followed essentially this same pattern. At the two extremes are found the Northeastern States with 163 physicians per 100,000 population, approximately one-half of whom had entered practice within the past 15 years, and the Southern States with a low physician-population ratio of 94, of which number only slightly more than one-third represented physicians recently entering the profession.

The percentage of new registrants varied with the degree of urbanization: a high level (51 percent) is found in States that are 70 percent or more urban, while only 35 percent are found in those that are less than 30 percent urban. Here, again, States showing large fractions of young physicians are those in which the total numbers of physicians were greater. Similar disclosures are revealed when classification is made on the bases of hospital facilities and population change

(figure 4). In all the comparisons, groups of urban States show higher proportions of recent graduates than do those that are rural in character. Furthermore, the proportions in both urban and rural States appear to be elevated when hospital facilities are comparatively plentiful and when there has been considerable population increase over the preceding years. These findings reveal that those characteristics of States that bring about a high ratio of physicians to population are also associated with a high fraction of young physi-

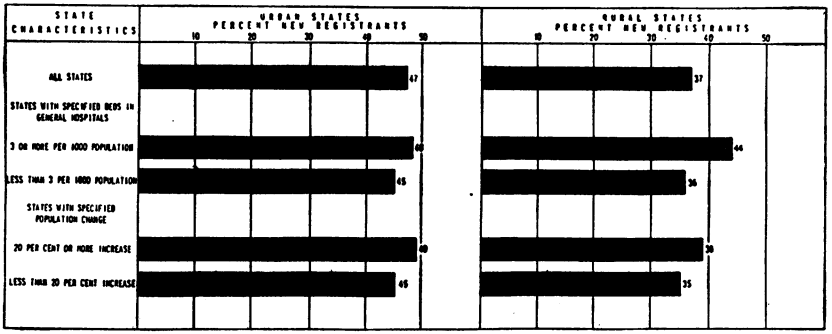

FIGURE 4.—Percent of new registrants among physicians in 1938 for urban and rural States (a) with different hospital facilities in 1930 and (b) with different population change 1920–40.

cians—a situation which is governed to a great extent by wealth, urbanization, hospital facilities, and population change found within these areas.

COMMENTS

Throughout the foregoing discussion the point at issue is this: Can the undirected forces in a free society be relied upon to effect an equable distribution of physicians? Obviously, the answer will be in the negative so long as there remain gross differences as well as deficiencies in individual and community resources. Furthermore, it is believed that any scheme designed to remedy existing inequalities in the availability of professional skill must take into account those basic factors revealed by this study—factors associated with the present maldistribution of medical resources.

REFERENCES

(1) American Medical Directory, eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, and fifteenth editions, 1923, 1925, 1927, 1929, 1931, 1934, 1936, and 1938. American Medical Association, Chicago.

(2) Statistical abstract of the United States, 1933. U. S. Department of Commerce, Bureau of the Census.

(3) Preliminary revised population estimates for continental United States, territories, and possessions, States, and cities of 100,000 or more: 1930–1939. Series P–3, No. 10. U. S. Department of Commerce, Bureau of the Census.

(4) Cone, Frederick M.: Per capita income payments by States, 1929–1940. U. S. Department of Commerce, Survey of Current Business, August 1941.

(5) Hospital Service in the United States. Ninth presentation of hospital statistics by the Council on Medical Education and Hospitals of the American Medical Association. J. Am. Med. Assoc., 94:921–988 (1930).
(6) Leland, R. G.: Distribution of physicians in the United States. Bureau of Medical Economics, American Medical Association, Chicago, 1936.
(7) Number of physicians in the United States by county. American Medical Association, Chicago, 1938.
(8) Council on Medical Education and Hospitals: Medical education in the United States. J. Am. Med. Assoc., 81:544–576 (1923).
(9) Flexner, Abraham: Medical education in the United States and Canada. Bull. No. 4, Carnegie Foundation for the Advancement of Teaching, New York, 1910.
(10) Mayer, L., and Harrison, L. A.: The distribution of physicians in the United States. General Education Board, New York, 1924.
(11) Edsall, D. L.: A program for the refugee physician. J. Am. Med. Assoc., 112:1986–1987 (1939).
(12) Edsall, D. L., and Putnam, T. J.: The émigré physician in America, 1941. J. Am. Med. Assoc., 117:1881–1888 (1941).

Appendix

Distribution of physicians by States in 1923 and 1938

State	Physicians [1] in 1923	Physicians per 100,000 population in 1923	Physicians [2] in 1938	Physicians per 100,000 population in 1938	Physicians [3] in 1938 who were new registrants	Physicians [4] in 1938 who had moved from other States
Total, United States	145,969	131	169,628	131	75,267	31,333
Alabama	2,313	94	2,072	74	630	393
Arizona	372	101	562	115	264	301
Arkansas	2,303	129	1,850	96	531	322
California	7,549	180	11,278	169	4,936	3,172
Colorado	1,882	194	1,923	174	824	420
Connecticut	1,727	118	2,503	148	1,257	669
Delaware	265	116	326	125	174	94
District of Columbia	1,924	424	2,141	339	1,085	891
Florida	1,348	118	2,072	115	744	1,003
Georgia	3,274	113	2,756	89	880	507
Idaho	452	104	426	84	183	165
Illinois	10,716	156	11,942	152	5,181	1,437
Indiana	4,353	143	4,081	120	1,574	660
Iowa	3,490	144	3,100	123	1,033	625
Kansas	2,492	138	2,117	117	687	473
Kentucky	3,155	127	2,762	99	910	522
Louisiana	2,058	108	2,200	95	910	346
Maine	1,067	137	987	118	318	222
Maryland	2,349	155	2,821	158	1,361	581
Massachusetts	5,977	150	7,528	174	3,720	1,103
Michigan	4,653	114	6,142	122	3,083	978
Minnesota	2,774	113	3,426	125	1,699	572
Mississippi	1,792	96	1,495	70	400	318
Missouri	5,827	167	5,348	143	1,924	649
Montana	568	104	520	94	203	175
Nebraska	1,913	145	1,705	129	554	305
Nevada	140	171	148	138	59	82
New Hampshire	615	136	616	127	241	198
New Jersey	3,362	97	5,433	131	2,963	1,182
New Mexico	399	105	419	82	158	211
New York	16,857	151	25,613	193	14,139	3,120
North Carolina	2,226	80	2,663	76	1,129	766
North Dakota	517	79	508	78	188	111
Ohio	8,086	133	9,117	133	4,076	1,261
Oklahoma	2,600	121	2,364	101	789	521

[1] Based upon State totals published in the 1923 American Medical Directory.
[2] Based upon State totals published in the 1938 American Medical Directory.
[3] Physicians listed in 1938 whose first listing during study period was in 1925 or some later directory.
[4] Physicians listed in 1938 who had made 1 or more State change during the study period.

Distribution of physicians by States in 1923 and 1938—Continued

State	Physicians in 1923	Physicians per 100,000 population in 1923	Physicians in 1938	Physicians per 100,000 population in 1938	Physicians in 1938 who were new registrants	Physicians in 1938 who had moved from other states
Oregon	1,158	138	1,386	130	575	344
Pennsylvania	11,244	125	13,205	134	6,051	1,199
Rhode Island	754	119	938	134	452	217
South Carolina	1,368	80	1,354	72	504	267
South Dakota	630	96	535	82	176	148
Tennessee	3,228	113	2,917	102	1,030	563
Texas	6,094	120	6,795	108	2,793	1,381
Utah	497	106	567	105	258	117
Vermont	556	157	501	140	189	118
Virginia	2,503	107	2,818	107	1,137	764
Washington	1,756	123	2,123	125	886	649
West Virginia	1,751	113	1,823	98	731	440
Wisconsin	2,772	101	3,436	111	1,570	644
Wyoming	263	128	266	108	108	126

RICKETTSIA-LIKE ORGANISM FROM NORMAL *DERMACENTOR ANDERSONI* STILES[1]

By Edward A. Steinhaus, *Assistant Bacteriologist, United States Public Health Service*

In connection with studies on the microbial flora of ticks, observations have been made of a rickettsia-like organism which occurs in the tissues of *Dermacentor andersoni*. It is possibly the same microorganism observed by earlier workers (Wolbach (*1*), Ricketts (*3*), Parker and Spencer (*6*), Pinkerton and Hass (*7*)) incident to studies of the rickettsia of Rocky Mountain spotted fever. The present report has to do with its occurrence in the tick, its morphology, its cultivation in the fluids of the embryonic chick, and its relationship to other rickettsiae occurring spontaneously in the same tick species.

OCCURRENCE IN THE TICK

Ticks used in these studies (1940 and 1941) were from a stock laboratory strain initiated in 1934 and reared subsequently through several generations. The feeding of these ticks has never caused fever in the host animals (rabbits) and repeated tests by injecting them into guinea pigs have failed to produce any evidence of disease.

The organism has been found in every stage of the tick, including the egg, and was invariably present in large numbers in each of several hundred adults. It was usually most abundant in the epithelial cells of the intestinal diverticula, but in some specimens was found throughout the tissues. In isolated cellular elements it was seen within the cytoplasm of the cells but has not been observed with certainty in the nucleus.

[1] From the Rocky Mountain Laboratory (Hamilton, Montana) of the Division of Infectious Diseases, National Institute of Health.

Morphologic characteristics.—The organism is Gram negative. Like rickettsiae, it stains red by the Macchiavello method. With Giemsa it stains bluish-purple, slightly darker than the Rocky Mountain spotted fever rickettsia. This and the ordinary bacterial stains do not color it quite as deeply or as distinctly as they do most bacteria. The organism is not acid fast.

It is usually somewhat larger than the spotted fever rickettsia, ranging approximately from 0.3 to 0.8 by 0.5 to 4.5 microns. It frequently occurs in short chains of two or three closely joined members, and occasionally as filaments.

CULTIVATION EXPERIMENTS

Artificial media.—Repeated attempts to cultivate this organism on artificial media failed. The media used were beef infusion agar, beef infusion broth, glucose beef infusion agar, nutrient blood agar, North's gelatin chocolate agar, glucose-sucrose broth, ascitic fluid, peptone-gelatin-blood medium (Kligler and Aschner: J. Bact., **22**; 103–116 (1931)), sodium thioglycollate broth, Zinsser's tissue culture agar, Noguchi's leptospira medium (plain), Noguchi's leptospira semisolid medium with the addition of glucose, sucrose, maltose, mannose, levulose, mannitol, dextrin, xylose, inulin, salicin, dulcitol, and rhamnose in a concentration of 0.2 percent each, the same containing minced fresh rabbit kidney, and Novy and McNeal's medium containing the same sugars as the foregoing. The cultures were incubated at 17°, 24°, 32°, and 37.5° C., both aerobically and anaerobically.

Chick embryo method.—Several strains were established in chicken eggs incubated at 39° C. for 5 or 6 days, and then inoculated with triturated tick viscera in a manner similar to that used by Cox (*2*) for rickettsiae. The eggs were then incubated at 32°–34° C. until the embryos died, usually between the second and sixth days. The organism appears to grow chiefly in the egg fluids of which 0.5 cc. was used as the inoculum for serial passage. It has thus been carried through 30 passages. Five or six initial transfers were necessary to establish the organism definitely.

The organism in the egg appeared identical with that in ticks, though it was sometimes definitely longer.

Fluids of the twelfth to fifteenth passage-eggs were unsuccessfully used in further attempts to cultivate the organism on the artificial media already mentioned.

TESTS FOR POSSIBLE PATHOGENICITY

At first tick tissues and tick eggs were tested for infectiousness by intraperitoneal injection in guinea pigs. The results were negative.

Later, chick egg fluids, often in massive doses, were used in guinea pigs, rabbits, white mice, a monkey, and the following natural hosts of *Dermacentor andersoni:* bushy-tailed wood rats (*Neotoma cinerea*), Columbian ground squirrels (*Citellus columbianus*), pine squirrels (*Tamiasciurus richardsoni*), flying squirrels (*Glaucomys sabrinus*), chipmunks (*Eutamias amoenus*), and side-striped ground squirrels (*Citellus* (*Callospermophilus*) *lateralis*). In no case was there any evidence of infection.

Immunity tests.—Because this organism occurs in the same species of tick as the morphologically similar Rocky Mountain spotted fever rickettsia, most of the test guinea pigs and rabbits were later injected with Rocky Mountain spotted fever infective blood. None were immune. Others were similarly shown nonimmune to American "Q" fever also transmitted by *Dermacentor andersoni.*

This organism is tentatively assigned to the genus *Rickettsia* and the specific name *dermacentrophila* is proposed for it.

SUMMARY

A rickettsia-like organism occurring spontaneously in the tissues of *Dermacentor andersoni* ticks is described. It cannot be cultivated on various artificial media, but is readily maintained by serial passage in incubating fertile chick eggs. The egg fluids, which constantly contain large numbers of organisms, were used as the transfer medium. It is nonpathogenic for laboratory animals and various rodent hosts of *D. andersoni,* and inoculated animals are not subsequently immune to Rocky Mountain spotted fever or American "Q" fever.

The name *Rickettsia dermacentrophila* n. sp. is proposed for this organism.

REFERENCES

(*1*) Wolbach, S. B.: Studies on Rocky Mountain spotted fever. J. Med. Research, **41:** 1–197 (1919).

(*2*) Cox, H. R.: Use of yolk sac of developing chick embryo as medium for growing rickettsiae of Rocky Mountain spotted fever and typhus groups. Pub. Health Rep., **53:** 2241–2247 (1938).

(*3*) Ricketts, H. T.: Contributions to Medical Science. Univ. of Chicago Press, Chicago, 1911. Pp. 373–408.

(*4*) Spencer, R. R., and Parker, R. R.: Studies on Rocky Mountain spotted fever. Hyg. Lab. Bull. No. 154 (1930).

(*5*) Cox, H. R.: Rocky Mountain spotted fever. Protective value for guinea pigs of vaccine prepared from rickettsiae cultivated in embryonic chick tissues. Pub. Health Rep., **54:** 1070–1077 (1939).

(*6*) Parker, R. R., and Spencer, R. R.: Rocky Mountain spotted fever. A study of the relationship between the presence of rickettsia-like organisms in tick smears and the infectiveness of the same ticks. Pub. Health Rep., **41:** 461–469 (1926).

(*7*) Pinkerton, H., and Hass, G. M.: Spotted fever. III. The identification of *Dermacentroxenous rickettsi* and its differentiation from non-pathogenic rickettsiae in ticks. J. Exper. Med., **66:** 729–739 (1937).

STUDIES ON THE DURATION OF DISABLING SICKNESS

II. Duration of Disability From Sickness and Nonindustrial Injuries Among Male Workers, Disabilities Lasting One Calendar Day or Longer [1]

By WILLIAM M. GAFAFER, *Senior Statistician*, and ELIZABETH S. FRASIER, *Junior Statistician, United States Public Health Service*

The first paper (*1*) of the series on the duration of disabling sickness and nonindustrial injuries was based on ended cases lasting 8 calendar days or longer that had been reported periodically by 25 industrial sick benefit organizations for the 3-year period, 1935–37. These organizations subscribed to waiting and maximum benefit periods of varying length. The paper presented principally two basic tables showing industrial morbidity by sex and broad cause group. One table gave the average annual number of cases per 1,000 persons causing disability for a specified number of days, t, or more, and the other, the average annual number of days of disability per person resulting from all disabilities contributing t days or less, the t in both instances varying from 8 through 372 days.

It had been planned originally to base the present report on the experiences of 8 industrial sick benefit organizations all subscribing to a maximum benefit period of 52 weeks. The pertinent analyses have been made in this connection, and because of the relatively small number of female workers included in the records, attention was restricted to the disability reports on males. Furthermore, the analyses were made specific for waiting period. Six of the organizations had a waiting period of 7 days, 1 organization connected with a public utility company had no waiting period, and 1 whose membership was composed of workers in an oil refining company had no waiting period for salaried workers but a waiting period of several days for the other workers. The results of the analyses of the combined experiences of the 6 organizations with a 7-day waiting period showed the two principal tables presenting frequency and disability rates, respectively, to agree essentially with the corresponding tables published in the earlier paper; the frequency rates as well as the disability rates for each of the other 2 organizations, on the other hand, differed from each other and from those already published. These differences are primarily attributable to differences in the length of the waiting period, since it has been found in earlier experiences that organizations with relatively short waiting periods, or no waiting periods at all, are likely to have a more complete record of the 8-day or longer cases than those organizations with longer waiting periods.

The present paper and the succeeding one [2] will, therefore, be

[1] From the Division of Industrial Hygiene, National Institute of Health. For earlier papers in the series see references *1* and *2*.

[2] This paper has already appeared (*2*).

devoted to the workers of the public utility and the oil refining company, respectively. With regard to each company an additional 2 years of data covering 1937–39 have become available. Moreover, in the instance of the oil refining company, the availability of the requisite data makes possible a study of the relation of age to morbidity.

Thus an analysis of the material from the two companies will supplement considerably the picture presented in the first paper, particularly in respect of durations of less than 8 days, and of age, respectively.

The public utility company, the morbidity experience of whose male workers forms the subject of the present paper,[3] inaugurated a liberal disability benefit plan in 1913. This plan provided for payment of wages in full or in part during disability and beginning with the first day of absence. During the second 6 months of membership, a worker is allowed accumulated sick leave of 1 day per month at full pay. After the first year of membership, full pay for continuous disability is allowed for 15 weeks; beyond this time three-fourths to one-fourth of the worker's wages are paid, the period of payment depending upon the number of years of employment with the company. However, for present purposes all cases of continuous disability extending over 372 calendar days were arbitrarily closed at the end of the three hundred and seventy-second day. In all instances "days" refer to calendar days, and absences of less than 1 full calendar day are omitted.

It is well known that age is an important factor in the frequency and duration of disabilities. The available information indicates that as of 1940 approximately 25 percent of the workers were 50 years of age and over, a percentage that compares favorably with a number of other industrial populations studied by the Division.

It is purposed to present two fundamental tables of the type referred to above, the two indexes carried by the tables being specific for three broad cause groups, and based on all ended cases that lasted 1 calendar day or longer during the 7 years, 1933–39.

ANALYSIS OF THE DATA

The 7-year period represented by 18,487 male-years of membership in the disability plan yielded 16,701 absences of 1 calendar day or longer, and 135,873 days of disability. When converted into average annual rates these data become 903.4 absences per 1,000 males, and 7.350 days of disability per male.

Average annual number of absences per 1,000 males on account of sickness and nonindustrial injuries disabling for a specified number of

[3] This is the seventh paper based primarily on morbidity reports from this company. The sixth paper (5) contains a list of the earlier papers.

days t *or more.*—The pertinent data are shown in table 1 and graphically for the first 28 days in figure 1. The table presents the frequency of ended absences lasting a certain number of days, *t*, or longer for all cause groups and each of three broad cause groups. Thus the frequency of ended cases accounted for by the respiratory diseases and lasting 2 days or longer is 432.7 per 1,000 males, while the corresponding frequency for the nonrespiratory diseases is 219.0. The magnitude of the rapidity of decrease of the frequencies with increasing values of *t* is determined by whether or not there is a preponderance of long or short absences, the long absences inhibiting the rate of decrease while the short ones accelerate it.

It will be observed that (1) the frequency of 8-day or longer absences is higher for each cause group when compared with the corresponding frequencies published in the previous paper of the series,

TABLE 1.—*Annual number of absences per 1,000 males, on account of sickness and nonindustrial injuries disabling for a specified number of days* t *or more, by broad cause group, experience of male employees of a public utility, absences lasting 1 calendar day or longer and ending during 1933–39, inclusive*

t days	Annual number of absences per 1,000 males lasting *t* days or more				Number of absences lasting *t* days or more			
	All sickness and nonindustrial injuries	Nonindustrial injuries	Respiratory diseases	Nonrespiratory diseases	All sickness and nonindustrial injuries	Nonindustrial injuries	Respiratory diseases	Nonrespiratory diseases
1	903.4	47.7	547.0	308.7	16,701	882	10,112	5,707
2	691.3	39.6	432.7	219.0	12,781	733	7,999	4,049
3	539.9	33.8	338.8	167.3	9,981	625	6,264	3,092
4	405.5	28.4	249.5	127.6	7,496	525	4,613	2,358
5	319.4	24.0	190.8	104.6	5,905	444	3,528	1,933
6	254.0	21.3	144.5	88.2	4,695	393	2,671	1,631
7	198.1	18.6	104.4	75.1	3,662	343	1,931	1,388
8	144.4	14.8	67.9	61.7	2,669	273	1,256	1,140
9	127.6	13.5	56.3	57.8	2,359	250	1,041	1,068
10	116.1	12.6	48.7	54.8	2,146	233	900	1,013
11	104.9	11.5	41.5	51.9	1,939	212	767	960
12	95.4	10.8	35.5	49.1	1,763	200	656	907
13	87.5	10.1	30.3	47.1	1,617	186	561	870
14	80.9	9.4	26.6	44.9	1,496	174	492	830
15	70.3	8.0	20.7	41.6	1,299	148	383	768
16	67.7	7.7	19.4	40.6	1,252	143	358	751
17	65.9	7.5	18.6	39.8	1,219	138	344	737
18	64.5	7.3	17.9	39.3	1,192	135	331	726
19	62.2	7.0	17.0	38.2	1,151	130	315	706
20	60.6	6.9	16.2	37.5	1,120	128	299	693
21	58.5	6.8	15.3	36.4	1,081	125	282	674
22	54.9	6.2	13.8	34.9	1,016	116	255	645
23	53.4	6.2	13.0	34.2	987	114	241	632
24	52.0	6.0	12.7	33.3	962	111	235	616
25	50.4	5.7	12.2	32.5	932	106	226	600
26	49.7	5.5	12.0	32.2	919	101	222	596
27	48.8	5.4	11.6	31.8	902	99	215	588
28	47.1	5.4	11.0	30.7	870	99	203	568
35	38.6	4.6	8.4	25.6	714	86	155	473
42	32.3	4.0	7.0	21.3	597	73	130	394
49	27.0	3.2	5.7	18.1	500	59	105	336
56	22.2	2.9	4.4	14.9	411	53	81	277
63	18.1	2.2	3.6	12.3	334	40	67	227
70	15.5	1.7	3.3	10.5	286	32	61	193
77	13.1	1.5	2.5	9.1	242	27	47	168
84	12.1	1.2	2.3	8.6	224	23	42	159
91	10.6	1.1	1.8	7.7	197	20	33	144
98	9.3	1.0	1.7	6.6	172	18	31	123
182	4.0	.2	.8	3.0	74	4	14	56
273	2.8	.1	.6	2.1	51	1	12	38
365	1.9	.1	.5	1.3	35	1	10	24
372	1.9	.1	.5	1.3	34	1	9	24

and (2) for each value of t the frequency for the respiratory diseases is consistently higher than that for the nonrespiratory diseases up through the eighth day; in the neighborhood of the eighth day, however, the two frequencies are equal to each other, and for higher

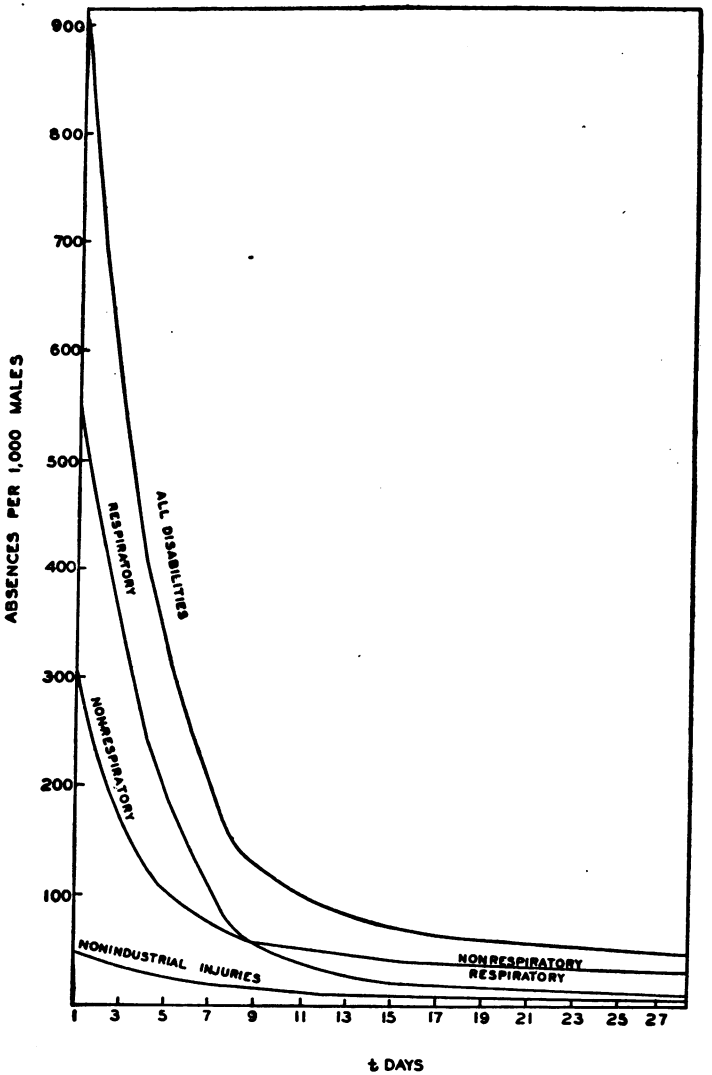

FIGURE 1.—Annual number of absences per 1,000 males on account of sickness and nonindustrial injuries disabling for a specified number of days, t or more, by broad cause group, experience of male employees of a public utility, absences lasting 1 calendar day or longer and ending during 1933–39, inclusive.

values of t the nonrespiratory frequencies are consistently higher, the behavior of the two frequencies beyond the eighth day being similar to that shown in the earlier paper on 8-day or longer disabilities. These observations serve to emphasize that a benefit plan with a relatively short waiting period or no waiting period at all is

likely to yield a more complete record of 8-day or longer absences, and that a relatively large number of short absences is characteristic of the respiratory diseases.

Average annual number of days of disability per male resulting from all disabilities contributing t days or less.—Table 2 shows by broad cause group the disability rates and the number of days disabled for values of t from 1 through 372 days. Thus for all sickness and nonindustrial injuries the number of days per male per year varies from 0.9 to 7.350 as t assumes values from 1 through 372 days. It will be observed that the number of days (16,701) for t equals 1 is the same as the number of absences for t equals 1 shown in table 1. Furthermore the total number of days of disability (135,873) is given by t equals 372.

TABLE 2.—*Annual number of days of disability per male resulting from all disabilities contributing t days or less, by broad cause group, experience of male employees of a public utility, absences lasting 1 calendar day or longer due to sickness and nonindustrial injuries and ending during 1933–39, inclusive*

t days	Annual number of days of disability per male resulting from all disabilities contributing t days or less				Number of days of disability resulting from all disabilities contributing t days or less			
	All sickness and nonindustrial injuries	Nonindustrial injuries	Respiratory diseases	Nonrespiratory diseases	All sickness and nonindustrial injuries	Nonindustrial injuries	Respiratory diseases	Nonrespiratory diseases
1	0.903	0.047	0.547	0.309	16,701	882	10,112	5,707
2	1.595	.087	.980	.528	29,482	1,615	18,111	9,756
3	2.135	.121	1.319	.695	39,463	2,240	24,375	12,848
4	2.540	.149	1.568	.823	46,959	2,765	28,988	15,206
5	2.860	.174	1.759	.927	52,864	3,209	32,516	17,139
6	3.113	.195	1.903	1.015	57,559	3,602	35,187	18,770
7	3.312	.213	2.008	1.091	61,221	3,945	37,118	20,158
8	3.456	.228	2.076	1.152	63,890	4,218	38,374	21,298
9	3.584	.242	2.132	1.210	66,249	4,468	39,415	22,366
10	3.700	.254	2.181	1.265	68,395	4,701	40,315	23,379
11	3.805	.266	2.222	1.317	70,334	4,913	41,082	24,339
12	3.900	.277	2.258	1.365	72,097	5,113	41,738	25,246
13	3.987	.287	2.288	1.412	73,714	5,299	42,299	26,116
14	4.068	.296	2.315	1.457	75,210	5,473	42,791	26,946
15	4.139	.304	2.336	1.499	76,509	5,621	43,174	27,714
16	4.206	.312	2.354	1.540	77,761	5,764	43,532	28,465
17	4.272	.319	2.373	1.580	78,980	5,902	43,876	29,202
18	4.337	.327	2.391	1.619	80,172	6,037	44,207	29,928
19	4.399	.334	2.408	1.657	81,323	6,167	44,522	30,634
20	4.460	.341	2.424	1.695	82,443	6,295	44,821	31,327
21	4.518	.347	2.440	1.731	83,524	6,420	45,103	32,001
22	4.573	.354	2.453	1.766	84,540	6,536	45,358	32,646
23	4.626	.360	2.466	1.800	85,527	6,650	45,599	33,278
24	4.678	.366	2.479	1.833	86,489	6,761	45,834	33,894
25	4.729	.371	2.492	1.866	87,421	6,867	46,060	34,494
26	4.778	.377	2.503	1.898	88,340	6,968	46,282	35,090
27	4.827	.382	2.515	1.930	89,242	7,067	46,497	35,678
28	4.874	.388	2.526	1.960	90,112	7,166	46,700	36,246
35	5.167	.422	2.592	2.153	95,529	7,805	47,911	39,813
42	5.413	.452	2.645	2.316	100,066	8,357	48,899	42,810
49	5.616	.476	2.688	2.452	103,826	8,803	49,687	45,336
56	5.785	.497	2.721	2.567	106,946	9,183	50,307	47,456
63	5.924	.514	2.749	2.661	109,511	9,492	50,821	49,198
70	6.039	.527	2.773	2.739	111,636	9,734	51,262	50,640
77	6.137	.538	2.793	2.806	113,449	9,941	51,631	51,877
84	6.224	.547	2.809	2.868	115,055	10,114	51,927	53,014
91	6.302	.555	2.822	2.925	116,501	10,256	52,179	54,066
98	6.370	.562	2.834	2.974	117,760	10,382	52,397	54,981
182	6.839	.597	2.916	3.326	126,432	11,031	53,915	61,486
273	7.128	.606	2.983	3.539	131,772	11,195	55,146	65,431
365	7.336	.610	3.037	3.689	135,629	11,287	56,137	68,205
372	7.350	.611	3.040	3.699	135,873	11,294	56,206	68,373

The rates are presented graphically in figure 2. Most striking is the crossing of the curves for the respiratory and nonrespiratory groups of diseases at approximately t equals 77. This phenomenon

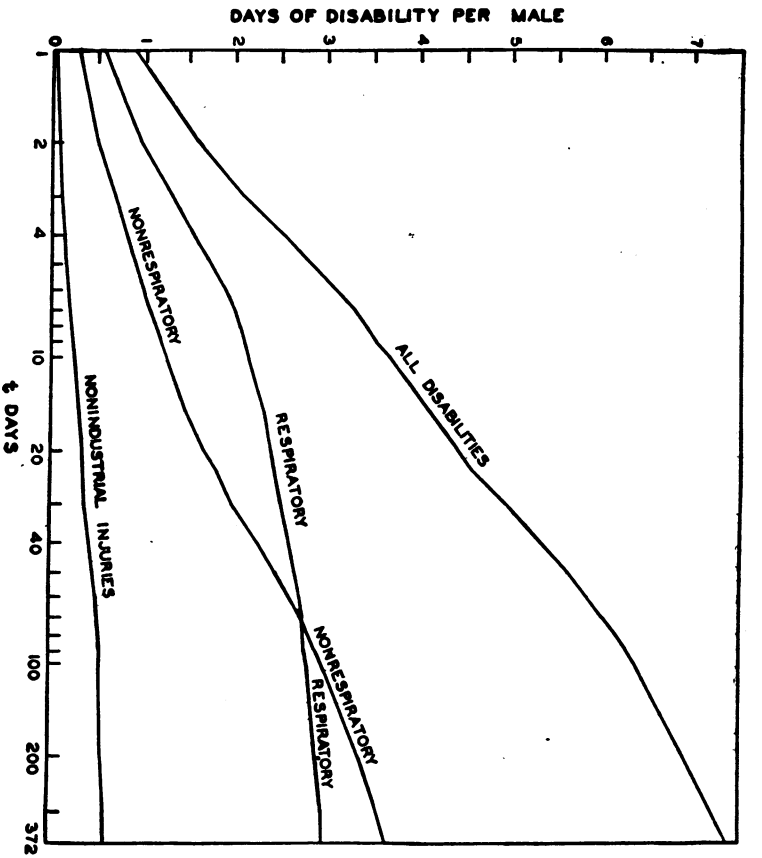

FIGURE 2.—Annual number of days of disability per male resulting from all disabilities contributing t days or less, by broad cause group, experience of male employees of a public utility, absences lasting 1 calendar day or longer due to sickness and nonindustrial injuries and ending during 1933–39, inclusive. (Logarithmic horizontal scale.)

again reflects the relatively large number of short absences because of the respiratory diseases.

SUMMARY

This paper, the second of a series on the duration of disabling sickness and nonindustrial injuries, based on absences lasting 1 calendar day or longer, reported periodically by a public utility company over a period of 7 years, presents principally two basic tables showing for males, and by broad cause group, the frequency and disability rates corresponding to different durations of disability.

The previous paper of the series dealt only with disabilities lasting 8 days or longer. The present paper shows the effect of introducing disabilities of less than 8 days' duration, particularly the effect of the respiratory group of diseases with its preponderance of short absences.

REFERENCES

(1) Gafafer, W. M., and Frasier, E. S.: Studies on the duration of disabling sickness. I. Duration of disability from sickness and nonindustrial injuries among the male and female memberships of 25 industrial sick benefit organizations, 1935–37, inclusive. Pub. Health Rep., 55: 1892–1903 (October 18, 1940).

(2) Gafafer, W. M., Sitgreaves, R., and Frasier, E. S.: Studies on the duration of disabling sickness. III. Duration of disability from sickness and nonindustrial injuries among the male employees of an oil refining company with particular reference to the older worker, 1933–39, inclusive. Pub. Health Rep., 57: 112–125 (January 23, 1942).

(3) Gafafer, W. M.: Frequency and duration of disabilities causing absence from work among the employees of a public utility, 1938–41. Pub. Health Rep. Pub. Health Rep., 57: 625–627 (April 24, 1942).

DEATHS DURING WEEK ENDED AUGUST 29, 1942

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

	Week ended Aug. 29, 1942	Corresponding week 1941
Data from 87 large cities of the United States:		
Total deaths	7,271	7,067
Average for 3 prior years	7,045	
Total deaths, first 34 weeks of year	282,997	286,683
Deaths per 1,000 population, first 34 weeks of year, annual rate	11.7	11.9
Deaths under 1 year of age	602	532
Average for 3 prior years	500	
Deaths under 1 year of age, first 34 weeks of year	18,985	17,581
Data from industrial insurance companies:		
Policies in force	64,982,742	64,441,524
Number of death claims	10,061	9,397
Death claims per 1,000 policies in force, annual rate	8.1	7.6
Death claims per 1,000 policies, first 34 weeks of year, annual rate	9.4	9.8

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 SEPTEMBER 5, 1942

Summary

The incidence of the important common communicable diseases continued favorable during the week. The number of cases of poliomyelitis declined from 202 for the preceding week to 195, and the number of cases of meningococcus meningitis from 58 to 41.

The East North Central (75 cases) and the Middle Atlantic States (43) reported the highest incidence of poliomyelitis. Illinois reported the largest number of cases (36) for the week. A total of 135 cases has been reported in that State since August 1. Other States reporting more than 10 cases during the current week were: New Jersey 21, New York 19, Ohio 17, Michigan 12, and California 12.

Of 41 cases of meningococcus meningitis, 12 cases occurred in the Middle Atlantic States. New York (8 cases) was the only State which reported more than 3 cases.

Of the 9 communicable diseases listed in the following table, and for which corresponding data are available for prior years, the cumulative totals to date are above the 5-year (1937–41) medians for only measles and meningococcus meningitis. The current incidence of measles is below the median expectancy.

Other reports include 2 cases of anthrax (1 each in Georgia and Louisiana), 21 cases of infectious encephalitis (7 in Washington State and 4 in California), 29 cases of amebic dysentery (11 in Texas), 217 cases of bacillary dysentery (136 in Texas), 152 cases of unspecified dysentery (118 in Virginia), 5 cases of Rocky Mountain Spotted Fever, 7 cases of smallpox, and 126 cases of endemic typhus fever (48 in Georgia, 34 in Texas, 16 in Florida, and 14 in Alabama—89 percent of the total in these 4 States).

The death rate for the current week in 88 large cities in the United States is 10.6 per 1,000 population, as compared with 10.3 last week and a 3-year (1939–41) average of 10.2.

Telegraphic morbidity reports from State health officers for the week ended Sept. 5, 1942, and comparison with corresponding week of 1941 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 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41
	Sept. 5, 1942	Sept. 6, 1941		Sept. 5, 1942	Sept. 6, 1941		Sept. 5, 1942	Sept. 6, 1941		Sept. 5, 1942	Sept. 6, 1941	
NEW ENG.												
Maine	0	0	1	-----	-----	-----	16	12	12	1	0	0
New Hampshire	0	0	0	-----	-----	-----	1	1	0	0	0	0
Vermont	0	1	0	-----	-----	-----	29	25	0	0	1	0
Massachusetts	1	0	2	-----	-----	-----	46	34	30	2	1	0
Rhode Island	0	0	0	-----	-----	-----	5	1	1	0	1	0
Connecticut	0	0	0	3	-----	-----	15	10	5	0	0	0
MID. ATL.												
New York	10	4	8	[1] 4	[1] 1	[1] 1	42	71	75	8	7	2
New Jersey	2	2	2	3	2	2	12	33	20	1	0	0
Pennsylvania	4	10	11	1	-----	-----	15	76	76	3	4	4
E. NO. CEN.												
Ohio	10	10	10	5	7	4	31	18	18	1	2	1
Indiana	0	4	4	8	19	8	0	2	5	1	0	1
Illinois	14	16	13	2	-----	6	10	84	23	3	2	0
Michigan [2]	6	3	6	2	-----	3	16	11	27	0	0	0
Wisconsin	0	0	1	11	13	13	36	61	47	1	1	1
W. NO. CEN.												
Minnesota	1	6	7	1	-----	1	5	4	9	1	0	0
Iowa	1	2	2	-----	-----	-----	10	3	4	0	1	1
Missouri	3	4	7	-----	11	11	4	6	2	3	1	0
North Dakota	1	1	2	5	7	2	3	6	2	0	0	0
South Dakota	3	9	1	-----	-----	-----	3	2	0	0	0	0
Nebraska	1	0	1	-----	-----	-----	3	1	2	0	0	0
Kansas	7	0	2	-----	2	-----	8	1	2	1	1	1
SO. ATL.												
Delaware	0	0	0	-----	-----	-----	0	1	0	0	0	0
Maryland [2]	3	0	1	4	-----	2	7	20	5	2	2	0
Dist. of Col.	2	1	1	-----	-----	-----	1	6	2	0	0	0
Virginia	5	12	16	44	119	12	1	34	10	1	4	1
West Virginia	1	5	7	1	5	15	0	29	3	3	0	1
North Carolina	45	34	44	-----	-----	-----	5	24	20	2	1	2
South Carolina	12	41	7	58	93	103	0	27	10	0	0	0
Georgia	13	23	23	18	19	14	1	39	2	0	1	0
Florida	1	8	6	3	2	1	11	4	4	0	0	0
E. SO. CEN.												
Kentucky	4	11	11	3	-----	1	2	6	6	1	3	1
Tennessee	8	25	6	5	2	7	3	25	25	0	4	0
Alabama	20	33	13	26	2	5	16	2	2	0	1	1
Mississippi [2]	7	10	17	-----	-----	-----	-----	-----	-----	0	1	1
W. SO. CEN.												
Arkansas	11	15	14	2	4	4	1	21	8	0	0	0
Louisiana	2	4	7	5	1	3	1	3	1	0	0	0
Oklahoma	3	8	7	1	20	15	1	6	3	0	0	0
Texas	20	38	31	103	530	76	21	48	15	2	1	1
MOUNTAIN												
Montana	2	3	1	-----	-----	-----	10	2	7	0	0	0
Idaho	0	0	0	-----	-----	-----	8	0	0	0	0	0
Wyoming	0	0	0	13	8	-----	3	3	3	0	0	0
Colorado	3	8	13	3	36	1	4	13	7	0	1	0
New Mexico	0	0	2	-----	-----	-----	0	5	5	1	0	0
Arizona	9	1	0	28	25	10	4	23	3	0	1	0
Utah [2]	0	0	0	3	3	2	19	9	8	0	0	0
Nevada	0	0	-----	-----	-----	-----	1	1	-----	0	0	-----
PACIFIC												
Washington	5	0	0	-----	-----	-----	44	3	8	0	1	1
Oregon	1	1	2	3	3	3	49	7	5	1	1	0
California	7	7	14	20	18	11	62	62	53	2	0	0
Total	248	360	360	388	942	343	585	885	633	41	44	26
35 weeks	7,871	8,133	12,687	81,658	491,321	160,817	467,858	825,347	349,371	2,495	1,483	1,483

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended Sept. 5, 1942, and comparison with corresponding week of 1941 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41
	Sept. 5, 1942	Sept. 6, 1941		Sept. 5, 1942	Sept. 6, 1941		Sept. 5, 1942	Sept. 6, 1941		Sept. 5, 1942	Sept. 6, 1941	
NEW ENG.												
Maine	0	2	0	3	7	2	0	0	0	2	1	1
New Hampshire	0	1	0	2	2	1	0	0	0	0	0	0
Vermont	0	0	0	1	2	1	0	0	0	0	2	0
Massachusetts	1	18	3	62	31	22	0	0	0	7	2	2
Rhode Island	1	0	0	6	2	1	0	0	0	1	0	0
Connecticut	6	6	2	15	8	4	0	0	0	2	0	3
MID. ATL.												
New York	19	71	52	52	66	56	0	0	0	9	17	17
New Jersey	21	32	10	24	28	16	0	0	0	2	3	5
Pennsylvania	3	66	19	43	35	57	0	0	0	19	22	24
E. NO. CEN.												
Ohio	17	33	31	53	48	46	0	0	0	13	22	26
Indiana	7	4	4	7	9	28	1	0	0	9	7	9
Illinois	36	21	21	30	40	57	0	1	1	10	10	20
Michigan [1]	12	7	34	22	18	62	0	0	0	10	6	9
Wisconsin	3	6	7	53	37	42	1	1	0	1	2	2
W. NO. CEN.												
Minnesota	3	23	18	16	18	18	0	0	2	0	0	0
Iowa	1	1	2	18	16	16	0	0	0	0	3	3
Missouri	4	1	1	11	19	16	1	0	0	9	11	11
North Dakota	1	4	1	2	2	4	0	0	0	0	2	1
South Dakota	1	1	1	9	4	6	0	0	0	1	0	0
Nebraska	------	0	2	5	2	3	0	0	0	0	0	0
Kansas	5	6	6	20	30	27	0	0	0	1	1	5
SO. ATL.												
Delaware	0	0	0	2	2	1	0	0	0	2	2	2
Maryland [2]	2	16	1	8	11	11	0	0	0	1	5	5
Dist. of Col	0	7	1	5	3	2	0	0	0	0	1	2
Virginia	1	15	3	5	8	8	0	0	0	6	16	13
West Virginia	6	2	2	21	16	16	0	0	0	10	8	12
North Carolina	0	12	8	0	26	26	0	0	0	9	3	16
South Carolina	0	10	1	4	11	4	1	0	0	4	17	17
Georgia	1	49	2	12	16	15	0	0	0	6	15	18
Florida	2	4	2	5	6	2	0	0	0	4	1	2
E. SO. CEN.												
Kentucky	3	18	8	30	23	29	0	0	0	15	32	32
Tennessee	4	38	3	19	25	10	0	0	0	18	30	13
Alabama	3	66	2	26	16	16	0	0	0	8	11	12
Mississippi [3]	3	10	2	19	7	8	0	0	0	5	10	10
W. SO. CEN.												
Arkansas	5	1	2	1	4	4	1	0	0	5	12	19
Louisiana	0	3	2	5	4	4	0	0	0	7	15	19
Oklahoma	1	1	2	8	11	9	0	0	0	6	12	16
Texas	2	4	4	6	20	24	0	0	0	13	35	51
MOUNTAIN												
Montana	2	1	2	8	1	9	0	0	0	1	0	1
Idaho	0	0	1	2	2	4	2	0	0	1	1	2
Wyoming	0	2	0	1	1	3	0	0	0	0	1	1
Colorado	0	3	3	4	15	11	0	0	0	0	3	4
New Mexico	1	1	1	3	1	1	0	0	0	5	2	7
Arizona	2	0	0	0	2	1	0	0	0	4	3	3
Utah [2]	2	4	1	2	0	5	0	0	0	0	0	1
Nevada	0	0	------	0	0	------	0	0	0	0	0	------
PACIFIC												
Washington	2	2	1	8	11	8	0	0	0	2	2	2
Oregon	0	6	2	0	7	6	0	0	1	1	3	3
California	12	7	21	25	26	53	0	0	0	2	4	12
Total	195	585	585	683	699	799	7	2	16	231	355	543
35 weeks	1,902	4,606	4,016	90,442	91,041	117,978	621	1,157	8,080	4,498	5,460	8,226

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended Sept. 5, 1942—Continued

Division and State	Whooping cough		Week ended Sept. 5, 1942								
	Week ended—		Anthrax	Dysentery			Encephalitis	Leprosy	Rocky Mountain spotted fever	Tularemia	Typhus fever
	Sept. 5, 1942	Sept. 6, 1941		Amebic	Bacillary	Unspecified					
NEW ENG.											
Maine	36	13	0	0	0	0	0	0	0	0	0
New Hampshire	1	1	0	0	0	0	0	0	0	0	0
Vermont	49	6	0	0	0	0	0	0	0	0	0
Massachusetts	134	81	0	0	2	0	0	0	0	0	0
Rhode Island	10	25	0	0	0	0	0	0	0	0	0
Connecticut	59	26	0	0	5	0	1	0	0	0	0
MID. ATL.											
New York	342	270	0	0	13	0	1	0	0	0	2
New Jersey	144	116	0	0	0	0	0	0	0	0	0
Pennsylvania	180	185	0	0	1	0	0	0	0	0	0
E. NO. CEN.											
Ohio	236	322	0	1	2	0	0	0	0	0	0
Indiana	28	26	0	0	0	0	0	0	0	0	0
Illinois	270	231	0	3	20	0	1	0	0	0	0
Michigan [2]	279	190	0	1	3	0	0	0	0	0	0
Wisconsin	250	232	0	1	0	0	0	0	0	1	0
W. NO. CEN.											
Minnesota	69	75	0	0	0	0	0	0	0	0	0
Iowa	11	26	0	0	0	0	0	0	0	0	0
Missouri	7	64	0	0	0	0	0	0	0	0	0
North Dakota	11	22	0	0	0	0	2	0	0	0	0
South Dakota	0	9	0	0	0	0	2	0	0	0	0
Nebraska	10	2	0	0	0	0	0	0	0	0	0
Kansas	32	81	0	0	0	0	0	0	0	0	0
SO. ATL.											
Delaware	3	0	0	0	0	0	0	0	0	0	0
Maryland [2]	71	47	0	0	0	8	0	0	2	0	1
Dist. of Col.	10	19	0	0	0	0	0	0	0	0	0
Virginia	32	71	0	0	0	118	0	0	1	0	0
West Virginia	17	11	0	0	0	0	0	0	0	0	0
North Carolina	49	109	0	0	0	0	0	0	0	0	1
South Carolina	17	84	0	0	0	0	0	0	0	0	6
Georgia	36	20	1	1	4	0	0	0	0	1	48
Flordia	11	9	0	0	0	0	0	0	0	0	16
E. SO. CEN.											
Kentucky	52	74	0	0	0	0	1	0	0	0	0
Tennessee	27	59	0	1	0	1	0	0	0	1	1
Alabama	16	14	0	0	0	0	0	0	0	0	14
Mississippi [2]	------	------	0	0	0	0	0	0	0	0	1
W. SO. CEN.											
Arkansas	5	13	0	6	5	0	1	0	1	0	0
Louisiana	0	0	1	0	1	0	0	0	0	0	2
Oklahoma	4	8	0	0	0	9	0	0	0	0	0
Texas	132	127	0	11	136	0	0	0	0	2	34
MOUNTAIN											
Montana	17	6	0	0	0	0	1	0	0	0	0
Idaho	7	0	0	0	0	0	0	0	0	0	0
Wyoming	5	19	0	0	0	0	0	0	1	2	0
Colorado	20	85	0	0	8	0	0	0	0	0	0
New Mexico	6	1	0	3	4	0	0	0	0	0	0
Arizona	6	7	0	0	0	25	0	0	0	0	0
Utah [2]	8	25	0	0	0	0	0	0	0	1	0
Nevada	0	0	0	0	0	0	0	0	0	0	0
PACIFIC											
Washington	36	48	0	0	0	0	7	0	0	0	0
Oregon	20	20	0	0	0	0	0	0	0	0	0
California	129	191	0	1	13	0	4	0	0	0	0
Total	2,894	3,070	2	29	217	161	21	0	5	8	126
35 weeks	128,043	152,486	------	------	------	------	------	------	------	------	------

[1] New York City only.
[2] Period ended earlier than Saturday.

WEEKLY REPORTS FROM CITIES

City reports for week ended August 22, 1942

This table lists the reports from 88 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Baltimore, Md	2	0	1	1	3	2	6	0	4	0	0	44
Barre, Vt	0	0	------	0	1	0	0	0	0	0	0	6
Billings, Mont	0	0	------	0	1	0	2	0	0	0	0	4
Birmingham, Ala	0	0	------	0	0	0	3	0	1	0	0	1
Boise, Idaho	0	0	------	0	0	0	0	0	0	0	0	0
Boston, Mass	0	0	------	0	8	1	10	0	24	0	0	32
Bridgeport, Conn	0	0	------	0	0	0	1	0	0	0	0	0
Brunswick, Ga	0	0	------	0	0	0	0	0	0	0	0	0
Buffalo, N. Y	0	0	------	0	0	0	3	0	6	0	0	25
Camden, N. J	0	0	------	0	1	0	1	0	4	0	0	2
Charleston, S. C	0	0	------	0	0	1	2	0	0	0	0	0
Charleston, W. Va	0	0	------	0	0	0	0	0	0	0	0	0
Chicago, Ill	10	0	1	0	7	0	15	11	9	0	2	202
Cincinnati, Ohio	0	0	1	0	1	0	1	1	8	0	0	12
Cleveland, Ohio	0	0	1	0	4	0	7	4	12	0	1	43
Columbus, Ohio	2	0	1	1	0	0	1	0	7	0	0	22
Concord, N. H	0	0	------	0	1	0	0	0	0	0	0	0
Cumberland, Md	0	0	0	0	0	0	0	0	0	0	1	0
Dallas, Tex	1	0	------	0	3	0	2	0	1	0	0	13
Denver, Colo	1	0	3	0	5	0	3	0	1	0	0	17
Detroit, Mich	3	0	------	0	8	1	3	8	13	0	1	131
Duluth, Minn	0	0	------	0	1	0	2	0	2	0	0	12
Fall River, Mass	0	0	------	0	2	0	1	0	2	0	0	1
Fargo, N. Dak	0	0	------	0	0	0	1	0	0	0	0	0
Flint, Mich	2	0	1	0	0	0	1	0	0	1	1	1
Fort Wayne, Ind	0	0	------	0	0	0	2	0	0	0	0	2
Frederick, Md	0	0	------	0	0	0	0	0	0	0	0	0
Galveston, Tex	0	0	------	0	0	0	2	0	0	0	0	0
Grand Rapids, Mich	0	0	------	0	1	0	0	0	1	0	0	5
Great Falls, Mont	0	0	1	0	2	0	0	0	0	0	0	6
Hartford, Conn	0	0	------	0	1	0	1	1	0	0	0	12
Helena, Mont	0	0	------	0	0	0	0	0	0	0	0	0
Houston, Tex	1	0	------	0	1	0	9	0	3	0	3	7
Indianapolis, Ind	2	0	------	0	1	0	3	1	2	0	0	11
Kansas City, Mo	0	0	------	0	3	0	0	0	6	0	0	4
Kenosha, Wis	0	0	------	0	1	0	0	0	4	0	0	11
Little Rock, Ark	0	0	------	0	0	0	3	0	0	0	0	0
Los Angeles, Calif	2	0	6	0	7	0	1	1	6	0	0	11
Lynchburg, Va	0	0	------	0	0	0	0	0	0	0	0	1
Memphis, Tenn	0	0	------	1	0	0	1	0	0	0	0	6
Milwaukee, Wis	0	0	1	1	17	0	1	0	6	0	0	51
Minneapolis, Minn	0	0	------	0	0	0	0	2	6	0	0	5
Missoula, Mont	0	0	------	0	0	0	0	0	0	0	0	2
Mobile, Ala	0	0	------	0	0	0	2	0	0	0	0	0
Nashville, Tenn	0	0	------	0	2	0	2	0	0	0	1	4
Newark, N. J	0	0	------	0	11	1	3	6	4	0	0	37
New Haven, Conn	0	0	------	0	0	0	0	0	0	0	3	9
New Orleans, La	1	0	------	0	3	1	10	0	0	0	0	3
New York, N. Y	4	6	7	0	18	4	36	5	12	0	6	167
Omaha, Nebr	0	0	------	0	0	0	0	0	1	0	1	1
Philadelphia, Pa	3	0	------	0	13	2	11	0	6	0	2	107
Pittsburgh, Pa	0	0	------	0	2	0	8	0	1	0	1	5
Portland, Maine	0	0	------	0	3	0	0	0	0	0	0	5
Providence, R. I	0	0	------	0	4	0	3	0	1	0	0	12

City reports for week ended August 22, 1942—Continued

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Pueblo, Colo	0	0	------	0	0	0	0	0	0	0	0	0
Racine, Wis	0	0	------	0	3	0	0	0	1	0	0	5
Raleigh, N. C	0	0	------	0	0	0	0	0	0	0	0	0
Reading, Pa	0	0	------	0	0	0	1	0	0	0	0	3
Richmond, Va	0	0	------	1	1	0	0	0	1	0	0	2
Roanoke, Va	0	0	------	0	0	0	0	0	0	0	0	0
Rochester, N. Y	0	0	------	1	1	0	4	1	1	0	0	7
Sacramento, Calif	0	0	------	0	1	0	1	0	1	0	0	4
Saint Joseph, Mo	0	0	------	0	1	0	4	0	0	0	0	0
Saint Louis, Mo	2	1	------	0	1	0	7	4	4	0	1	5
Saint Paul, Minn	0	0	------	0	1	0	2	1	3	0	0	28
Salt Lake City, Utah	0	0	------	0	13	0	0	0	0	0	0	7
San Antonio, Tex	1	0	------	0	3	0	3	0	1	0	0	4
San Francisco, Calif	0	0	------	0	1	1	7	0	1	0	0	7
Savannah, Ga	0	0	------	0	0	0	0	0	0	0	0	6
Seattle, Wash	2	0	------	1	7	0	2	0	0	0	0	19
Shreveport, La	0	0	------	0	0	0	5	0	1	0	1	0
South Bend, Ind	0	0	------	0	0	0	0	0	1	0	0	7
Spokane, Wash	0	0	------	0	8	0	1	0	3	0	0	0
Springfield, Ill	0	0	------	0	0	0	1	0	3	0	0	7
Springfield, Mass	0	0	------	0	2	0	2	0	3	0	0	2
Superior, Wis	0	0	------	0	0	0	0	0	0	0	0	2
Syracuse, N. Y	0	0	------	0	5	0	2	0	0	0	0	14
Tacoma, Wash	0	0	------	0	4	0	0	0	0	0	0	0
Tampa, Fla	0	0	------	0	0	0	5	0	0	0	0	0
Terre Haute, Ind	0	0	------	0	0	0	1	0	0	0	0	0
Topeka, Kans	0	0	------	0	0	0	0	0	2	0	0	4
Trenton, N. J	0	0	------	0	3	0	0	0	1	0	2	8
Washington, D. C	1	0	------	0	4	2	5	0	13	0	0	26
Wheeling, W. Va	0	0	------	0	0	0	2	0	1	0	0	1
Wichita, Kans	0	0	------	0	0	0	7	0	0	0	0	11
Wilmington, Del	0	0	------	0	0	0	1	0	0	0	0	1
Winston-Salem, N. C	0	0	------	0	0	0	0	0	0	0	0	0
Worcester, Mass	0	0	------	0	0	1	6	0	1	0	0	17

Dysentery, amebic—Cases: Los Angeles, 2; Missoula, 1; New York, 1; San Francisco, 2.
Dysentery, bacillary—Cases: Baltimore, 2; Boston, 1; Chicago, 2; Los Angeles, 7; Nashville, 1; New York, 15; Richmond, 2; San Francisco, 2.
Dysentery, unspecified—Cases: San Antonio, 5; Sacramento, 2.
Leprosy—Cases: New York, 1.
Typhus fever—Cases: Birmingham, 2; Brunswick, 1; Charleston, S. C., 5; Dallas, 1; New Orleans, 1; New York, 1; San Antonio, 1; Savannah, 3; Tampa, 2.

Rates (annual basis) per 100,000 population for the group of 88 cities included in the preceding table (estimated population, 1942, 33,791,053)

Period	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
		Cases	Deaths						
Week ended Aug. 22, 1942	6.17	3.70	1.08	30.09	35.80	30.09	0.15	4.17	192.73
Average for week, 1937–41	8.58	3.59	1.40	[1] 35.86	37.73	31.18	0.31	9.36	198.80

[1] Median.

PLAGUE INFECTION IN CALIFORNIA

Plague infection has been reported proved in pools of tissue and ectoparasites from rodents collected in California as follows:

Eldorado County.—In pools of tissue and fleas from ground squirrels, *C. beldingi*, and chipmunks as follows: July 27, tissue from 17 squirrels (1 found dead and 1 sick), 13 fleas from 30 squirrels, and 54 fleas from 69 squirrels; August 3, tissue from 10 squirrels; August 5, tissue from 5 squirrels, all taken from the premises of a dairy 3 miles north of Myers; August 5, tissue from 5 ground squirrels and 6 chipmunks (*Eutamias* sp.) taken from the Tawonga Boy's Camp, 3 miles north of Myers; August 6, tissue from 1 squirrel taken from the last named location, and from 10 squirrels taken 1 mile north of Myers; August 7, tissue from 15 squirrels taken 1 mile north of Myers.

Kern County.—June 9, in a pool of 200 lice from 73 ground squirrels, *C. beecheyi*, taken 1 mile east of Lebec (Castac Lake Area).

Los Angeles County.—In pools of fleas from ground squirrels, *C. beecheyi*, as follows: July 14, 350 fleas from 13 squirrels taken 2½ miles south of Gorman; July 23, 200 fleas from 17 squirrels taken 1 mile west of Gorman; July 27, 146 fleas from 4 squirrels taken one-half mile south of Ridge Tavern.

Monterey County.—In tissue and pools of fleas from ground squirrels, *C. beecheyi*, as follows: June 27, 201 fleas from 11 squirrels taken south of Gigling (Fort Ord); August 5, tissue from 1 squirrel and pool of 62 fleas from 6 squirrels, taken on the Fort Ord Military Reservation (Sewage Disposal Plant Area, Area E); August 6, 79 fleas from 13 squirrels taken 20 miles south of Salinas, and tissue from 2 squirrels and pool of 91 fleas from 36 squirrels, taken 16 miles south of Salinas; August 7, 183 fleas from 11 squirrels taken in the North Portion, Area E, of the Fort Ord Military Reservation, and tissue from 1 squirrel taken from Area D, of the Reservation.

Placer County.—June 23, in a pool of 28 fleas from 7 ground squirrels, *C. beecheyi*, taken from the Tahoe city dump, 1 mile north of Tahoe city.

San Bernardino County.—June 29, in a pool of 13 fleas from 15 golden mantled squirrels, *C. lateralis* sp., taken in Fawnskin Valley, 1 mile north of Fawnskin Post Office.

Santa Clara County.—July 31, in a pool of tissue from 5 ground squirrels, *C. beecheyi*, taken three-fourths mile east of Calaveras Dam.

Siskiyou County.—In pools of fleas from ground squirrels, *C. douglasii*, as follows: July 30, 200 fleas from 40 squirrels, taken 5 miles east of Callahan; July 31, 138 fleas from 22 squirrels taken 2 miles south of Etna.

TERRITORIES AND POSSESSIONS

Panama Canal Zone

Notifiable diseases—April 1942.—During the month of April 1942, certain notifiable diseases were reported in the Panama Canal Zone, and terminal cities and vicinities, as follows:

Disease	Panama		Colon		Canal Zone		Outside the Canal Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	10		1		2		4		17	
Diptheria	2		4				3		9	
Dysentery (amebic)	1				3	1	3	1	7	2
Dysentery (bacillary)							10	7	10	7
Lethargic encephalitis							1	1	1	1
Malaria	10		3		226		151	2	[1] 390	2
Measles	2				44		5		51	
Mumps					3		2	2	5	2
Pneumonia		9		4	47	2		3	[2] 47	18
Tuberculosis		26		12	8	2		4	[2] 8	44
Typhoid fever					1		6	2	7	2
Whooping cough		2			4				[2] 4	2

[1] Includes 86 recurrent cases.
[2] Cases reported in the Canal Zone only.

Virgin Islands of the United States

Notifiable diseases—April–June 1942.—During the months of April, May, and June 1942, cases of certain notifiable diseases were reported in the Virgin Islands as follows:

Disease	April	May	June	Disease	April	May	June
Dengue		1		Malaria	1	4	3
Filariasis	6	3	7	Measles			1
German measles	1			Mumps	31		2
Gonorrhea	13	13	16	Syphilis	65	18	16
Hookworm disease	5	7	2	Tetanus			1
Lymphogranuloma inguinale	1			Whooping cough			1

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended August 8, 1942.—During the week ended August 8, 1942, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1	1	3	9				1	15
Chickenpox		2		20	71	6	10	4	30	143
Diphtheria		16	3	33		5	1	1		59
Dysentery	3			5						8
Encephalomyelitis							2			2
German measles				2	9		4		4	19
Influenza	6	1			1				6	14
Lethargic encephalitis						3				3
Measles	1	1		38	164	2	10	1	1	218
Mumps		9	2	10	135	12	11	17	93	289
Pneumonia	3				8		1			12
Poliomyelitis		6	12	10	2	2				32
Scarlet fever		4	5	9	57	10	14	9	18	126
Trachoma									1	1
Tuberculosis	3	3	12	162	70	59	4	7	22	342
Typhoid and paratyphoid fever				20	2	1		2	1	26
Undulant fever					1					1
Whooping cough				371	72	6		1	34	484
Other communicable diseases	3	9		2	206	1	3		7	231

Province of Alberta—Plague infection in fleas.—Under date of August 25, 1942, plague infection was reported found in fleas from wild rodents taken near Stanmore and Hanna, Province of Alberta, Canada.

CUBA

Habana—Communicable diseases—4 weeks ended July 26, 1942.—During the 4 weeks ended July 26, 1942, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	22	1	Poliomyelitis	6	1
Leprosy	2		Tuberculosis	6	
Malaria	18		Typhoid fever	30	2
Measles	14	2	Yaws	1	1

Provinces—Notifiable diseases—4 weeks ended June 20, 1942.—During the 4 weeks ended June 20, 1942, cases of certain notifiable diseases were reported in the Provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana [1]	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer		2	2	3	1	4	12
Chickenpox		2			2	4	8
Diphtheria		22	1	1		2	26
Leprosy		4	1			1	6
Malaria	84	8		4	6	187	289
Measles	2	12		4			18
Poliomyelitis	1	5	4	1		39	50
Scarlet fever		1					1
Tuberculosis	18	16	12	26	20	22	114
Typhoid fever	10	59	9	50	16	29	173
Whooping cough				2			2

[1] Includes the city of Habana.

NOTE.—No report was received for the week ended June 20, 1942.

JAMAICA

Communicable diseases—4 weeks ended August 1, 1942.—During the 4 weeks ended August 1, 1942, 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
Chickenpox	9	4	Scarlet fever		1
Diphtheria	2	1	Tuberculosis	23	61
Dysentery	6	7	Typhoid fever	3	48
Leprosy		1	Typhus fever	5	4

NEW ZEALAND

Infectious diseases—Year ended March 31, 1942.—For the year ended March 31, 1942, certain infectious diseases were reported in New Zealand (exclusive of Maoris) as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis [1]	210	33	Puerperal sepsis		17
Diphtheria	383	17	Scarlet fever	338	1
Lethargic encephalitis	5		Tuberculosis		597
Measles		4	Typhoid fever	26	4
Poliomyelitis	4		Whooping cough		67

[1] Includes 47 Maori cases and 8 deaths.

Vital statistics—Year ended March 31, 1942.—Following are vital statistics for New Zealand (exclusive of Maoris) for the year ended March 31, 1942:

Births per 1,000 population	22.81
Deaths per 1,000 population	9.81
Infant mortality rate per 1,000 live births	29.74
Maternal deaths per 1,000 live births	3.36

NOTE.—The estimated population for 1941 is 1,538,620.

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

NOTE.—Except in cases of unusual prevalence, only those places are included which had not previously reported any of the above-named diseases, except yellow fever, during the current year. All reports of yellow fever are published currently.

A cumulative table showing the reported prevalence of these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday of each month.

(Few reports are available from the invaded countries of Europe and other nations in war zones.)

Plague

Madagascar.—During the period August 1–10, 1942, 2 cases of plague were reported in Madagascar.

Senegal—Tivaouane.—During the week ended August 29, 1942, 4 cases of plague, including 3 suspected cases, were reported in Tivaouane, Senegal.

Typhus Fever

Algeria.—During the period July 21–31, 1942, 502 cases of typhus fever were reported in Algeria.

Morocco.—During the week ended August 15, 1942, 78 cases of typhus fever were reported in Morocco.

Rumania.—Typhus fever was reported in Rumania as follows: Week ended August 15, 1942, 6 cases; week ended August 22, 13 cases.

Tunisia.—During the period August 1–10, 1942, 156 cases of typhus fever were reported in Tunisia. For the preceding 10-day period, 219 cases were reported.

Yellow Fever

Nigeria—Udi.—During the week ended August 1, 1942, 1 suspected case of yellow fever was reported in Udi, near Enugu, Nigeria.

Sierra Leone—Freetown.—On July 19, 1942, 1 suspected case of yellow fever with 1 death was reported in Freetown, Sierra Leone.

COURT DECISIONS ON PUBLIC HEALTH

Milk—city ordinance—provisions regarding producer's permit fee and tuberculin testing upheld.—(Kansas Supreme Court; *Dorssom et al.* v. *City of Atchison et al.*, 124 P.2d 475; decided April 11, 1942.) In 1938 the city of Atchison enacted an ordinance regulating the production and sale of milk. The plaintiffs, who were farmers engaged in producing milk which was sold to distributors in the city, instituted an action for a declaratory judgment to determine the validity of certain parts of the ordinance.

Section 3 of the ordinance made it unlawful for any person not possessing a permit from the health officer to bring into the city or offer for sale or sell any milk product and further provided that each pro-

ducer of milk sold or distributed within the city should pay annually a permit fee of $2 for two cows or less and 50 cents for each additional cow, the payment thereof to include the right to distribute milk or milk products. The question was presented as to whether the city had authority to enact an ordinance which charged producers a permit or license fee, the plaintiffs directing attention to a statute which provided that the powers of first-, second-, and third-class cities to impose license or occupation taxes upon peddlers and venders should not be construed so as to apply to or create the power to impose license or occupation taxes upon producers and growers engaged in the sale of farm or garden products or fruits grown within the State. It was contended that under this statute the city was forbidden to impose any license or occupation tax. The holding of the Supreme Court of Kansas was that the fee imposed by the ordinance was neither a license tax nor an occupation tax within the purview of the said statute and that the section of the ordinance referred to was not to be stricken down on account of the grounds asserted. The court noted that power had been granted by statute to first-class cities to enact ordinances in order to secure the public health and to prevent the introduction and spread of contagion and stated that in its judgment the statute relied on by the plaintiffs was never intended to prevent enforcement of health regulations. "Here," said the court, "there is no claim made that the fee is unreasonable, or that it is a device for revenue and not to meet expenses of inspection. It is also clear from the ordinance the fee is not fixed on the right of the producer to peddle or vend his milk, it is a measure calculated only to meet expense of determining that the product he sells complies with specified conditions to insure its fitness for human consumption."

Another portion of the ordinance complained of was item 1–r of section 7, under which item it was required that, before milk was sold, the herd should, at least once every 12 months, be given a tuberculin test by a licensed veterinarian approved by the State livestock sanitary commission. Respecting this, the questions presented were whether the ordinance required the producer to provide at his own expense a certificate that his cows had been tuberculin tested and whether the city had authority to delegate its inspectional powers to third persons.

The supreme court noted a statute which, among other things, provided that the livestock sanitary commissioner should, whenever he deemed it necessary, formulate the rules under which the tuberculin test should be applied and that no person other than one indicated by the commissioner should inject any tuberculin into any animal. This statute also gave a city power by ordinance to require the owner of any dairy herd offering for sale any milk within the city to first

subject the cows to examination and test for tuberculosis under the direction of and in accordance with the rules prescribed by the livestock sanitary commissioner. The court said that it appeared that the city had power to require tuberculin testing and that compliance with the requirement was a condition precedent to the right to sell milk in the city. The city's mere silence in not providing that the cost should be paid by the applicant did not, according to the court, make that part of the ordinance bad. "A fair interpretation of the ordinance is that the applicant must meet the conditions precedent at his own expense."

Neither could the court agree with the plaintiffs that the city had attempted to delegate a delegated power in providing that the tuberculin testing should be by a licensed veterinarian approved by the livestock sanitary commission. The court said that it appeared from the statute above noted that such a person would be the only person authorized to make the test. The provision was held to be a proper exercise of the city's legislative power.

Poultry—slaughter—cancellation of permit—action of local board of health upheld.—(New Jersey Supreme Court; *Kurinsky* v. *Board of Health of Lakewood Tp. et al.*, 24 A.2d 803; decided March 2, 1942.) A 1930 ordinance of a township board of health provided: "No person * * * shall slaughter * * * any chickens, ducks, geese, pigeons, and any other domestic fowl, except for domestic or family use, and not for hotel or commercial use, within the limits of the town, unless a permit is first had and obtained from the board." In addition the board had adopted in 1932 other and more detailed regulations concerning the slaughter and housing of poultry. In an action by the prosecutor whose poultry slaughtering permit had been cancelled by the township board of health, there was brought before the New Jersey Supreme Court for review (a) the action, orders, and resolutions of the board in cancelling the permit and (b) the above-quoted ordinance. It appeared that the prosecutor had been engaged in the poultry business in the township for about 17 years. In 1933 he obtained a permit after having been advised that he was violating the ordinance in slaughtering poultry without one. The permit was issued for a period of 1 month and was renewed monthly until September 1941 when further renewal was denied after due notice of the contemplated action had been given. The renewals had not been continuous, there being at least 2 periods, 1 for about 6 months and another for about 4 months, when the renewals were denied, apparently due to prosecutor's failure to comply with the sanitary requirements.

The supreme court said that the proofs abundantly supported the action of the board of health in cancelling the prosecutor's permit because of his failure to observe the provisions of the ordinance and

regulations. It was pointed out that local boards of health were given wide powers to safeguard the public health generally and, among other things, were specifically authorized to regulate, control, or prohibit the keeping or slaughtering of animals. The licensing of poultry markets and slaughterhouses, said the court, rests in the sound discretion of the boards of health. "We find that there was no abuse of sound discretion in the case at bar." Tested by the rule that the action of a board of health in adopting measures for public protection would not be set aside by the court where the board had acted reasonably upon evidence which might satisfy a reasonable man, the court was satisfied that the action complained of was reasonable under the facts and was not arbitrary or capricious but, on the contrary, was fully justified.

The court held that there was no merit in the prosecutor's contentions (a) that the above-quoted ordinance was void because not setting up a standard to govern the board in passing upon applications for permits and (b) that the board's action in refusing a permit was illegal as being an unlawful restriction of prosecutor in the use of his property by arbitrary action without a comprehensive plan of zoning the entire community. According to the court the standard governing the board was not only the ordinance in question but also the regulations of the board and the sanitary code of the State department of health, all looking to the preservation of the health of the community. "The repeated failure to comply with the law by the prosecutor is sufficient to withhold from him a license to continue in the business without the necessity of adopting a zone within which no permits could be granted."

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