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AN EPIDEMIC OF A SEVERE PNEUMONITIS IN THE BAYOU REGION OF LOUISIANA[1]

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I. EPIDEMIOLOGICAL STUDY

This report concerns an epidemic of a severe pneumonitis which occurred in 6 scattered parishes of Louisiana over a total area of approximately 20,000 square miles. The disease was recognized as an entity only after an epidemiological study of 3 cases was begun on March 8, 1943. This particular variety of pneumonitis was unusual in that it spread among nursing contacts of cases and had a high mortality—8 deaths in 19 recognized cases.

The initial case was the wife of a trapper living 3 miles east of Creole on the Little Chenier, Cameron Parish (figs. 1 and 2). On December 4, 1942, this individual (case 1) developed an acute febrile illness at her home, became progressively worse, and was transferred to a sanatorium in Ville Platte, La., 120 miles northeast of Creole, where she expired on December 18, 1942. One nurse who had attended her became ill with a similar acute illness on December 24, 1942, and died on January 6, 1943 (case 2). The husband of case 1, who had remained in close attendance during her illness, returned to his home, where he became ill on December 24, 1942 (case 3), and died on January 26, 1943. An elderly man who was hospitalized in the sanatorium in a room adjacent to that occupied by case 1 developed a pneumonitis after leaving the sanatorium and recovered after a severe illness of long duration (case 4).

Case 2 was treated in the sanatorium and gave rise to six secondary cases of the disease in nurses or in individuals who acted as nurses during her illness (cases 5, 6, 7, 8, 9, 10). Of this series, cases 7 and 8 were treated in the sanatorium; cases 5, 6, and 9 in their homes

[1] From the Division of Infectious Diseases, National Institute of Health, and the Louisiana State Department of Health.

[2] Presented to the Louisiana State Medical Society, April 25, 1944.

at Ville Platte; case 10, in her home at Bunkie, Avoyelles Parish, La. Only case 5 was fatal and gave rise to four secondary cases (cases 11, 12, 13, and 14). These individuals were treated in their homes at Ville Platte. Case 13 proved fatal and gave rise to a secondary case in his son (case 15) who had attended him at Ville Platte during his fatal illness, returned to his home in Rayne, Acadia Parish, La., became ill with the disease, and died. He was the source of secondary cases in his wife (case 16) and two nurses (cases 17 and 18). The latter had returned to their homes at New Iberia, Iberia Parish, before they became ill, and died there. Rigorous control measures were introduced

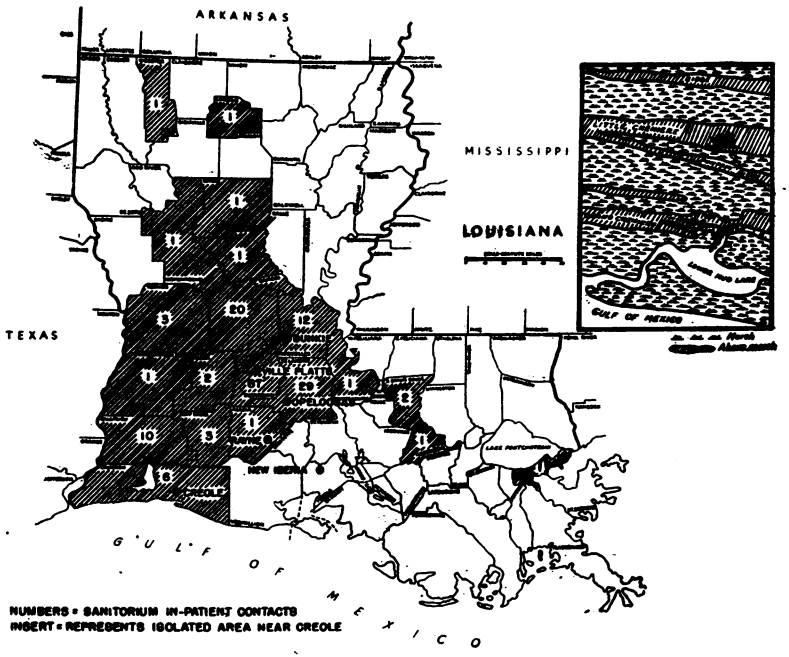

FIGURE 1.—Area of study.

about cases 17 and 18, and except for one attending nurse (case 19) who developed the disease while she was still in quarantine, no further spread occurred.

The foregoing sequence of events is portrayed in figure 2; the geographical location in figure 1. It is worth noting here that a single case of the disease gave rise to 18 additional cases scattered over 6 different parishes of the State.

DIAGNOSIS

Because of the wide geographical distribution of cases, 13 physicians saw and treated the 19 cases. Their diagnoses were lobar pneumonia, influenzal pneumonia, bronchopneumonia, virus pneumonia, or atypical virus pneumonia. The clinical course of the

disease was such that all attending physicians recognized that they were dealing with a type of pneumonitis that they had not previously encountered. The authors personally studied cases 16, 17, 18, and 19 in the series. The physicians caring for cases 1, 2, 7, and 8 in the sanatorium were of the opinion that they were similar. Dr. Arthur Vidrine, former Dean of Louisiana State University Medical Center,

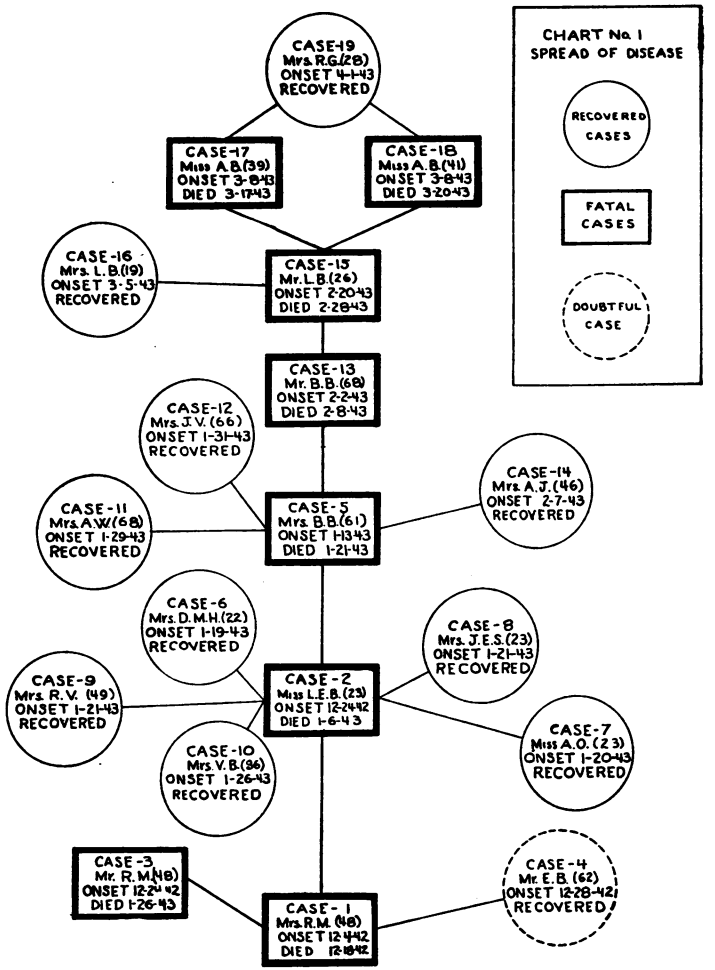

FIGURE 2.—Spread of the disease.

who attended cases 5, 6, 11, 12, 13, and 14 in Ville Platte, also saw cases 17 and 18 in New Iberia, as a consultant, at the end of the epidemic. He concurs in the opinion that the cases represent the same clinical disease. With the exception of case 16, all cases in the series were severe, varying only in ultimate outcome. A description of the clinical features of individual cases is given in the following article (*1*).

Spread of the disease.—The disease spread only to those attending

fatal cases. There was no spread from a nonfatal case, and in only one instance was there no spread from a fatal case (case 3). (See fig. 2 and table 1).

It was not possible to account for the total number of individuals exposed except in cases 17, 18, and 19. This is due to the custom of the people of this region—when an individual becomes ill, the immediate family, relatives, neighbors, and friends come to visit and help care for him. All of the cases were in white people of French ancestry in comfortable circumstances, and distance of travel was not a matter of concern, as is evident from the subsequent distribution of disease. Furthermore, the dangerous character of the disease, which was quickly realized by the lay attendants, was no deterrent. As a result it was possible to determine accurately only the number of people with intimate and prolonged exposure to a given case and not the total number of people exposed. Table 1 gives the number

TABLE 1.—*Summary by cases*

Case No.	Source of infection	Place of infection	Place of illness	Outcome	Number of known intimate contacts	Number of secondary cases
1	Unknown	Little Cheniere	Ville Platte [1]	Fatal	12	3
2	Case 1	Ville Platte [1]	do [1]	do	14	6
3	do	do [1]	Little Cheniere	do	3	0
5	Case 2	do [1]	Ville Platte	do	7	4
13	Case 5	do [1]	do	do	5	1
15	Case 13	do	Rayne	do	7	3
17	Case 15	Rayne	New Iberia	do	8	[2] 1
18	do	do	do	do	8	[2] 1
14	Case 5	Ville Platte	Ville Platte	Recovered	3	0
6	Case 2	do [1]	do	do	6	0
7	do	do [1]	do [1]	do	12	0
8	do	do [1]	do [1]	do	12	0
9	do	do [1]	Ville Platte	do	4	0
10	do	do [1]	Near Bunkie	do	4	0
11	Case 5	do	Ville Platte	do	5	0
12	do	do	do	do	7	0
4	Case 1	do [1]	Near Opeloosas	do	4	0
16	Case 15	Rayne	Rayne	do	2	0
19	Cases 17 and 18	New Iberia	New Iberia	do	5	0

[1] Ville Platte sanatorium.
[2] Same individual.

of people known to have had intimate contact with a case and who were in close attendance. This is not to be considered the total number exposed except in cases 17, 18, and 19.

A. Nursing attendants:

The spread of the disease to nursing attendants of fatal cases is best exemplified by case 2. Miss B., a staff nurse of the sanatorium, attended case 1 from December 12 until December 18. She remained on duty at the sanatorium until admission as a patient on the evening of December 26, with a temperature of 100° F., complaining of having felt ill since December 24, which is considered the date of onset. She was attended during her illness by eight staff nurses, one special nurse, two physicians, her mother, brother, and a friend. She occu-

pied a private room until her death on January 6. One nurse (Mrs. S.) was in attendance the fourth night and for the last 9 nights of her illness, the longest continuous exposure of any nurse. Mrs. S. developed the disease, becoming case 8.

Mrs. H., a special nurse for case 2, was in attendance only on the night before her death. She had not nursed in the hospital for the previous month. She developed the disease (case 6) after that single short exposure.

Miss O., a staff nurse, attended case 2 at intervals for the last 4 days of illness and developed the disease (case 7).

Mrs. V., a close friend of case 2, was in the room with her at intervals during her illness and was present the day and evening of death. She developed the disease (case 9).

Mrs. B. was on duty as a special nurse attending another case in the hospital but, being a friend of case 2, visited throughout the illness and assisted in nursing at short intervals. She developed the disease and became case 10.

Her mother, who attended her throughout her illness, developed the disease, becoming case 5 in the series. Two nurses and the brother of case 2 had as much or more exposure than Mrs. H. (case 6) and definitely more exposure than Mrs. B. (case 10), but they did not develop the desease.

This 1 fatal case gave rise to secondary cases in 6 of 14 close attendants. The only significant factor common to all of those who contracted the disease was their close attendance at some time during the 48 hours prior to the patient's death. The condition and degree of exposure did not vary significantly between those who developed the disease and those who escaped. The shortest time of exposure of any attendant was that of Mrs. H. (case 6), which was only during the night prior to the death of case 2, yet she contracted the disease.

The lack of spread of the disease to close attendants of nonfatal cases cannot be explained.

B. Ville Platte Sanatorium:

The sanatorium is located in the town of Ville Platte which has a population of 3,721 (1940). It is a new one-story building situated on the main street, well constructed, and so designed, because of the hot summers, as to give a maximum cross ventilation to all rooms. There are 34 rooms for in-patients, of which 30 are private. On the date of admission of case 1, only 12 patients were in the hospital, and none of these had pneumonia, nor were there cases of pneumonia among the sanatorium staff.

The population of this sanatorium was considered to be exposed from the date of admission of case 1, on December 12, 1942, until the last case treated in the sanatorium became afebrile on February 26, 1943. The total number of people possibly exposed in the sanatorium

to cases of this pneumonitis could not be determined. The main waiting room for out-patient clinics is adjacent to the in-patient rooms and opens into the same corridors. Individuals attending out-patient clinics were therefore conceivably exposed. No accurate listing of the out-patients was available. Their exposure was probably less than the in-patients, for whom there was an accurate record available, and this group was studied for a possible spread of the disease. An immediate attempt was made to trace all of these individuals (totaling 202) through their respective State, city, and county health departments. All of those found were placed under observation for a minimum of 21 days after they had left the sanatorium.

Contacts from Ville Platte sanatorium

	CONTACTS			
State to which contact returned	Number located Mar. 12–Apr. 3, 1943	Number located Apr. 4–May 14, 1943	Number not located	Total
Louisiana	105	17	62	184
Texas	12	2	3	17
Alabama	1	0	0	1
Total	118	19	65	202

There was a total of 184 Louisiana contacts from the sanatorium, who had returned to 20 of the 64 parishes in the State. Their distribution is given in figure 1, from which it will be noted they had spread throughout the State except for the northeast and southeast corners. A total of 122 (66 percent) were located and checked for illness. One case of pneumonitis developed in this group of patients and was discovered by this proccdure (case 4). There were no cases of pneumonitis in the contacts located in Texas or Alabama.

Case 4 occupied a room adjacent to that of case 1, leaving the hospital the day of the death of case 1. Eight days later he developed a severe pneumonitis similar in onset, clinical course, and lack of response to therapy to the cases under study, but dissimilar in physical findings. He had no direct exposure to case 1 but was attended by the same staff nurses. It is doubtful that case 4 should be considered a case in this epidemic.

C. General population:

Owing to the fact that the total number of contacts of cases could not be determined, it was necessary to establish a close surveillance of the towns where cases occurred, and also of large rural areas. This was done through the local health departments and physicians. A number of suspicious cases were brought to the attention of the authors but proved not to be the pneumonitis under study. In several instances of unexplained fatal disease, autopsy material was studied.

PERIOD OF COMMUNICABILITY

The disease spread among attendants of fatal cases only, and only to those who were in attendance within 48 hours of the death.

There were two instances of individuals working during their first day of illness (both ultimately expired) in quite close contact with many other people, but there was no spread of the disease to these contacts.

Case 15 was of unique interest because of his activities on the first day of illness. Despite his illness on the morning of February 20, he worked that day as a wholesale salesman with his brother, returning to his home in the evening with a temperature of 104° F. They visited stores throughout Acadia Parish, spending from 10 minutes to an hour in close contact with store owners. His itinerary was obtained, and it was found he had visited 11 stores in 4 towns of the parish, where he was in direct contact with a minimum of 14 people. These individuals as well as the 32 other members of their households were placed under close observation for a period of 3 weeks after exposure, and none developed the disease. However, of the 7 people aiding in his care during the 48 hours prior to death, 3 contracted the disease and only 1 recovered.

Case 18 worked as a special nurse the first day of her illness, but neither her patient nor nursing colleagues with whom she was in contact developed the disease. There were other similar instances of nonfatal cases working the first day of illness with no spread to their contacts.

The infectiousness of cases late in the disease may be related to the fact that a productive cough developed only after the disease was well established. However, the productive cough occurred in both nonfatal and fatal cases, and only the latter gave rise to secondary cases. The virus causing the disease was demonstrated in the throat washings of nonfatal case 16 on the ninth day of illness and in fatal case 17 on the third day—evidence that both types of cases are demonstrably infective at an early stage (*2*). No evidence was found of mild clinical illness which might represent mild forms of the disease. In those who had known contact with a case and were brought under close daily observation, there was a remarkable absence of any illness in those either directly or indirectly exposed. The possibility of subclinical infections occurring in contacts cannot be excluded. Serum was obtained from individuals who had varying degrees of exposure, but as yet no satisfactory serological measure of infection has been developed.

The degree of exposure necessary to contract the disease cannot be stated. All of the secondary cases had a heavy exposure but not necessarily a prolonged one, as was described in case 2. A number

of people were heavily exposed and did not contract the disease. No attending physician contracted the disease nor did the undertakers concerned, one of whom embalmed three bodies.

It is probable that intimate contact with a fatal case in the last 48 hours of illness is necessary to contract the disease.

INCUBATION PERIOD

The incubation period was determined in the following manner: The shortest possible period of incubation—the time interval between the date of death of a case and the date of onset of illness of the secondary case; the longest possible period of incubation—the time interval between the date of first contact with a case and the date of onset of illness. These data are given in the following table:

Incubation period

Case No.	Shortest number of days	Longest number of days	Case No.	Shortest number of days	Longest number of days
1			11	8	16
2	6	12	12	10	18
3	6	21	13	12	18
4	10	16	14	17	25
5	7	20	15	12	18
6	12	12	16	5	13
7	14	25	17	8	12
8	15	26	18	8	12
9	15	28	19	12	22
10	19	30			

The shortest period of incubation ranged from 6 to 19 days, with an average of 10 days; the longest period, from 12 to 30 days, with an average of 19 days. It will be noted that the longest possible incubation period is more variable than the shortest possible period. This again suggests that a case is more infectious late in the disease. One case is of particular interest—case 6 had only a single exposure and therefore could only have the incubation period given.

In this series of cases that the incubation period would appear to be from 6 to 19 days is most likely.

AGE AND SEX DISTRIBUTION

Both the age and sex distribution were doubtless influenced by the fact that only those in close attendance, in a nursing capacity, on fatal cases, late in their illness contracted the disease. Children present in the homes of fatal cases did not have this type of contact nor did men in most instances. The influence of sex on mortality in this series is odd, in that of the 15 cases in females only 5 died, whereas of the 3 certain cases in males, all died. If case 4 is included, 3 out of 4 cases in males died. There was nothing to indicate a

Age and sex distribution

Age	Male	Female	Total	Age	Male	Female	Total
19	0	1	1	50–59	0	0	0
20–29	1	5	6	60–69	2	2	4
30–39	0	2	2				
40–49	1	5	6	Total	4	15	19

greater degree of exposure of the men infected; rather, the heaviest exposures were incurred by women. Age did not appear to influence the outcome of a case. Death occurred in each of the decades in which cases occurred with the exception of the second decade of life.

MODE OF TRANSMISSION

The transmission of the disease was, with one possible exception (case 4), through direct contact with a previous case of pneumonitis. Careful investigation failed to reveal any psittacine bird in either the sanatorium or homes of any of the cases. There was no food or water supply common to all cases. No evidence could be found of an intermediate insect vector. The most reasonable explanation is that the disease spread by direct contact from case to case, probably by the respiratory route.

The possible existence of human carriers of the disease or mild cases was studied in detail. No evidence could be found of their existence. A careful study of individuals with a known heavy exposure and of their associates revealed a surprising lack, for that season of the year, of even colds or mild upper respiratory disease. Particular attention was given this point because of the wide dissemination of contacts.

ETIOLOGICAL AGENT

The etiological agent was isolated from three cases, namely, 16, 17, and 18, and is described in a later article (*2*).

ORIGIN OF THE EPIDEMIC

The initial case lived in a well-constructed and well-maintained farm home 3 miles east of Creole on the Little Chenier in the very isolated coastal marshes. She had not been away from this region for a month preceding her illness, which began during the trapping season when she helped her husband pelt animals, chiefly muskrats. Her husband, later case 3, was well known for his ability as a marsh man, trapper, and hunter. It will be noted from figure 1 that the home is literally surrounded by deep marshes which characterize this region. Investigation revealed no known pneumonias in the region of the Little Chenier at the time of onset of case 1. A study of this

region for a possible reservoir of disease was made, with the assistance of the Chief Biologist, Dr. James N. Gowanloch, and Special Biologist Ted O'Neill, of the State Department of Conservation of Louisiana. This was sharply limited for reasons that are apparent in the following description of the region by Dr. Gowanloch:

> The coastal marshes of Louisiana provide a biological picture of extraordinary complexity. Known locally as "Trembling prairie" (Prairie tremblant), they are the habitation of abundant flora and fauna that live in constantly changing configurations responding to constantly changing conditions. Such a marsh never maintains in a natural state month-to-month stability, since changes of water level and, in the coastal regions, changes of storm overwash may suddenly alter the environment.
>
> Above this marshland rise the Chenieres, so named because of the unusual presence on them of live oak trees. The Chenieres are really old ocean beaches that have become stranded in the marsh and form the long shell ridges that rise like islands above the surrounding green area of marsh vegetation. Below the surface of that green sea live concealed biological communities probably nowhere excelled in intricate variety, communities that have never yet received adequate and deserved scientific investigation.

The biology of this region is further complicated by its being the winter home of varieties of northern and Arctic birds, and in the center of one of the great "fly ways" for migratory birds moving to and from South America. It is literally a "biological crossroads" of the Western Hemisphere, besides having its own rich, largely unstudied fauna and flora (*3*, *4*, *5*, *6*, *7*).

The only known epizootic in the area occurred in muskrats in the large marsh northwest of the home of case 1 a few months prior to her illness. The cause of the epizootic was not known, although it is known that the muskrats were heavily infested with mites.

The susceptibility of muskrats to the virus isolated from the pneumonitis cases was investigated. It did not produce a fatal disease in muskrats, so probably did not cause the epizootic (*8*). A survey of the occurrence of pneumonitis in trappers throughout the coastal marsh region revealed no further cases of the disease. It should be emphasized, however, that because of the nature of the region, the possibility of an animal reservoir has not been thoroughly explored.

PREVIOUS EPIDEMIC OF POSSIBLY THE SAME DISEASE

In the course of the epidemiological investigation it was discovered that a somewhat similar epidemic had occurred in Rayne, La., in February and March 1936, without particular recognition, probably because of the distribution of cases. The physician caring for the initial cases, two nurses who had the disease, family members, and other physicians attending cases were located and interviewed and the following information obtained:

Mrs. P., the initial case, a clerk in a local store, became ill with pneumonitis in her right lung, was admitted to a hospital, and died 7 days later. Following her death, three nurses developed the disease and died. An uncle, who aided in the care of a fatal case in a nurse, developed the disease and died. A patient in the adjoining room to the initial case contracted the disease and died. Two nurses contracted it and recovered. All cases started with a high fever, pneumonitis, usually on the right side, followed by extension of the pneumonia to other areas of the lungs, rapid respiration, cyanosis, and little or no cough. The local medical opinion at the time was that they were cases of influenzal pneumonia.

The origin of this epidemic is not known. Nor is it known if the initial case had been in the area of the coastal marshes, but it is possible, as this is a favorite place for week-end trips, fishing, and hunting. This cannot be proved to be an epidemic of the same disease, but it has a certain similarity. Further study of the serums obtained from the two recovered cases, if successful, should yield valuable information.

CONTROL MEASURES INSTITUTED

The problem of control was particularly difficult because the nature of the disease was unknown. First, a rigorous quarantine of case 16 was established. Cases 17 and 18 were discovered the same day and quarantined.

The measures used in this quarantine are best described by a review of cases 17 and 18, who shared a duplex house during their illnesses and were attended by volunteers consisting of three family members and two nurses who were confined to the house for the duration of illness and for 21 days thereafter. The usual isolation techniques were used in handling each case. All attendants were furnished with the type of mask described by Dr. Wu Lien-Teh for use in pneumonic plague (*9*). (This was done at the suggestion of Medical Director C. L. Williams.)

The masks were made according to original specifications and donated for use by the New Iberia Red Cross Chapter. Because of the lack of space and the arrangement of the house, well-isolated sleeping quarters could not be provided for the nurses and attendants when they were off duty. The masks were worn only when the attendants were on duty and not when they slept. A nurse, Mrs. G. (case 19), became ill while she was in quarantine on the twelfth day after the death of case 18. For the first 3 days of her illness she was attended by the four people remaining in the house, only one of whom, Miss H., was a nurse. It was then possible to segregate the single case on the second floor and use the first floor as living quarters

for the attendants. However, it was felt by both the attending physicians and the community of New Iberia that these individuals had assumed more than their share of risk. The community of New Iberia made available an isolated house outside the city as a place of residence for the three lay attendants; they remained there for 21 days after their last exposure. Miss H. volunteered to remain in attendance on case 19. Two additional nurses from New Orleans volunteered to aid in the care of this case.

Similar measures were used in handling case 16.

All control and investigative procedures were greatly facilitated by an aroused public feeling of spontaneous origin, which proved to be of great value. It stimulated immediate reporting of all known or even suspected illness in the community and resulted in the great effort made to aid in all ways those individuals held in quarantine.

CONCLUSIONS

A virulent pneumonitis, occurring in the bayou region of Louisiana, is characterized by being infectious to nursing attendants late in the illness of fatal cases.

It is spread by direct contact, probably by the respiratory route.

Human carriers of the disease could not be demonstrated.

Source of infection of the original case was not determined.

The causative agent was isolated from two fatal cases and one nonfatal case.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the assistance and support of Dr. David E. Brown, president of the Louisiana State Board of Health, and Medical Director C. L. Williams, District Director, United States Public Health Service; the cooperation of Dr. B. F. Austin and Dr. George W. Cox, State health officers of Alabama and Texas, respectively; the complete cooperation of all parish health units of Louisiana in the tracing of contacts and, particularly, those of the parishes in which the disease occurred, for their assistance in the collection of data; and the interest and complete cooperation of the physicians of the State of Louisiana.

Acknowledgement is also made of the assistance given by the New Iberia Chapter of the American Red Cross for their contribution to the welfare of cases and contacts and for their manufacture of all masks used; of the assistance and support of the Iberia Parish police jury, the New Iberia city council, and the Rayne town council above and beyond official duty; and of the support in every way of Right Reverend Monsignor J. M. Bourgeois, of Ville Platte, La., and Very Reverend Monsignor H. A. Lerschen, of Rayne, La., which was of inestimable value.

Finally, we pay tribute to the nurses who attended the cases for their unswerving devotion to duty after the dangers of the disease were well established; Public Health Nurse Katherine Avery, R. N., of the Iberia Parish Health Unit, Mrs. R. Gerhart, R. N. (case 19), and Miss H. Hobart, R. N., all of New Iberia; Miss I. Chatelaine, R. N., and Miss R. Speyrer, R. N., of New Orleans; and the staff nurses of the Ville Platte sanatorium. Miss A. Bourgeois and Miss A. Bonin, both victims of this disease, knowingly braved its perils.

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STUDIES ON THE DURATION OF DISABLING SICKNESS

VI. Time Lost from Short-term Absences and Its Relation to Total Time Lost [1]

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The short-term absence of less than 4 days was the subject of the fifth paper of the present series, the investigation concerning itself principally with the frequency of such absences and its relation to the total frequency. Based on a 10-year disability experience of male public utility workers it was shown that high total frequencies regularly occurring in the first quarter of each year were associated with relatively small proportions of short-term absences, the proportion tending to become smaller in epidemic periods; on the other hand the low total frequencies generally appearing in the third quarter included relatively large proportions of such absences. Appropriate scatter diagrams for all sickness and the respiratory diseases gave graphic evidence, in general, of an inverse association between the magnitude of the total frequency and the proportion of short-term absences.

[1] From the Industrial Hygiene Division, Bureau of State Services. For earlier papers in the series see list of references.

The question immediately arises of the behavior of time lost from short-term absences and its relation to total time lost. Accordingly it is purposed in this paper, the sixth of the series, to examine further the 10-year disability experience of the public utility workers with particular reference to the ratio of time lost from short-term absences beginning in a specified quarter-year to time lost from all sick absences beginning in that quarter. Consideration will be given to the variation of the ratio with time for specific quarter-years, and to a possible correlation between the value of the ratio and the magnitude of the total time lost rate.

With regard to causes of sickness, attention will be directed to all sickness, and to both the respiratory and nonrespiratory groups of diseases. Although the preceding paper on frequency was limited to a consideration of all sickness and the respiratory group, the relatively large contribution of the nonrespiratory diseases to time lost makes imperative the inclusion of this group in the present investigation. Thus, while less than 40 percent of the sick absences recorded for the public utility workers during the 10-year period were accounted for by nonrespiratory illness, these absences caused almost 60 percent of the total time lost.

The supporting data [2] represent days lost from recorded disabilities due to sickness beginning during the years 1933–42, inclusive, the days attributed to any absence being the number of calendar days from the date absence began to the date absence ended, or to the 372d day, inclusive. During the 10-year period approximately 26,000 male-years of exposure yielded 22,704 sick absences of 1 calendar day or longer; of these 12,846, or 57 percent, lasted less than 4 days. The number of days of disability arising from all sick absences was 181,914 of which 23,520, or 13 percent, resulted from short-term absences.

TIME LOST FROM SHORT-TERM ABSENCES

Table 1 presents, among other things, the average annual number of days lost per male (or disability rate) yielded by absences of less than 4 days and those of 1 day or longer for all sickness, respiratory diseases, and nonrespiratory diseases, according to quarter-year in which absence began.

An examination of the disability rates for the short-term absences reveals that the rates for all sickness range in value from 0.417 day per male resulting from absences beginning in the third quarter of 1940 to 1.669 days lost from absences beginning in the first quarter of 1939, the mean of the 40 rates being 0.894. The rates for the respiratory diseases vary from 0.177 to 1.309 with a mean of 0.586, while the

[2] The present report constitutes the tenth paper based on data from the public utility company. The earlier papers are given in the list of references.

TABLE 1.—*Ratio of time lost from short-term absences (1–3 calendar days) to time lost from all absences (1 calendar day or longer) due to all sickness, respiratory diseases, and nonrespiratory diseases, according to quarter-year in which absence began; experience of male employees in a public utility, 1933–42, inclusive*

Quarter-year in which absence began	All sickness			Respiratory diseases			Nonrespiratory diseases			Average number of males
	Average annual number of days lost per male		Ratio A to B	Average annual number of days lost per male		Ratio A′ to B′	Average annual number of days lost per male		Ratio A″ to B″	
	A: Short-term absences (1–3 days)	B: All absences (1 day or longer)		A′: Short-term absences (1–3 days)	B′: All absences (1 day or longer)		A″: Short-term absences (1–3 days)	B″: All absences (1 day or longer)		
1933										
First	1.189	12.347	0.10	0.936	8.710	0.11	0.253	3.637	0.07	2,561
Second	.509	4.409	.12	.308	1.081	.28	.201	3.328	.06	2,550
Third	.504	3.981	.13	.246	1.037	.24	.258	2.944	.09	2,568
Fourth	.918	7.839	.12	.643	3.547	.18	.275	4.292	.06	2,579
1934										
First	1.461	7.579	.19	1.102	5.466	.20	.359	2.113	.17	2,574
Second	.807	6.895	.12	.406	2.001	.20	.401	4.894	.08	2,560
Third	.543	5.017	.11	.271	1.502	.18	.272	3.515	.08	2,551
Fourth	.919	6.433	.14	.604	2.982	.20	.315	3.451	.09	2,544
1935										
First	1.239	10.196	.12	.940	5.516	.17	.299	4.680	.06	2,546
Second	.685	5.913	.12	.410	2.303	.18	.275	3.610	.08	2,541
Third	.486	5.438	.09	.206	1.104	.19	.280	4.334	.06	2,558
Fourth	.910	3.981	.23	.591	1.957	.30	.319	2.024	.16	2,564
1936										
First	1.293	7.416	.17	.927	4.387	.21	.366	3.029	.12	2,575
Second	.669	6.411	.10	.375	1.839	.20	.294	4.572	.06	2,598
Third	.639	3.099	.21	.353	.921	.38	.286	2.178	.13	2,614
Fourth	.883	6.617	.13	.589	3.360	.18	.294	3.257	.09	2,637
1937										
First	1.347	11.234	.12	1.055	7.879	.13	.292	3.355	.09	2,652
Second	.652	6.749	.10	.347	2.427	.14	.305	4.322	.07	2,681
Third	.610	4.628	.13	.261	1.041	.25	.349	3.587	.10	2,698
Fourth	.797	6.556	.12	.460	2.511	.18	.337	4.045	.08	2,724
1938										
First	1.156	7.156	.16	.800	3.883	.21	.356	3.273	.11	2,778
Second	.681	5.324	.13	.351	1.388	.25	.330	3.936	.08	2,787
Third	.545	4.942	.11	.269	1.281	.21	.276	3.661	.08	2,780
Fourth	1.103	7.202	.15	.725	3.086	.23	.378	4.116	.09	2,773
1939										
First	1.669	10.826	.15	1.309	6.797	.19	.360	4.029	.09	2,758
Second	.794	6.870	.12	.473	2.210	.21	.321	4.660	.07	2,737
Third	.673	4.611	.15	.314	1.068	.29	.359	3.543	.10	2,732
Fourth	1.038	7.576	.14	.708	2.847	.25	.330	4.729	.07	2,724
1940										
First	1.438	10.081	.14	1.058	4.535	.23	.380	5.546	.07	2,713
Second	.691	7.265	.10	.355	1.955	.18	.336	5.310	.06	2,707
Third	.417	4.632	.09	.219	1.000	.22	.198	3.632	.05	2,708
Fourth	.759	6.874	.11	.514	2.606	.20	.245	4.268	.06	2,694
1941										
First	1.448	12.495	.12	1.184	8.642	.14	.264	3.853	.07	2,702
Second	.580	6.469	.09	.341	2.452	.14	.239	4.017	.06	2,704
Third	.482	4.155	.12	.177	.717	.25	.305	3.438	.09	2,705
Fourth	.819	6.452	.13	.551	2.355	.23	.268	4.097	.07	2,697
1942										
First	1.466	9.556	.15	1.127	4.325	.26	.339	5.231	.06	2,652
Second	.812	7.166	.11	.467	1.597	.29	.345	5.569	.06	2,549
Third	.792	4.920	.16	.462	1.543	.30	.330	3.377	.10	2,473
Fourth	1.353	9.205	.15	.994	3.779	.26	.359	5.426	.07	2,258

nonrespiratory disease rates range from 0.198 to 0.401, the corresponding mean being 0.308.

It is of interest to observe that for short-term absences beginning in the first, second, and fourth quarters of each of the 10 years, and in the third quarters of 1936, 1940, and 1942, the disability rate for the respiratory diseases is consistently higher than the corresponding rate for the nonrespiratory group. On the other hand, for absences of 1 day or longer beginning in the first quarters of 1940 and 1942, and in the second, third, and fourth quarters of each of the 10 years excepting the fourth quarter of 1936, the respiratory disability rate is less than the corresponding rate for the nonrespiratory diseases. On the average the respiratory diseases contribute 65 percent of all

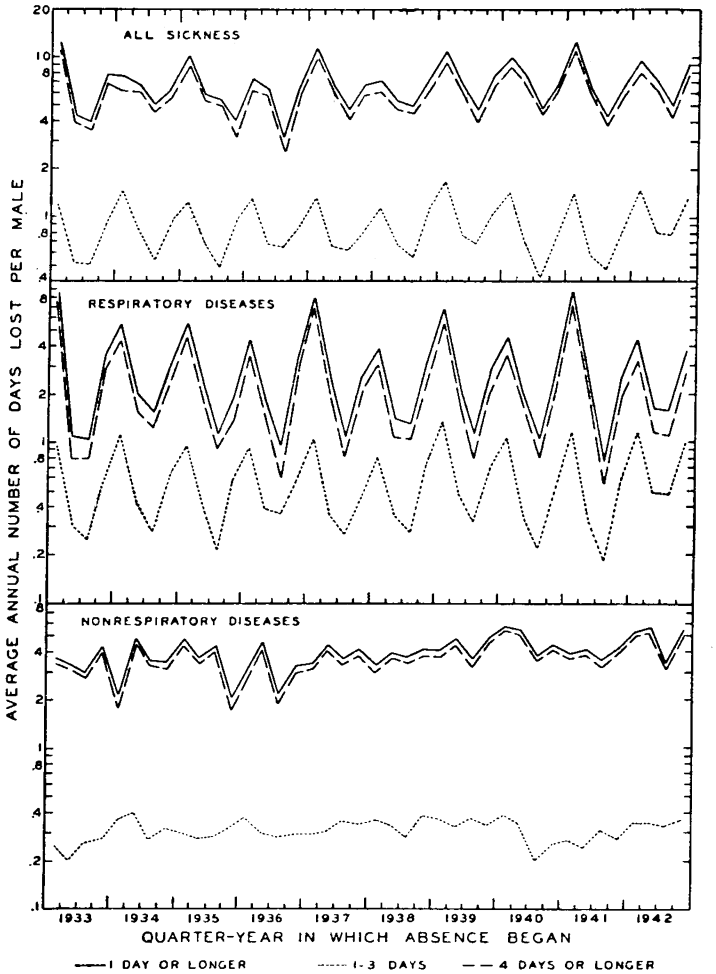

FIGURE 1.—Average annual number of days lost per male from all absences (1 calendar day or longer), short-term absences (1–3 calendar days), and other than short-term absences (4 calendar days or longer) due to (*a*) all sickness, (*b*) respiratory diseases, and (*c*) nonrespiratory diseases, according to quarter-year in which absence began; experience of male employees in a public utility, 1933–42, inclusive. (Logarithmic vertical scale.)

time lost from short-term absences but only 43 percent of the time lost from sick absences of 1 day or longer.

The disability rates for all sickness and the two broad sickness groups are presented graphically in figure 1; the appropriate rates for the 4-day or longer absences are also shown. It will be noted that the variation in the rates for the longer absences, for each group of causes, follows closely the variation in the rates for all absences of 1 day or longer, the disability rate for absences of less than 4 days being markedly less in each quarter and year than the corresponding rate for absences of 4 days or more. This relationship for all sickness and the respiratory diseases is in striking contrast to the relationship of the corresponding frequency rates since in all but 3 of the 40 quarters (the exceptions being the first quarters of 1933, 1937, and 1941) the frequency of short-term absences was greater than the frequency of 4-day or longer absences.

The time lost from respiratory disease absences of each duration group reveals a regular seasonal variation similar to the periodic variation in frequency; this periodicity, lacking in the disability rates for the nonrespiratory diseases, is reflected in the rates for all sickness, the effect being most marked in the disability rates for the short-term absences. In any year the highest disability rate for short-term absences due to all sickness or the respiratory diseases is yielded by absences beginning in the first quarter, the second highest by absences beginning in the fourth quarter, the third highest by absences beginning in the second quarter, and the lowest by absences beginning in the third quarter; this phenomenon is not presented by the absences of longer duration.

RATIO OF TIME LOST FROM SHORT-TERM ABSENCES TO TOTAL TIME LOST

Quarterly ratios of time lost from short-term absences to the total time lost from all absences are given in table 1 for all sickness and the two broad sickness groups. The ratios, specific for quarter, are presented graphically in figure 2.

For all sickness the ratios range in value from 0.09 to 0.23, their mean being 0.13, while the means of the 10 ratios for each quarter are 0.14 for the first, 0.11 for the second, 0.13 for the third, and 0.14 for the fourth. The ratios for the respiratory diseases vary from 0.11 to 0.38 with a mean of 0.22, the mean ratios for the first, second, third, and fourth quarters becoming 0.18, 0.21, 0.25, and 0.22. The nonrespiratory disease ratios on the other hand range from 0.05 to 0.17 with a mean of 0.08; the quarterly means are 0.09, 0.07, 0.09, and 0.08 for the first, second, third, and fourth quarters.

When the time changes in the ratios, specific for quarter, are plotted for all sickness and the respiratory group of diseases, respectively, the two pictures of four curves each present a relatively large number of

crossings and recrossings of the quarterly curves. This contrasts sharply with the corresponding pictures shown by the frequency ratios, a smaller number of crossings of these quarterly curves being in evidence. In fact, the curve presenting the frequency ratios for the first quarter, for all sickness as well as for the respiratory group of diseases, carries generally the lowest quarterly ratios. Nor does the nonrespiratory group of diseases in the instance of the time-lost ratios show any orderliness when an examination is made of a graphic presentation of the ratios specific for quarter.

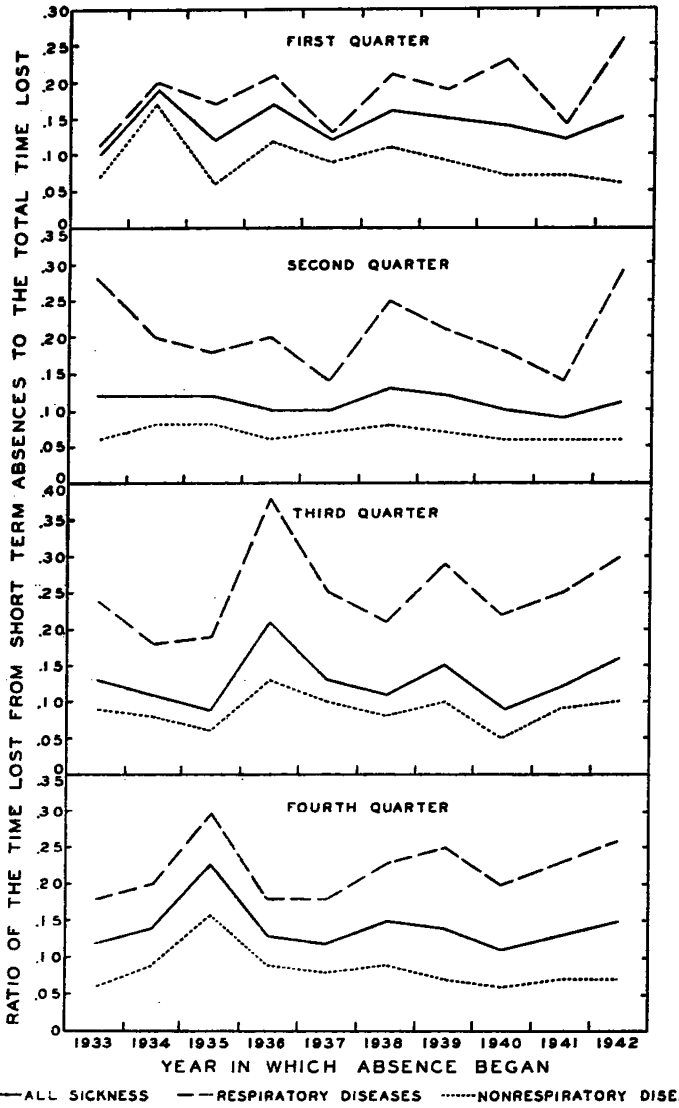

FIGURE 2.—Ratio of time lost from short-term absences (1–3 calendar days) to time lost from all absences (1 calendar day or longer) due to all sickness, respiratory diseases, and nonrespiratory diseases, according to quarter-year in which absence began; experience of male employees in a public utility, 1933–42, inclusive.

As figure 2 reveals, the ratios for a particular quarter are ordered with respect to cause group. For each quarter and year the proportion of the total time lost from the respiratory diseases accounted for by absences of less than 4 days is consistently greater than the corresponding proportion of time lost from all sickness, the proportions for all sickness being greater than the proportions for the nonrespiratory diseases. Differences between the ratios for all sickness and the respiratory diseases are least for the first quarter when the respiratory diseases contribute on the average 61 percent of all time lost from sickness, and greatest in the third quarter when the respiratory diseases are responsible for only 25 percent of the total time lost.

CORRELATION OF RATIO WITH TOTAL TIME LOST

To investigate the relationship between the proportion of time lost from short-term absences and the magnitude of the total disability rate, figure 3 presents appropriate scatter diagrams for all sickness, respiratory diseases, and nonrespiratory diseases, each of the 40 points for a particular cause group representing a ratio and its corresponding total disability rate. The identity of the quarter-year yielding absences contributing to a specific ratio and rate is shown by means of a pertinent symbol. Because of the relatively narrow range of the rates for the nonrespiratory group of diseases (from 2.0 to 5.9), the *Y*-axis applying to this group is divided into half-day intervals. The scatter diagrams aid in answering the question: Are increases in the annual number of days lost per person associated with increases or decreases in the proportion of days lost from less than 4-day absences? When increases are associated with increases the association is positive; when increases are associated with decreases the association is negative.

The scatter diagram for all sickness reveals little association between the value of the ratio and the magnitude of the total disability rate. If the 10 points for the first quarter are considered alone, definite negative association may be observed, the introduction of the points for the other quarters having a nullifying effect.

The diagram for the respiratory group of diseases shows clearly the higher values of the respiratory ratios. Contrary to the picture for all sickness the figure reveals the existence of some negative association, the important determining factor in the association being the contribution of the first quarters whose ratio-rate relationship is approximately linear.

The relationship for the nonrespiratory group of diseases also appears slightly negative in character, the higher values of the ratio tending to be associated with lower values of the disability rate.

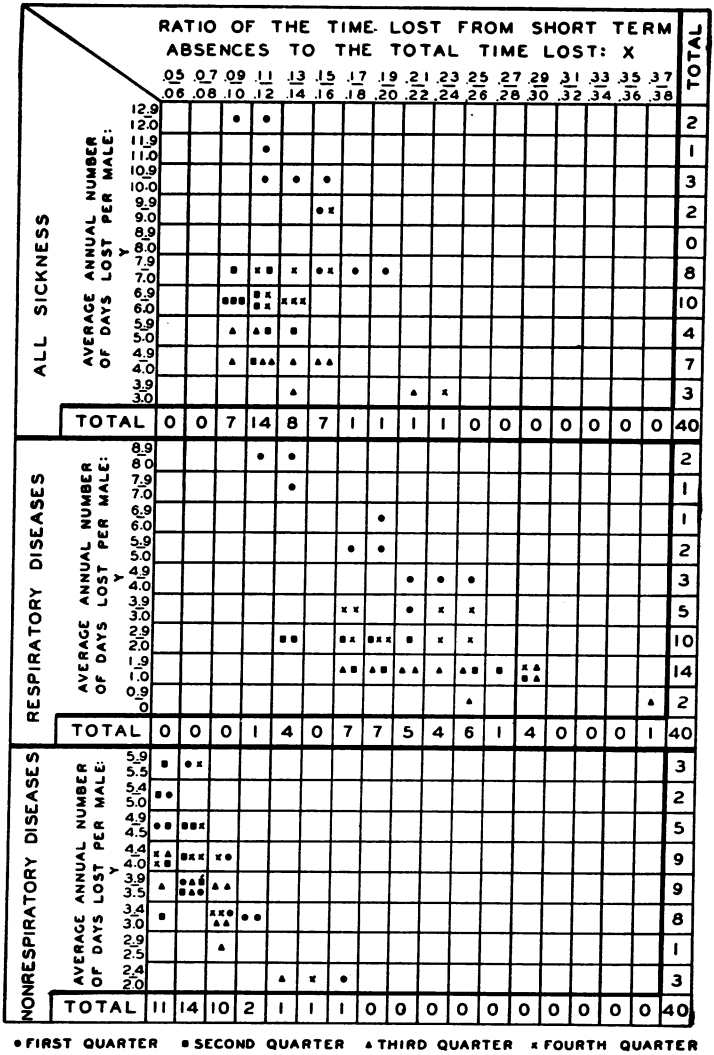

FIGURE 3.—Scatter diagrams showing relationship between proportion of time lost from short-term absences (1–3 calendar days) and total time lost from all absences (1 calendar day or longer) due to (*a*) all sickness, (*b*) respiratory diseases, and (*c*) nonrespiratory diseases; experience of male employees in a public utility, 1933–42, inclusive.

DISCUSSION

Noteworthy in connection with the correlation of ratio with disability rate for the 3 cause groups is the varying degree of negative association exhibited by the 10 first-quarters themselves. The effect, as was seen, of this negative association on the total picture of 40 quarters for each of the 3 cause groups is quite different. Thus all sickness shows little association before, or after, the inclusion of the 10 first-quarters; the respiratory group, on the other hand, presents little association without the 10 first-quarters but some negative association after their inclusion. In both of these cause groups the respective

10 first-quarters concentrate themselves at the higher levels of the disability rate. The nonrespiratory group, with its 10 first-quarters distributed throughout the total correlation picture, shows slight negative association with or without the presence of the first-quarters.

The 10-year morbidity experience of the public utility workers reveals generally that the contribution of the short-term absence to the total time lost is relatively greater for the respiratory than for the nonrespiratory diseases, an observation in harmony with other sickness experiences. On the average 22 percent of the days lost on account of respiratory illness were due to absences of less than 4 days. the corresponding percentage for the nonrespiratory diseases being 8. Furthermore the 22 percent yielded by the short-term absences of respiratory origin is equivalent to 8.5 percent of the time lost from all absences due to all sickness, the corresponding percent for the 8 percent accounted for by the short-term absences of the nonrespiratory group being 4.5.

SUMMARY

This paper, the sixth of a series on the duration of disabling sickness, presents an investigation of time lost from short-term absences of less than 4 days, and its relation to the total time lost based on a 10-year disability experience of male public utility workers.

An examination of the average annual number of days lost per male from absences beginning in the 40 quarters of the 10-year period reveals that the time variation in this rate for absences of all durations follows closely the variation for absences of 4 days or more, the rates for the short-term absences being markedly less in magnitude than the corresponding rates for the longer absences.

For each quarter and year the proportion of total time lost from respiratory diseases accounted for by short-term absences is greater than the corresponding proportion for all sickness, the proportion for all sickness being greater than the proportion for the nonrespiratory causes.

Appropriate scatter diagrams showing the relationship between the proportion of time lost from short-term absences and the magnitude of the total disability rate revealed little association for all sickness, and some negative association for the respiratory and nonrespiratory groups of diseases.

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(*2*) ————: Sickness among persons in different occupations of a public utility. Pub. Health Rep., **43**: 314–335 (Feb. 10, 1928). (Reprint No. 1207.)

(*3*) ————: Trend of disabling sickness among employees of a public utility. Pub. Health Rep., **43**: 1957–1984 (July 27, 1928). (Reprint No. 1239.)

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(*5*) Gafafer, W. M.: Time lost by industrial workers from disabling sickness and accidents during the early days of disability. Am. J. Pub. Health, **29**: 359–370 (April 1939).

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(*7*) Number II above.

(*8*) Gafafer, W. M.: Frequency and duration of disabilities causing absence from work among the employees of a public utility, 1938–42. Pub. Health Rep., **58**: 1554–1560 (Oct. 15, 1943). (Reprint No. 2520.)

(*9*) Number V above.

DEATHS DURING WEEK ENDED SEPTEMBER 23, 1944

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

	Week ended Sept. 23, 1944	Corresponding week, 1943
Data for 93 large cities of the United States:		
Total deaths	8,025	8,354
Average for 3 prior years	7,871	
Total deaths, first 38 weeks of year	343,524	350,471
Deaths under 1 year of age	564	643
Average for 3 prior years	590	
Deaths under 1 year of age, first 38 weeks of year	23,473	25,313
Data from industrial insurance companies:		
Policies in force	66,736,332	65,848,572
Number of death claims	11,942	12,974
Death claims per 1,000 policies in force, annual rate	9.4	10.3
Death claims per 1,000 policies, first 38 weeks of year, annual rate	10.1	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 SEPT. 30, 1944

Summary

The incidence of poliomyelitis declined for the fourth successive week. A decrease was recorded in all of the 9 geographic divisions of the country except the West South Central and Pacific. A total of 976 cases was reported, as compared with 1,159 last week, a 5-year (1939–43) median of 591, and 679 for the corresponding week last year.

An aggregate of 835 cases, as compared with 970 last week, was reported in the 16 States reporting more than 12 cases each, as follows (last week's figures in parentheses): *Increases*—New Jersey 52 (40), Missouri 19 (15), California 18 (9); *decreases*—Massachusetts 22 (34), New York 366 (383), Pennsylvania 52 (82), Ohio 63 (77), Indiana 16 (20), Illinois 37 (38), Michigan 46 (75), Minnesota 32 (45), Maryland 29 (31), Virginia 23 (48), North Carolina 18 (23), Kentucky 24 (31); *no change*—West Virginia 18 (18).

The cumulative total for the first 39 weeks of the year is 14,547, or 35 percent more than the largest yearly total reported during the 11-year period preceding 1943. For the corresponding periods of 1943 and 1931 the cumulative totals were 9,309 and 12,250.

Of the total of 127 cases of meningococcus meningitis, as compared with 122 last week and 28 for the 5-year median, 61 occurred in the 5 States reporting more than 6 cases each, as follows (last week's figures in parentheses): New York 14 (13), Pennsylvania 17 (8), Ohio 7 (3), Illinois 12 (11), California 11 (11). The cumulative total for the first 39 weeks of the year is 13,856, or only 4.6 percent less than for the corresponding period last year, but 40 percent more than for the entire year 1929, when the largest yearly total recorded prior to 1943 was reported.

Delayed information was received reporting the occurrence in August of 108 cases of paratyphoid fever in a girls' school in Alabama.

Deaths recorded for the week in 92 large cities of the United States totaled 7,946, as compared with 7,986 last week and a 3-year (1941–43) average of 8,189. The cumulative total is 349,704, as compared with 357,184 for the same period last year.

Telegraphic morbidity reports from State health officers for the week ended Sept. 30, 1944, and comparison with corresponding week of 1943 and 5-year median

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

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1939–43	Week ended—		Median, 1939–43	Week ended—		Median 1939–43	Week ended—		Median 1939–43
	Sept. 30, 1944	Oct. 2, 1943		Sept. 30, 1944	Oct. 2, 1943		Sept. 30, 1944	Oct. 2, 1943		Sept. 30, 1944	Oct. 2, 1943	
NEW ENGLAND												
Maine	0	0	0	-------	-------	-------	0	19	4	0	1	1
New Hampshire	0	0	0	-------	1	-------	0	1	0	0	1	0
Vermont	0	0	0	-------	-------	-------	1	4	4	0	0	0
Massachusetts	1	9	3	-------	-------	-------	30	66	53	5	10	1
Rhode Island	0	0	1	6	-------	-------	3	7	4	1	3	0
Connecticut	1	2	2	-------	2	1	6	8	8	4	2	1
MIDDLE ATLANTIC												
New York	6	12	10	11	14	16	15	114	48	14	31	5
New Jersey	3	4	3	1	2	3	10	60	27	6	8	1
Pennsylvania	5	18	12	1	1	-------	20	34	51	17	12	4
EAST NORTH CENTRAL												
Ohio	8	11	8	7	4	5	6	45	22	7	12	0
Indiana	7	28	9	3	2	4	2	4	4	1	8	0
Illinois	6	7	11	-------	2	3	15	45	18	12	13	1
Michigan [2]	7	2	5	-------	-------	3	7	251	38	6	6	1
Wisconsin	3	2	1	5	9	33	40	99	48	2	4	0
WEST NORTH CENTRAL												
Minnesota	9	7	2	-------	3	2	3	70	6	0	5	0
Iowa	6	10	7	-------	-------	-------	0	2	5	0	0	0
Missouri	1	19	4	2	1	-------	0	9	3	2	6	1
North Dakota	2	1	2	-------	10	3	0	186	4	0	2	0
South Dakota	4	6	1	-------	-------	-------	1	4	1	0	0	0
Nebraska	0	3	3	-------	-------	-------	5	4	4	0	0	0
Kansas	4	4	4	-------	5	4	4	7	7	3	3	1
SOUTH ATLANTIC												
Delaware	0	0	0	-------	-------	-------	2	6	2	0	2	0
Maryland [2]	2	3	4	-------	5	2	0	7	7	2	5	2
District of Columbia	0	0	1	1	-------	-------	1	1	1	0	2	0
Virginia	11	16	16	72	53	41	0	27	16	2	3	3
West Virginia	6	10	8	2	-------	3	0	13	2	1	1	1
North Carolina	24	38	69	3	7	2	4	9	11	1	1	0
South Carolina	17	25	31	202	141	160	29	15	2	2	1	1
Georgia	10	29	29	6	41	20	2	5	5	1	0	0
Florida	12	5	6	3	4	4	0	1	2	0	4	1
EAST SOUTH CENTRAL												
Kentucky	5	15	14	2	3	2	1	2	11	1	4	0
Tennessee	14	23	23	4	7	7	5	2	5	2	1	1
Alabama	39	29	29	4	35	7	2	11	7	6	0	0
Mississippi [2]	20	7	10	-------	-------	-------	-------	-------	-------	4	0	0
WEST SOUTH CENTRAL												
Arkansas	4	5	15	27	9	16	4	1	3	0	0	0
Louisiana	7	5	6	2	1	2	0	1	1	3	2	2
Oklahoma	4	5	9	25	11	11	2	4	1	0	1	0
Texas	52	32	32	451	456	350	24	17	15	5	0	2
MOUNTAIN												
Montana	0	0	0	5	1	1	1	51	14	0	1	0
Idaho	0	0	0	-------	-------	-------	0	6	3	0	2	0
Wyoming	2	0	0	1	-------	-------	1	1	1	0	0	0
Colorado	6	3	4	15	16	16	5	15	8	1	3	0
New Mexico	5	1	3	2	-------	-------	6	0	0	0	0	0
Arizona	0	3	2	16	55	43	2	5	5	0	2	0
Utah [2]	0	0	0	-------	-------	-------	3	2	2	0	0	0
Nevada	0	0	0	-------	-------	-------	0	3	0	0	0	0
PACIFIC												
Washington	8	6	3	-------	1	1	9	16	16	3	4	0
Oregon	1	1	3	4	1	7	23	22	15	2	4	0
California	30	19	14	15	12	14	110	92	72	11	22	1
Total	352	425	444	888	905	876	404	1,374	668	127	192	28
39 weeks	8,406	9,063	9,581	342,470	85,825	154,152	593,899	542,892	470,048	13,856	14,523	1,602

See footnotes at end of table.

Telegraphic morbidtiy reports from State health officers for the week ended Sept. 30, 1944, and comparison with corresponding week of 1943 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever [3]		
	Week ended—		Median 1939–43	Week ended—		Median 1939–43	Week ended—		Median 1939–43	Week ended—		Median 1939–43
	Sept. 30, 1944	Oct. 2, 1943		Sept. 30, 1944	Oct. 2, 1943		Sept. 30, 1944	Oct. 2, 1943		Sept. 30, 1944	Oct. 2, 1943	
NEW ENGLAND												
Maine	1	3	1	15	14	4	0	0	0	0	2	0
New Hampshire	4	0	0	2	0	1	0	0	0	0	0	0
Vermont	1	0	0	3	2	2	0	0	0	2	0	0
Massachusetts	22	31	7	64	173	68	0	0	0	7	7	1
Rhode Island	0	18	1	4	6	3	0	0	0	0	0	0
Connecticut	10	32	3	6	11	17	0	0	0	7	0	1
MIDDLE ATLANTIC												
New York	366	52	52	73	131	93	0	0	0	7	19	18
New Jersey	52	7	9	21	30	32	0	0	0	2	0	5
Pennsylvania	52	8	13	77	87	87	0	0	0	10	13	17
EAST NORTH CENTRAL												
Ohio	63	12	12	110	183	93	1	0	0	7	9	12
Indiana	16	7	7	29	25	25	1	0	0	0	3	3
Illinois	37	118	37	81	87	85	0	0	0	4	1	14
Michigan [2]	46	15	26	59	63	62	0	0	0	3	3	4
Wisconsin	12	19	8	43	88	61	0	0	0	1	4	2
WEST NORTH CENTRAL												
Minnesota	32	9	16	26	32	32	0	1	0	0	0	0
Iowa	9	16	16	20	28	28	0	0	0	18	0	1
Missouri	19	22	4	17	34	25	0	0	0	5	3	13
North Dakota	1	1	1	3	7	7	0	1	1	0	3	0
South Dakota	1	0	0	5	9	8	0	0	0	1	0	0
Nebraska	4	8	8	15	10	12	0	0	0	0	0	0
Kansas	7	32	9	30	57	44	0	0	0	1	0	3
SOUTH ATLANTIC												
Delaware	7	0	0	1	1	3	0	0	0	0	1	1
Maryland [2]	29	3	2	33	18	18	0	0	0	5	3	7
District of Columbia	9	1	1	9	10	10	0	0	0	2	1	1
Virginia	23	8	8	25	46	36	0	0	0	2	8	15
West Virginia	18	4	4	58	72	43	1	0	0	4	15	15
North Carolina	18	0	4	37	111	78	0	0	0	3	1	6
South Carolina	3	1	3	9	12	12	0	0	0	6	6	8
Georgia	3	1	1	13	21	26	0	0	0	2	2	13
Florida	4	0	1	9	5	4	0	0	0	6	1	4
EAST SOUTH CENTRAL												
Kentucky	24	7	7	28	47	47	0	0	0	1	6	14
Tennessee	6	0	4	36	47	47	0	0	0	3	5	12
Alabama	4	2	1	23	17	27	0	0	0	[5] 7	1	4
Mississippi [2]	9	1	1	7	6	10	0	0	0	4	2	3
WEST SOUTH CENTRAL												
Arkansas	1	0	1	6	2	4	0	0	0	5	1	8
Louisiana	4	1	2	9	6	6	0	0	0	3	5	5
Oklahoma	2	22	3	10	10	12	0	0	0	3	3	7
Texas	7	26	4	34	22	22	0	2	1	13	12	22
MOUNTAIN												
Montana	5	3	0	8	21	10	0	0	0	1	0	0
Idaho	0	0	1	15	7	7	0	0	0	2	2	2
Wyoming	0	1	1	1	5	2	0	0	0	0	1	0
Colorado	4	17	2	11	14	14	0	0	0	1	4	2
New Mexico	0	3	2	3	5	1	0	0	0	2	7	6
Arizona	2	3	1	5	6	2	0	0	0	0	4	3
Utah [2]	0	18	3	11	16	7	0	0	0	0	1	1
Nevada	1	1	0	0	6	0	0	0	0	0	0	0
PACIFIC												
Washington	8	19	4	29	37	21	0	0	0	2	2	2
Oregon	12	29	3	16	13	9	0	1	0	1	1	6
California	18	98	17	104	96	72	0	0	0	2	6	7
Total	976	679	591	1,253	1,756	1,385	3	5	5	155	168	299
39 weeks	[6] 14,547	9,309	6,363	152,962	104,359	104,359	320	630	1,212	4,336	4,352	6,481

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended Sept. 30, 1944, and comparison with corresponding week of 1943 and 5-year median—Con.

Division and State	Whooping cough			Week ended Sept. 30, 1944								
	Week ended—		Median 1939–43	Dysentery				Encephalitis, infectious	Leprosy	Rocky Mt. spotted fever	Tularemia	Typhus fever
	Sept. 30, 1944	Oct. 2, 1943		Anthrax	Amebic	Bacillary	Unspecified					
NEW ENGLAND												
Maine	4	16	27	0	0	0	0	0	0	0	0	0
New Hampshire	12	1	1	0	0	0	0	0	0	0	0	0
Vermont	5	12	12	0	0	0	0	0	0	0	0	0
Massachusetts	52	82	104	0	0	9	0	2	0	0	0	0
Rhode Island	19	61	26	0	0	0	0	0	0	0	0	0
Connecticut	27	10	38	0	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC												
New York	197	176	274	0	2	61	0	1	0	0	0	0
New Jersey	70	81	118	0	0	0	0	1	0	0	0	0
Pennsylvania	109	136	250	0	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL												
Ohio	138	104	160	0	0	0	0	0	0	0	0	0
Indiana	6	34	30	0	0	0	0	0	0	0	0	0
Illinois	72	145	157	0	1	1	0	2	0	0	3	0
Michigan [2]	60	191	193	0	0	4	0	0	0	0	0	0
Wisconsin	106	220	187	0	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota	37	52	52	0	2	0	0	1	0	0	1	0
Iowa	2	27	21	0	0	0	0	0	0	0	0	0
Missouri	24	23	23	0	0	0	4	0	0	0	1	0
North Dakota	4	13	22	0	0	0	0	1	0	0	0	0
South Dakota	4	14	3	1	0	0	0	0	0	0	0	0
Nebraska	0	16	7	0	0	0	0	0	0	0	0	0
Kansas	28	28	28	0	0	0	0	2	0	0	0	0
SOUTH ATLANTIC												
Delaware	2	6	6	0	0	0	0	0	0	0	0	0
Maryland [3]	47	64	64	0	0	0	2	0	0	1	0	0
District of Columbia	1	9	9	0	0	0	0	0	0	0	0	0
Virginia	11	59	45	0	0	0	185	0	0	0	0	0
West Virginia	10	6	7	0	0	0	0	0	0	0	0	0
North Carolina	150	105	99	0	0	0	0	0	0	0	0	8
South Carolina	62	39	22	0	0	12	0	0	0	0	0	3
Georgia	6	26	10	0	0	3	0	0	0	0	1	34
Florida	1	21	5	0	1	0	0	0	0	0	0	17
EAST SOUTH CENTRAL												
Kentucky	24	33	52	0	0	1	0	0	0	0	0	0
Tennessee	19	21	21	0	0	0	2	0	0	1	0	11
Alabama	16	25	25	0	9	0	0	1	0	0	0	24
Mississippi [2]	----	----	----	0	0	0	0	0	0	0	2	2
WEST SOUTH CENTRAL												
Arkansas	28	20	6	0	2	18	0	0	0	0	1	0
Louisiana	5	5	5	0	1	1	0	0	0	0	2	6
Oklahoma	2	3	5	0	0	0	12	0	0	1	0	0
Texas	157	123	104	0	7	355	12	4	0	0	1	35
MOUNTAIN												
Montana	10	10	7	0	0	0	0	0	0	0	0	0
Idaho	0	2	2	0	0	0	0	0	0	0	0	0
Wyoming	10	4	4	0	0	0	0	0	0	0	0	0
Colorado	14	32	23	0	0	0	0	1	0	0	1	0
New Mexico	0	1	24	0	0	3	10	0	0	0	0	0
Arizona	2	9	12	0	0	0	9	0	0	0	0	0
Utah [2]	21	24	21	0	0	0	0	0	0	0	1	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	14	71	36	0	0	0	0	0	0	0	0	0
Oregon	24	32	19	0	0	0	0	0	0	0	0	0
California	64	141	202	0	1	10	0	2	0	0	0	2
Total	1,676	2,333	2,450	1	26	478	236	18	0	3	14	142
Same Week 1943	2,333	----	----	1	52	470	191	14	0	4	5	130
Same Week 1942	2,450	----	----	0	29	279	203	9	1	7	12	76
39 Weeks 1944	73,563	----	----	35	1,301	17,134	6,873	509	23	433	444	3,742
39 Weeks 1943	147,659	----	----	49	1,634	12,884	6,238	554	19	412	660	3,076
39 Weeks 1942	139,386	----	[4]141,753	63	876	9,636	5,499	429	36	[4]434	721	[4]2,100

[1] New York City only. [2] Period ended earlier than Saturday.
[3] Including paratyphoid fever cases reported separately as follows: Massachusetts, 5; New York, 1; Michigan, 1; Maryland, 1; South Carolina, 2; Georgia, 1; Florida, 2; Texas, 1; Colorado, 1.
[4] 5-year median 1939–43.
[5] Exclusive of delayed report of 108 cases of paratyphoid fever which occurred in August; included in cumulative total only. [6] Cumulative total changed by corrected reports.

WEEKLY REPORTS FROM CITIES

City reports for week ended September 16, 1944

This table lists the reports from 90 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								
NEW ENGLAND												
Maine:												
Portland	0	0	-----	0	0	0	2	0	3	0	0	0
New Hampshire:												
Concord	0	0	-----	0	0	0	1	0	0	0	0	0
Vermont:												
Barre	0	0	-----	0	0	0	0	0	0	0	0	3
Massachusetts:												
Boston	1	0	-----	0	13	1	5	7	14	0	0	34
Fall River	0	0	-----	0	0	0	0	0	0	0	0	8
Springfield	0	0	-----	0	1	0	0	7	1	0	1	0
Worcester	0	0	-----	0	0	0	5	0	9	0	0	7
Rhode Island:												
Providence	0	0	-----	0	0	0	0	0	0	0	1	8
Connecticut:												
Bridgeport	0	0	-----	0	0	0	0	0	0	0	0	0
Hartford	0	0	-----	0	1	0	0	3	1	0	1	4
New Haven	0	0	-----	1	0	0	1	0	1	0	0	14
MIDDLE ATLANTIC												
New York:												
Buffalo	0	0	-----	0	0	1	2	39	4	0	1	0
New York	14	0	-----	1	2	5	40	175	34	0	4	72
Rochester	0	0	-----	0	6	0	0	29	0	0	1	5
Syracuse	0	0	-----	0	0	0	3	9	0	0	0	10
New Jersey:												
Camden	1	0	-----	0	0	3	0	2	0	0	0	0
Newark	0	0	-----	0	1	0	1	1	3	0	2	9
Trenton	0	0	-----	0	0	0	1	0	0	0	0	0
Pennsylvania:												
Philadelphia	1	0	-----	0	3	4	16	21	11	0	2	14
Pittsburgh	0	0	-----	0	0	3	11	9	3	0	3	8
Reading	0	0	-----	0	0	1	0	0	0	0	0	1
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	0	0	-----	1	0	1	1	16	7	0	0	11
Cleveland	0	0	-----	0	1	2	5	36	7	0	0	27
Columbus	0	0	-----	0	1	0	1	4	2	0	0	12
Indiana:												
Fort Wayne	0	0	-----	0	0	0	0	0	0	0	0	0
Indianapolis	1	0	-----	0	0	1	0	3	3	0	0	5
South Bend	0	0	-----	0	0	0	0	0	0	0	2	0
Terre Haute	0	0	-----	0	0	0	0	1	1	0	0	0
Illinois:												
Chicago	1	0	1	0	7	8	13	11	18	0	0	60
Springfield	0	0	-----	0	0	0	3	0	0	0	0	0
Michigan:												
Detroit	3	0	1	1	0	3	8	35	6	0	0	39
Flint	1	0	-----	0	1	0	2	3	3	0	0	6
Grand Rapids	0	0	-----	0	1	0	1	2	1	0	0	3
Wisconsin:												
Kenosha	0	0	-----	0	0	0	0	0	1	0	0	28
Milwaukee	0	0	-----	0	4	3	3	4	1	0	0	60
Racine	0	0	-----	0	2	0	0	0	0	0	0	8
Superior	0	0	-----	0	1	0	0	0	1	0	0	2
WEST NORTH CENTRAL												
Minnesota:												
Duluth	0	0	-----	0	0	0	0	3	1	0	0	0
Minneapolis	4	0	-----	0	2	1	1	12	4	0	0	2
St. Paul	0	0	-----	0	0	0	2	7	1	0	0	14

City reports for week ended September 16, 1944—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								
WEST NORTH CENTRAL—continued												
Missouri:												
Kansas City	0	0		0	0	0	3	1	6	0	0	1
St. Joseph	0	0		0	0	0	0	0	3	0	0	0
St. Louis	0	0	1	0	1	0	5	2	1	0	2	7
North Dakota:												
Fargo	0	1		0	0	0	1	2	1	0	0	0
Nebraska:												
Omaha	0	0		0	2	0	2	1	0	0	0	3
Kansas:												
Topeka	1	0		0	0	0	1	0	1	0	0	5
Wichita	0	0		0	0	0	3	0	0	0	1	1
SOUTH ATLANTIC												
Delaware:												
Wilmington	0	0		0	0	0	0	4	0	0	0	3
Maryland:												
Baltimore	1	0		0	2	0	3	19	10	0	3	60
Cumberland	0	0		0	0	0	0	0	0	0	0	0
Frederick	0	0		0	0	0	0	0	0	0	0	0
District of Columbia:												
Washington	0	0		0	0	0	4	16	3	0	0	2
Virginia:												
Lynchburg	0	0		0	0	0	1	19	1	0	0	6
Richmond	0	0		0	1	0	4	3	3	0	1	0
Roanoke	0	0		0	0	0	0	3	0	0	0	0
West Virginia												
Charleston	0	0		0	0	0	0	0	2	0	0	0
Wheeling	0	0		0	0	0	1	0	0	0	0	3
North Carolina:												
Raleigh	0	0		0	0	0	1	0	0	0	0	1
Wilmington	0	0		1	0	0	0	1	0	0	0	3
Winston-Salem	0	0		0	0	0	2	4	4	0	0	1
South Carolina:												
Charleston	0	0		0	0	0	0	0	0	0	0	0
Georgia:												
Atlanta	0	0	1	1	1	0	0	1	2	0	0	2
Brunswick	0	0		0	0	0	1	0	0	0	0	0
Savannah	0	0		0	0	0	0	0	1	0	0	0
Florida:												
Tampa	1	0		0	0	0	2	1	0	0	1	0
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	1	0		0	1	1	8	2	2	0	0	17
Nashville	0	0		0	0	1	2	1	1	0	0	1
Alabama:												
Birmingham	1	0		0	0	0	3	0	0	0	1	0
Mobile	0	0		0	0	0	0	0	0	0	2	0
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	4	0	0	0	0	0	0	0	0	7
Louisiana:												
New Orleans	1	0	1	0	0	0	3	2	3	0	1	2
Shreveport	0	0		0	0	0	2	0	0	0	0	0
Texas:												
Dallas	0	0		0	0	0	0	0	0	0	0	14
Galveston	0	0		0	0	0	1	0	0	0	0	0
Houston	1	0		0	0	0	1	1	1	0	0	3
San Antonio	2	0		0	0	0	6	3	0	0	0	0
MOUNTAIN												
Montana:												
Billings	0	0		0	0	0	1	0	0	0	0	1
Great Falls	0	0		0	0	0	0	0	1	0	0	1
Helena	0	0		0	0	0	0	0	0	0	0	5
Missoula	0	0		0	0	0	1	0	1	0	0	0

City reports for week ended September 16, 1944—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								
MOUNTAIN—continued												
Idaho:												
Boise	0	0	-----	0	0	0	0	0	0	0	0	0
Colorado:												
Denver	4	1	1	0	0	0	4	3	5	0	0	17
Pueblo	0	0	-----	0	1	0	0	0	1	0	1	1
Utah:												
Salt Lake City	0	0	-----	0	0	0	0	0	2	0	0	1
PACIFIC												
Washington:												
Seattle	0	0	-----	0	2	0	6	1	4	0	0	5
Spokane	0	0	-----	0	3	0	1	0	1	0	0	1
Tacoma	1	0	-----	0	1	3	0	0	2	0	0	3
California:												
Los Angles	8	0	3	0	10	5	1	7	16	0	2	12
Sacramento	0	0	-----	0	6	0	0	0	1	0	0	0
San Francisco	0	0	-----	0	12	5	8	2	3	0	0	2
Total	49	2	13	6	90	52	210	538	223	0	33	665
Corresponding week, 1943	46	-----	33	11	170	-----	209	-----	297	1	29	1009
Average, 1939–43	56	-----	36	[1] 9	[2] 148	-----	[1] 222	-----	274	1	40	999

[1] 3-year average, 1941–43.
[2] 5-year median, 1939–43.

Dysentery, amebic.—Cases: Boston, 1; New York, 1; Philadelphia, 1; Chicago, 1.
Dysentery, bacillary.—Cases: Worcester, 7; New York, 6; Philadelphia, 1; Chicago, 1; Detroit, 5; Washington, D. C., 1; Charleston, S. C., 7; Memphis, 4; Nashville, 1; Los Angeles, 7.
Dysentery, unspecified.—Cases: Baltimore, 2; Richmond, 1; Shreveport, 1; Houston, 2.
Tularemia.—Cases: New Orleans, 1.
Typhus fever, endemic.—Cases: Philadelphia, 1; Charleston, S. C., 5; Savannah, 1; Tampa, 2; Nashville, 2; Birmingham, 5; Mobile, 10; New Orleans, 8; Dallas, 1; Houston, 3; San Antonio, 2; Los Angeles, 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 90 cities in the preceding table (estimated population, 1943, 34,394,800)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England	2.6	0	-----	2.6	39	2.6	36.6	44.4	76	0	7.8	204
Middle Atlantic	7.4	0	-----	0.5	6	7.9	34.3	131.9	25	0	6.0	55
East North Central	3.6	0	1.2	1.2	11	10.9	22.5	69.9	31	0	1.2	159
West North Central	9.9	2	2	0	10	2	35.8	55.7	36	0	6	66
South Atlantic	3.3	0	1.6	3.3	7	0	31.1	116.0	42	0	8.2	132
East South Central	11.8	0	-----	0	6	11.8	76.7	17.7	18	0	17.7	106
West South Central	11.5	0	14.3	0	0	0	37.3	17.2	11	0	2.9	75
Mountain	31.8	7.9	7.9	0	8	0	47.7	23.8	79	0	7.9	207
Pacific	14.2	0	4.7	0	54	20.6	25.3	15.8	43	0	3.2	36
Total	7.4	.3	2.0	.9	14	7.9	31.9	81.8	34	0	5.0	101

FOREIGN REPORTS

ANGOLA

Notifiable diseases—April–June 1944.—During the months of April, May, and June 1944, certain notifiable diseases were reported in Angola as follows:

Disease	April		May		June	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Beriberi	14		42		28	
Cerebrospinal meningitis	2	1			3	3
Chickenpox	19		11	1	16	
Diphtheria	3	1	2	1	3	
Dysentery (amebic)	111	5	185	13	132	6
Dysentery (bacillary)	13	1	15	2	4	
Gonorrhea	188		208		215	
Hookworm disease	398	5	591	6	543	12
Influenza	1,283	20	1,265	12	1,308	32
Leprosy	6	1	3		6	
Measles	16		24	1	59	
Mumps	8		3		16	1
Pneumonia	251	37	300	38	320	46
Poliomyelitis	1		1			
Rabies			1	1		
Relapsing fever	32		26		26	
Septicemia	1	1			1	
Sleeping sickness	134	8	113	7	117	12
Smallpox	19		2		2	
Syphilis	356	1	367		427	1
Tetanus	4	3	1		2	
Trachoma			1		2	
Tuberculosis (respiratory)	39	14	44	7	37	6
Typhoid and paratyphoid fever	33	3	21	2	24	2
Whooping cough	137	10	148	4	114	2
Yaws	847		1,021		1,149	1

CANADA

Provinces—Communicable diseases—Week ended September 2, 1944.—During the week ended September 2, 1944, 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
Chickenpox		7		4	18	5	5	15	38	92
Diphtheria		6	1	56	1	1	1		1	67
Dysentery (bacillary)				12					4	16
Encephalitis, infectious						1				1
German measles					1		2	3	12	18
Influenza					5				22	27
Measles		1	1	14	11	10	2	15	11	65
Meningitis, meningococcus							1			1
Mumps				8	12	3		11	14	48
Poliomyelitis		2	9	2	[1] 27	5		14		[1] 59
Scarlet fever		2	3	35	23	8	5	14	17	107
Tuberculosis (all forms)		2	11	128	47	12	1	21	14	236
Typhoid and paratyphoid fever			2	18			1	3	3	27
Whooping cough		25		73	35	4	11	25	40	213

[1] Includes 3 cases, delayed reports.

CUBA

Provinces—Notifiable diseases—4 weeks ended September 9, 1944.—During the 4 weeks ended September 9, 1944, 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		1	5	3		15	24
Diphtheria	1	19	1	2		3	26
Dysentery		12	1				13
Hookworm disease		1					1
Leprosy		4				8	12
Malaria	16	7		8	4	307	342
Measles		4	2			1	7
Poliomyelitis					1		1
Tuberculosis	16	41	9	18		65	149
Typhoid fever	13	99	11	80	17	72	292
Undulant fever						1	1
Yaws						7	7

NOTE.—1 case of rickettsial disease (endemic typhus fever ?) was also reported.

[1] Includes the city of Habana.

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

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

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

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

Plague

Portugal—Azores—Ponta Delgada (vicinity of).—For the week ended September 2, 1944, 1 fatal case of plague was reported in a village about 3 miles from the port of Ponta Delgada, Azores. For the week ended September 9, 1944, 2 cases of plague were reported from the same locality.

French West Africa—Dakar.—For the week ended September 2, 1944, 38 cases of plague with 31 deaths were reported in Dakar, French West Africa.

Typhus Fever

Basutoland.—For the period July 11–30, 1944, 72 cases of typhus fever with 14 deaths were reported in Basutoland.

Yellow Fever

Gold Coast.—On August 14, 1944, 1 fatal case of suspected yellow fever was reported in Cape Coast, Gold Coast. The fatal case of suspected yellow fever in Tamale as reported on page 1265 of the PUBLIC HEALTH REPORTS of September 22, 1944, has not been confirmed.

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