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PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

September 8–October 5, 1940

The accompanying table summarizes the prevalence of eight important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the PUBLIC HEALTH REPORTS under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ended October 5, 1940, the number reported for the corresponding period in 1939, and the median number for the years 1935–39.

DISEASES ABOVE MEDIAN PREVALENCE

Poliomyelitis.—A total of 2,859 cases of poliomyelitis was reported for the 4 weeks ended October 5, as compared with 2,376 cases during the preceding 4-week period. However, during the current 4-week period the number of cases dropped from 797 for the first week of the period to 555 cases for the last week (ended October 5). Compared with recent years the number of cases for the country as a whole was about 1.6 times the number (1,844) recorded for the corresponding period in 1939, which number also represents the 1935–39 median incidence for this period.

While each section of the country except the North Atlantic reported a relatively high incidence, the disease still remained most prevalent in the North Central and South Atlantic regions. States in those regions reporting a particularly high incidence were: Michigan, 431; Iowa, 392; West Virginia, 226; Illinois, 213; Ohio, 195; Indiana and Kansas, 174 each; Wisconsin, 134; Missouri, 120; and Virginia, 82 cases. Approximately 2,100 of the total number of cases occurred in those 10 States. Practically all of these States, as well as other States, reported significant declines during the last week of the period under consideration, and as the peak of this disease has usually been passed by this time still further declines may be expected.

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Influenza.—The number of cases of influenza (2,165) reported for the 4 weeks ended October 5 represented an increase of about 25 percent over the preceding 4-week period. In relation to preceding years the current incidence was about 20 percent in excess of the incidence during the corresponding period in 1939 and about 10 percent in excess of the average seasonal incidence. The disease was relatively most prevalent in the South Central and Mountain regions.

Measles.—For the current period there were 2,816 cases of measles reported, as compared with 2,128, 3,033, and 3,081 cases for the corresponding period in 1939, 1938, and 1937, respectively. Compared with the experience of recent years the incidence was relatively high in all regions except the South Atlantic, West South Central, and Pacific regions.

Number of reported cases of 8 communicable diseases in the United States during the 4-week period Sept. 8–Oct. 5, 1940, the number for the corresponding period in 1939, and the median number of cases reported for the corresponding period 1935–39 [1]

Division	Current period	1939	5-year median	Current period	1939	5-year median	Current period	1939	5-year median	Current period	1939	5-year median
	Diphtheria			Influenza [2]			Measles [3]			Meningococcus meningitis		
United States [1]	1,316	2,296	2,849	2,165	1,835	1,955	2,816	2,128	2,306	107	103	212
New England	16	32	32	9	4	11	333	261	201	11	4	7
Middle Atlantic	95	113	157	28	34	55	769	281	389	25	17	44
East North Central	138	224	367	204	222	222	684	257	410	19	17	35
West North Central	83	113	160	41	53	123	177	141	158	9	9	10
South Atlantic	406	971	971	790	781	768	151	117	158	15	23	30
East South Central	196	431	485	256	115	156	191	88	104	10	11	25
West South Central	240	290	329	531	361	361	92	169	110	8	10	10
Mountain	49	64	75	205	187	101	208	160	160	3	9	7
Pacific	93	58	122	101	78	105	211	654	595	7	3	8
	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
United States [1]	2,859	1,844	1,844	4,808	5,357	6,621	48	125	125	1,444	1,692	2,211
New England	26	47	47	218	215	322	0	0	0	21	31	38
Middle Atlantic	120	678	458	796	816	966	0	0	0	155	173	269
East North Central	1,147	342	342	1,439	1,576	2,148	9	35	25	158	379	379
West North Central	868	270	87	519	680	854	30	29	34	124	108	166
South Atlantic	348	78	83	629	790	839	0	9	4	297	273	359
East South Central	78	39	57	474	456	456	2	1	7	222	179	233
West South Central	76	65	20	186	181	212	3	14	9	339	385	385
Mountain	71	139	53	172	202	271	2	27	38	79	72	138
Pacific	125	186	109	375	441	512	2	10	19	49	92	92

[1] 48 States. Nevada is excluded and the District of Columbia is counted as a State in these reports.
[2] 44 States and New York City.
[3] 47 States. Mississippi is not included.

DISEASES BELOW MEDIAN PREVALENCE

Diphtheria.—For the 4 weeks ended October 5 there were 1,316 cases of diphtheria reported, as compared with 2,296, 3,309, and 2,849 cases for the corresponding period in 1939, 1938, and 1937, respectively. The incidence for the country as a whole and for each geographic region, except the Mountain and Pacific, was the lowest on record for this period.

Meningococcus meningitis.—The incidence of meningococcus meningitis was slightly above the incidence for the corresponding period in 1939, but the number of cases (107) was only about 50 percent of the 1935–39 median figure for this period. The New England region reported a slightly higher incidence than might be expected, the West North Central, West South Central, and Pacific regions about the average seasonal incidence, while in other regions the incidence was relatively low.

Scarlet fever.—All geographic regions showed an increase in scarlet fever during the 4-week period ended October 5. The increase amounted to about 90 percent over the preceding 4-week period. The number of cases (4,808), however, was only about 90 percent of the number recorded for the corresponding period in 1939 and less than 75 percent of the 1935–39 median incidence. All regions shared in the lower incidence except the East South Central, where a slight increase over the seasonal expectancy occurred.

Smallpox.—The incidence of smallpox was the lowest recorded for this period in the 12 years for which these data are available. Reported cases numbered 48, as compared with 125, 157, and 232 for the corresponding period in 1939, 1938, and 1937, respectively. The situation was favorable in all sections of the country.

Typhoid fever.—Reports indicate that typhoid fever was less prevalent than at the same time last year and the number of cases (1,444) reported for the 4 weeks ended October 5 was only about 70 percent of the 1935–39 median incidence for this period. All sections of the country shared in the favorable situation of the disease that now exists. The incidence reported for the country as a whole, as well as for some geographic regions, was the lowest on record for this period.

MORTALITY, ALL CAUSES

The average mortality rate from all causes in large cities for the 4 weeks ended October 5, based on data received from the Bureau of the Census, was 10.6 per 1,000 inhabitants (annual basis). The rate for the corresponding period in 1939 was also 10.6 and the average rate in the years 1935–39 was 10.3.

AN INSTITUTIONAL OUTBREAK OF PNEUMONITIS [1]

I. EPIDEMIOLOGICAL AND CLINICAL STUDIES

By J. W. HORNIBROOK, *Passed Assistant Surgeon*, and K. R. NELSON, *Surgeon*, *United States Public Health Service*

During the spring of 1940, 15 cases of pneumonitis occurred among the 153 employees in one building of the National Institute of Health in Washington, D. C. These 15 cases all showed a pneumonic shadow or shadows on roentgenograms. In addition to these cases, there were a few others of a somewhat similar but milder type which either gave negative X-ray findings or on which roentgenograms were not obtained.

EPIDEMIOLOGICAL DATA

Table 1 shows certain epidemiological data regarding these 15 cases. It is noted that onset of two of them occurred at the end of March. After an 11-day period cases appeared at intervals of 2 to 3 days throughout April. The next case developed 12 days later and the last case 6 days following this. Not much significance can be attached to the absence of cases between March 27 and April 11 because other illnesses developed in this period which, since they were not too similar clinically, especially in regard to severity, were not examined by X-ray. However, beginning about the middle of April, with the accumulation of clinical experience with the disease, all cases of illness which might reasonably be expected to belong to the group were examined by X-ray. The absence of recorded onsets between April 29 and May 11, and between May 11 and May 17, may, therefore, be taken as a real absence of new cases in these periods.

If it is assumed that the disease was spread by contact and that there were no inapparent infections, a long incubation period is suggested by these facts. On the other hand, if the infection was a place infection it would appear that its sources, or the agents responsible for its transfer, diminished rapidly in numbers beginning late in April, or that the number of persons susceptible was becoming exhausted in this period.

The Washington laboratories of the National Institute of Health comprise three buildings, the North, Central, and South, with a total of 233 persons, 25 of whom are employed in the North Building, 55 in the Central Building, and 153 in the South Building. No cases occurred in the North or Central Buildings which are occupied by the Divisions of Chemistry and of Pharmacology. Similarly, no proved cases occurred in the personnel of that part of the Institute located in Bethesda, Md., though there was daily contact between some employees of the two branches. All of the proved cases of pneumonitis occurred in the South Building which houses the Divisions of Biologics Control, Infectious Diseases, Pathology, and Zoology.

[1] From the Division of Infectious Diseases, National Institute of Health.

TABLE 1.—*Data on 15 patients with pneumonitis*

Cases	Sex	Age	Duties	Date of onset, 1940	Kind of animal handled	Where lunch obtained	Where lunch eaten
E. M.	M	49	Laboratory Assistant	Mar. 27	Rats, guinea pigs, rabbits	Media room	Media room.
H. D.	M	40	Cleaner	Mar. 31	Feeds all animals	do	Locker room.
C. P.	M	25	do	Apr. 11	do	do	Do.
L. B.	M	50	Control of arsenicals	Apr. 12	Rats, guinea pigs, rabbits	Home, occasionally media room	Own room, occasionally media room.
I. N.	M	34	Laboratory Assistant	Apr. 13	Mice, cotton rats, rabbits, monkeys	Media room	Media room.
T. P.	M	45	Control of arsenicals	Apr. 15	Rats, guinea pigs, rabbits	Home	Own room.
R. R.	M	40	Laboratory Assistant	Apr. 17	None	Media room	Media room.
A. M.	M	59	Incinerator	do	All animals (dead)	do	Locker room.
B. P.	M	33	Chemist	Apr. 18	None	do	Own room.
C. A.	M	53	Research, virus diseases	Apr. 19	Mice, cotton rats, rabbits, monkeys	Home	Do.
R. P.	F	51	Laboratory Assistant	Apr. 22	Mice	do	Own room; outside.
E. T.	M	50	Chemist	Apr. 25	None	do	Own room.
C. L.	M	31	Research, Weil's disease	Apr. 29	Rabbits, guinea pigs, cats, ferrets	Media room	Group lunchroom (about 18 persons).
W. P.	M	30	Laboratory Assistant	May 11	Guinea pigs	Media room and home	Own room, media room.
J. F.	M	40	Dishwasher (glassware)	May 17	None	Home	Locker room.

The distribution of personnel and of cases, by floors, was as follows:

Basement	34 employees	4 cases.
First floor	39 employees	0 cases.
Second floor	41 employees	4 cases.
Third floor	39 employees	7 cases.

Figure 1 shows a plan of the South Building giving the approximate location where each of the patients was primarily engaged. It will be observed that the infection was fairly widespread throughout the building, though the entire first floor and the east wing of the second floor were not involved. Seven rooms on the first floor are used as administrative offices, and nearly one-half of this floor is occupied by the Division of Zoology; the remainder of this floor is given over to laboratory work on infectious diseases and in biologics control.

It should be noted that patients H. D. and C. P., who are indicated as basement employees, spend nearly all their time cleaning and sweeping throughout the building and cleaning animal cages. Patient A. M. operated the incinerator and came into contact with all the floor sweepings, wastepaper basket contents, and cage cleanings from the entire building. Patient J. F. spent his entire time in the basement cleaning room where all used glassware is sent for cleaning, wrapping, and sterilization. All glassware contaminated with infectious matter is sterilized prior to delivery to the glass-washing room; thus, all cases had duties on the second or third floors or came in contact with materials recently recovered from those floors. In general, all employees move freely about the building.

In view of the identity of the infectious agent responsible for these cases (to be discussed in the following paper), it should be noted here that no case of the disease was recognized in any employee in the wing of the building (fig. 1, rickettsial diseases) where work with this agent has been in progress since the spring of 1938.

The employees consume their noon-day lunch at various places in the building; some bring prepared lunches, others purchase sandwiches and other food prepared, in part, in the media room. A careful study showed no correlation between sources of food or places of consumption and development of the disease, nor was there any reason to believe that the water supply was implicated in any manner.

The age and sex of each of the 15 cases is given in table 1. Since the exposed group is composed entirely of adults, the age distribution is necessarily limited. All except one of the cases are males; however, since only 13 of the 27 females in this building are employed on the floors on which cases developed, and 101 of the 126 males are employed on those floors, it is thought that the unequal sex distribution is not significant.

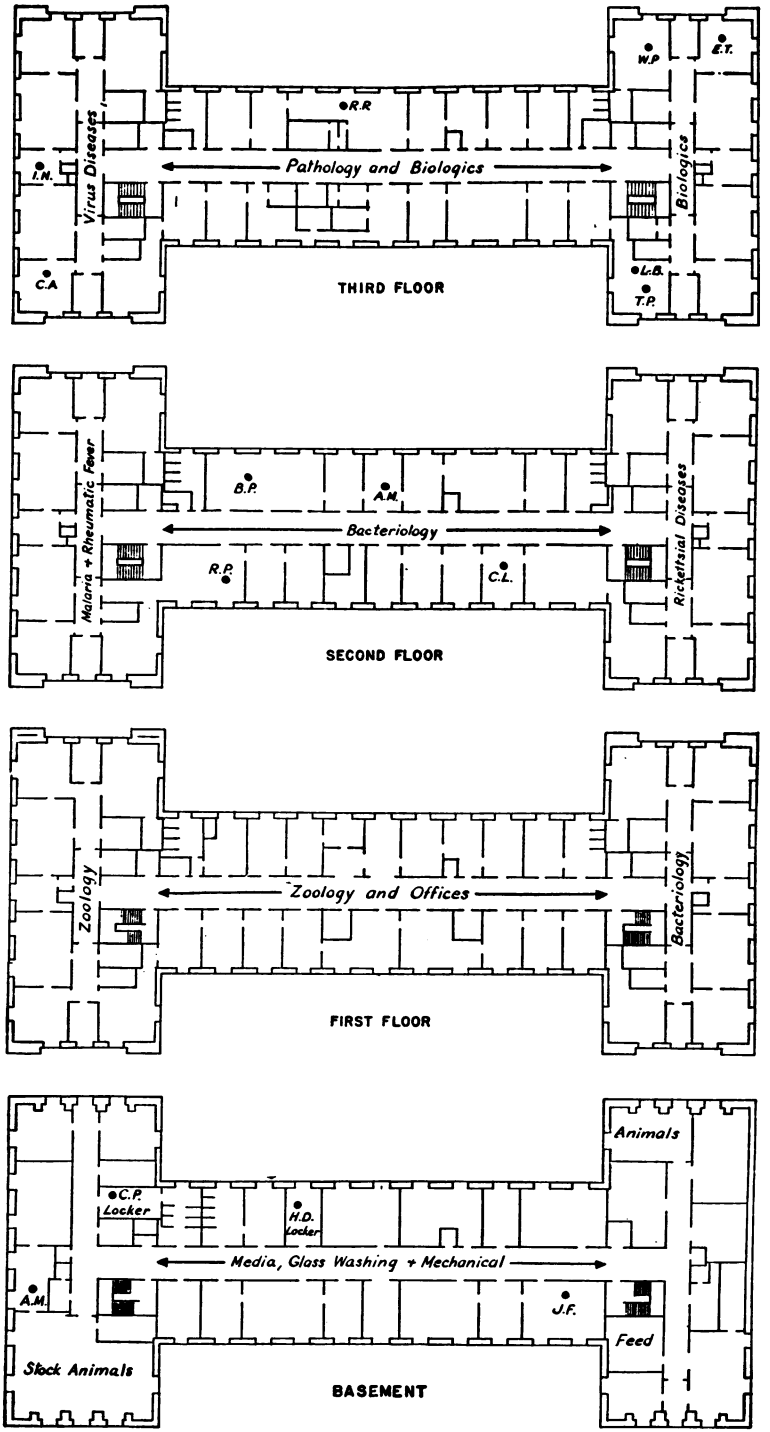


FIGURE 1.—Floor plan of building.

An inquiry revealed no secondary cases in the families of those having had the disease. In all there were 44 such family contacts, including both children and adults. Similarly, no cases occurred in the hospitals where the patients were treated, nor were there recognized cases among the physicians who saw the patients in their homes.

The animals used for experimental work in the South Building are procured from two general sources. Some are purchased from various dealers; these, for the most part, are kept in stock in the North Building. The remainder come from the breeding stock at Bethesda, Md. From these two stock colonies they are delivered to the South Building as needed. Although, as will be noted from table 1, 4 of the cases did not come into intimate contact with laboratory animals, the distribution of animals throughout the building is such that this source of infection cannot be ruled out. It should be mentioned that in the various activities in this building a wide variety of animals is used, including the usual laboratory animals and many wild species, particularly rodents.

The possibility of arthropod transmission was carefully investigated but no suggestive evidence was obtained.

The entire building, with the exception of the two stairwells, is swept between 7 and 8:30 a. m. daily; each floor is mopped with an antiseptic twice weekly. The stairwells are swept and mopped later in the day. The sweeping is done without the use of a dust-settling compound, and it is not unlikely that floor dust may be circulating in the air when the majority of the workers arrive at 8:30 a. m.

The occurrence of 15 cases of pneumonitis among the 153 persons in the South Building during a period of 54 days suggests very strongly that some source of infection existed within that building. Particularly is this true since the 80 persons working in the other two nearby buildings escaped the infection, even though many of them were engaged in similar duties. At the same time, consideration of the duties and habits of those persons who became ill fails to give any clear epidemiological evidence as to the source or type of the infecting agent. The duties of the afflicted individuals varied just as widely as did the duties of those who did not become ill. Animals were handled by 11 of the cases but no single species was used by all. Except for one employee who worked in the basement glass-washing room, all cases could have inhaled floor dust from the second or third floors. The fact that no cases occurred on the first floor but that 4 occurred on the second and 7 on the third floors might be suggestive of air currents and rising dust as a source of infection, especially since the number of persons per floor is about equal.

The epidemiological data which have been presented give very little helpful evidence as to the reservoir of the infecting agent, or the

means by which it spread to persons widely separated and having such varied duties.

CLINICAL DATA

The clinical data to be discussed were collected from the 11 hospitalized cases. The remaining 4 cases treated at home were similar, though not so completely observed.

Onset.—The onset in all the cases was fairly sudden, though usually not severe. Two types of onset predominated, one coryza-like, the other with headache, chilly sensations, and general malaise. There was a latent period of about 3 days following the onset in which the patient continued to work while feeling ill. One case had a dramatic onset, with abdominal cramps, chills, fever, and headache while at work.

Severe and persistent headache was an outstanding symptom developing during the latent period. Other complaints upon admission to the hospital were chills, fever, sweats, and generalized body aches and pains. Three cases had had some nausea and vomiting earlier. Several of the patients developed a short hacking cough, in only a few patients productive, with a small amount of thick, tenacious type of white mucus. In none of the cases was there observed a "prune-juice," "rusty," or blood-tinged sputum.

Approximately half of the patients developed vague chest pains in the substernal region or on the side of their demonstrated lung lesion. The chest pain had more of a neuralgic character than that of pleurisy as it was not associated with respiration. All of the patients complained of insomnia.

Physical findings.—Abnormal findings on physical examination were practically negligible at the time of hospitalization of these patients. This seemed unusual since the illness had been present for several days and the patients were moderately toxic with relatively high fevers on admission. In fact, this absence of physical findings came to be considered one of the characteristics of the disease.

The respirations were quiet and averaged about 23 to the minute. None of the patients appeared to be having any respiratory difficulty. In no case were there any of the obvious indications of pneumonia, i. e., dyspnea, inspiratory dilatation of the alae nasi, inspiratory respiratory grunt, herpes labialis, or cough with rusty or blood-streaked sputum. One case had a mild cyanosis but no evidence of respiratory difficulty.

The pulse was full and of good quality. On admission the average pulse rate was 99 beats and the average temperature was 102.4° F. (100.5° F.–104.5° F.). The pulse rate was low in proportion to the fever and did not always run parallel to the temperature curve. One patient entered with a pulse rate of 88 and a temperature of 103.4° F.

A summary of the clinical findings, including those on the 4 non-hospitalized patients, will be found in table 2, while abstracts of the X-ray reports and physical signs are presented in the Appendix.

The roentgen ray examination of the chest gave the most typical and consistent evidence of pulmonary lesions. A soft, infiltrative lesion, single or multiple, was visible on the films, but was not of the uniform density as seen in lobar pneumonia. These lesions appeared to be more of the patchy type as seen in bronchopneumonia. The right lower lobe was involved in 5 cases; there were only 2 cases that had more than one lobe involved. The roentgenologist reported the films as showing early pneumonia or pneumonitis.

The physical signs of lung involvement were minimal. A slight dullness to the percussion note, a slight increase in breath sounds of a broncho-vesicular character, and an occasional sticky rale over the involved area were the most that usually could be elicited. It is doubtful if many of these cases would have been seriously considered to have had a pneumonic process without roentgen ray examination.

Routine laboratory examination revealed but little of interest. Urinalysis showed a trace to 2 plus albumin in most cases. Two cases had a few hyaline casts. The red cell counts and hemoglobin determinations were within normal limits with the exception of 1 case showing a mild secondary anemia. This patient had been given sulfapyridine before admission. The total white cell count was within normal limits in all except 3 cases, 2 of which had a moderate elevation but in both there was evidence of a concomitant sinusitis; in the third case there was an unexplained reduction in the total white cells. The differential count in all cases showed more than 70 percent neutrophils. Blood cultures were taken on one or more occasions on 9 of the cases and in each was reported as bacteriologically negative. Agglutination tests, using *B. typhosus*, Para A, Para B, *B. abortus*, *B. proteus* OX 19, and *B. tularense* as antigens, were performed on the serum from 7 of the patients and in each instance were reported as negative.

No typical pneumococci were found in the examinations made upon the sputum from 9 of the cases. Mice were injected with sputum from 2 cases and reported negative for pneumococci. Fusiform bacilli, nonhemolytic streptococci, staphylococci, and scattered encapsulated diplococci were the organisms reported.

The usual supportive hospital treatment was followed in all the cases. In addition, sulfapyridine was given the more toxic cases but it is not believed that the drug exerted any marked effect upon the course of the disease. In any event, the fever did not show the prompt and marked recession usually noted after its administration in pneumonia.

TABLE 2.—*Clinical data on 15 patients*

Cases	Race	Date onset, 1940	Date stopped work, 1940	On admission			Total duration fever, days	Date defervescence, 1940	Symptoms at onset	Cough	Expectoration	X-ray
				Temperature, ° F.	Pulse	Respiration						
E. M.	W	Mar. 27	Mar. 27	104.5	110	26	10	Apr. 6	Abdominal pain; malaise	−	−	Pneumonitis.
H. D.	C	Mar. 31	Apr. 20	101.0	90	20	11	Apr. 13	Headache	+	+	Early pneumonia.
C. P.	W	Apr. 11	Apr. 14	104.4	110	26	13	Apr. 25	Cold	+	−	Pneumonitis.
L. B.	W	Apr. 12	Apr. 13	103.4	88	28	13	Apr. 25	Headache, chill	+	−	Early pneumonia.
T. P.	W	Apr. 15	Apr. 16	104.2	120	28	12	Apr. 27	Headache	+	−	Do.
A. M.	W	Apr. 17	Apr. 20	102.0	100	20	5+	Died Apr. 25	Cold	−	−	Pneumonitis.
B. P.	W	Apr. 18	Apr. 18				7	Apr. 25	Chill, headache	−	−	Do.
C. A.	W	Apr. 19	Apr. 19				8	Apr. 27	Headache, malaise	−	−	Consolidation.
I. N.	W	Apr. 13	Apr. 20	102.5	116	24	9	Apr. 29	Cold	+	+	Early pneumonia.
R. R.	W	Apr. 17	..do	101.2	100	20	15	May 1	Headache	−	−	Do.
E. T.	W	Apr. 25	Apr. 25				8	May 3	Chills, malaise	+	−	Questionable.
R. P.	W	Apr. 22	Apr. 27	100.5	90	20	11	May 8	Headache, malaise	++	+	Pneumonic consolidation.
C. L.	W	Apr. 29	Apr. 29				2	May 1	Headache, chills	+	−	Slight pneumonitis.
W. P.	W	May 11	May 13	101.6	88	24	5	May 18	Headache	−	−	Early pneumonia.
J. F.	C	May 17	May 17	102.4	90	22	5+	June 4	Cold	−	−	Pneumonitis.

NOTE.—All males except case R. P.

Other than the one death in the series, there were no serious complications. Three cases developed some meningismus, and in one it was so severe that a diagnostic lumbar puncture was performed and the fluid found to be normal and under normal pressure; the laboratory findings were all within normal limits.

In the one fatal case, an autopsy was performed and a complete histological study was made by Passed Assistant Surgeon T. L. Perrin of the Division of Pathology who will make a detailed report later. In summary of his findings, it may be stated that they are evidently identical with those reported by Kneeland (*7*) and Longcope (*8*).

Appendix

Summary of physical signs and X-ray findings of hospitalized patients:

E. M.—Some shading of the percussion note left lung, most marked at base. Broncho-vesicular breathing. Occasional rales. X-ray: Indistinct shadow. Increased density lower left lung. Pneumonitis.

H. D.—Slight shading to the percussion note at angle right scapula. Broncho-vesicular breathing. Occasional rales. X-ray: Area of increased density below right lung root level. Impression: Pneumonia or pneumonitis.

C. P.—Essentially negative. Few fine rales. Broncho-vesicular breathing over mid-portion left lung posteriorly. X-ray: Pneumonitis left chest from 4th rib to apex.

L. B.—Slight dullness at angle of scapula. Broncho-vesicular breathing and scattered rales. X-ray: Density extending outward and downward from right lung root area. Impression: Pneumonia or pneumonitis.

T. P.—No dullness. Breath sounds normal. Occasional rale at left hilus. X-ray: Area of slightly increased density at right base, extending upward and inward toward lung root. Impression: Pneumonia or pneumonitis.

A. M.—Slight dullness of right base posteriorly. Broncho-vesicular breathing. Few fine rales. X-ray: Pneumonitis, right lower chest; slight pneumonitis left lower chest.

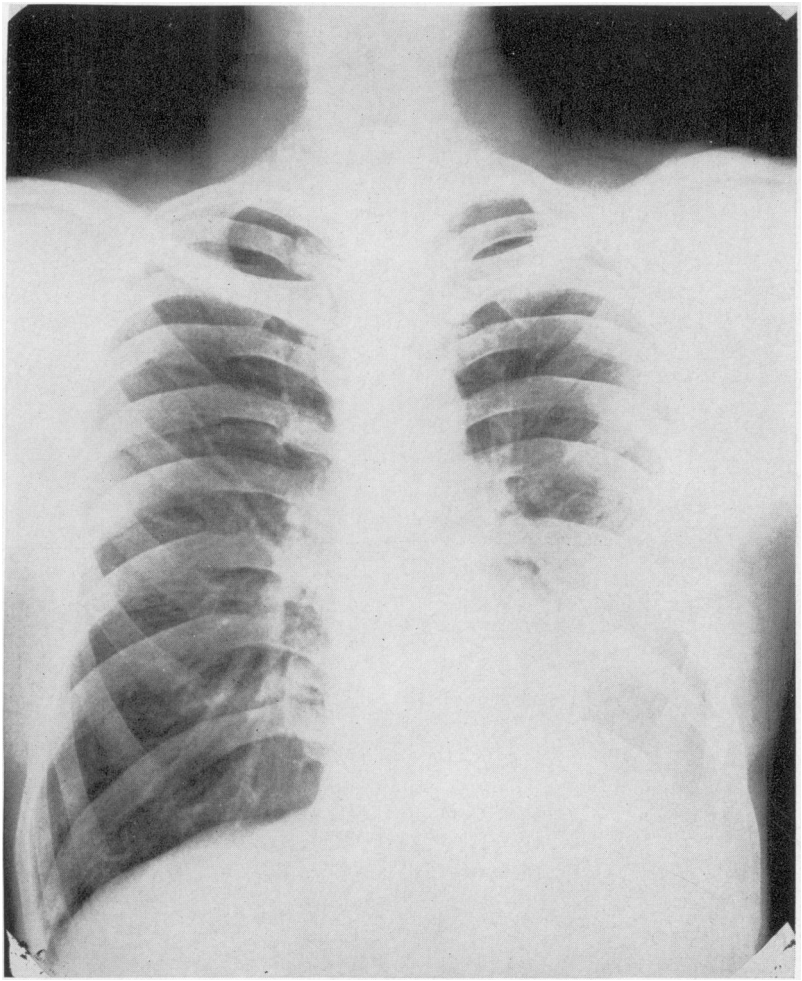
I. N.—No dullness. Broncho-vesicular breathing, right upper lobe. No rales. X-ray: Slight area infiltration at lower outer margin right upper lobe. Impression: Pneumonia.

R. R.—Broncho-vesicular breath sounds and few sticky rales at right base and left scapular angle. X-ray: Suggestive area of infiltration in upper portion lower left lobe. Impression: Pneumonia.

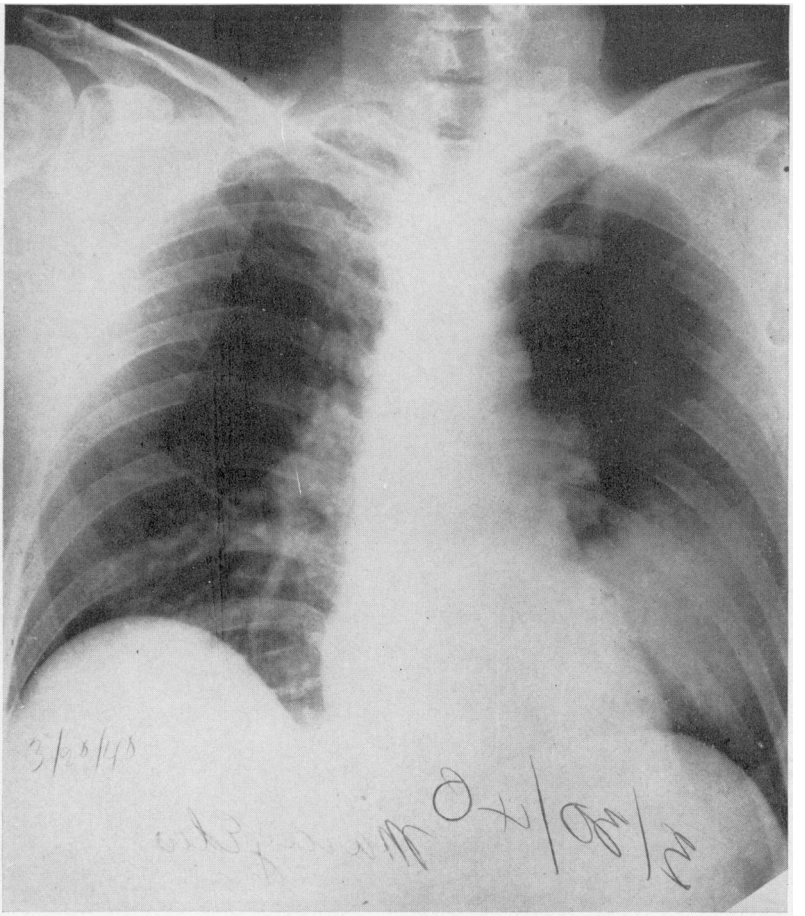
R. P.—No dullness; harsh breath sounds at right base and left hilus areas. Sticky rales in both bases. X-ray: Atypical infiltration involving upper left lung below shadow of clavicle. Early pneumonia.

W. P.—No dullness; breath sounds normal. Occasional rale at left hilus. X-ray: Small area of increased density on level with left lung root, occupying middle and outer portion of lung field. Impression: Pneumonia.

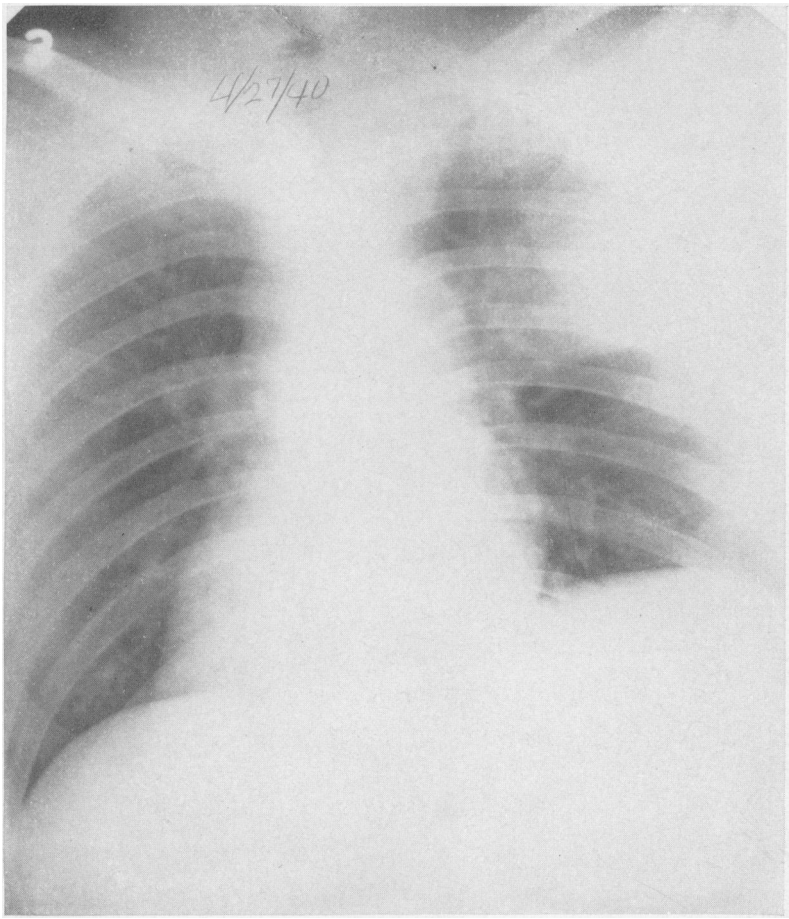
J. F.—Increased fremitus, dullness to flatness on percussion, few bronchial and crepitant rales, increased voice and breath sounds over entire lower lobe on the right side and lower portion of middle lobe anteriorly. X-ray: There is moderate pneumonitis of middle and lower portion of right chest and well-marked dilation of thoracic aorta.



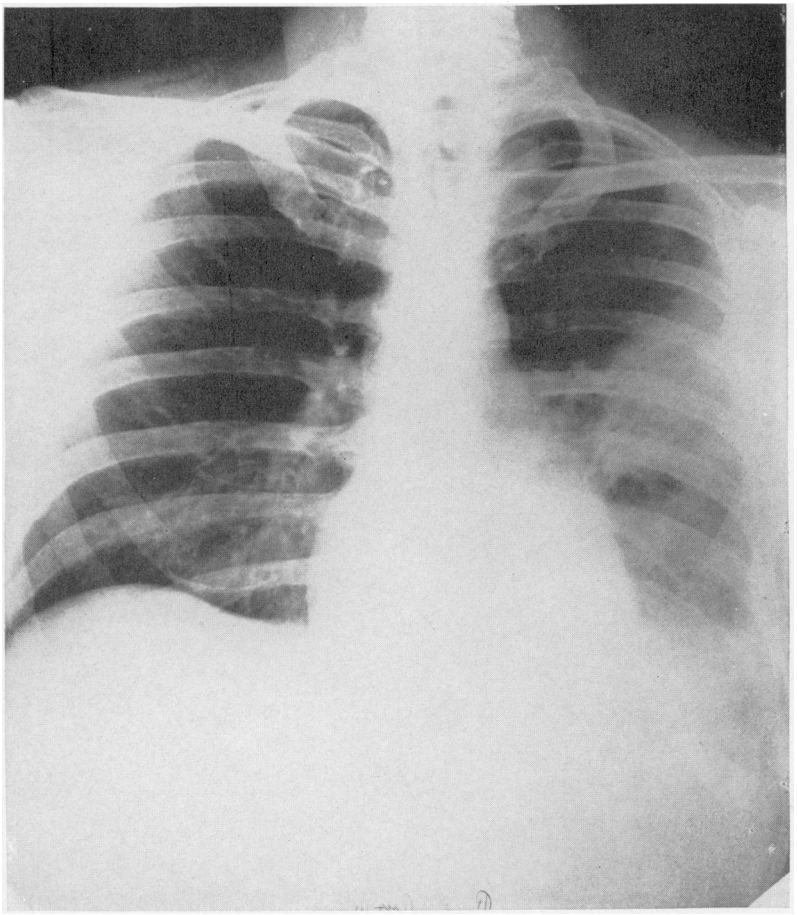
Case C. A.



Case E. M.



Case I. N.



Case R. R.

II. ISOLATION AND IDENTIFICATION OF CAUSATIVE AGENT

By R. E. Dyer, *Senior Surgeon*, N. H. Topping, *Passed Assistant Surgeon*, and I. A. Bengtson, *Senior Bacteriologist, United States Public Health Service*

Hornibrook and Nelson have described, in the preceding paper, the epidemiology and the clinical characteristics of an outbreak of pneumonitis which occurred among employees of the National Institute of Health in the spring of 1940. This illness was characterized by a central pneumonia which would have been unrecognized in the absence of X-ray examination of the chest.

The clinical course and the findings in these cases were consistent with each other. The central pneumonia observed in the roentgenogram, coupled with a paucity of physical findings on the examination of the chest, led us immediately to compare these cases with similar reports in the literature. During the past several years there have been many reports of comparable cases. Bowen (*1*) reported cases similar to ours, occurring in troops stationed in Hawaii between the years 1931–34. Allen (*2*) reported 68 cases of "acute pneumonitis" at Fort Sam Houston, Tex., in 1935 among 2,081 cases of respiratory disease. Bock (*3*), in a review of the experience with respiratory disease at Stillman Infirmary at Harvard University from September 1935, to March 1938, had 1,667 cases of which 52 were pneumonia. There were only 4 in the group attributable to a type-specific pneumococcus. The author states, "The great majority of the cases we believe represent a virus pneumonia * * *. As a rule the first evidence of the presence of a pneumonic process was obtained by roentgen-ray examination on the fourth or fifth day after admission." Reimann (*4*) reported 8 cases of "atypical pneumonia" occurring in 1938 from the Jefferson Medical College and Hospital. These cases were apparently more severe than the others referred to and certainly more so than ours. Smiley et al. (*5*) reported 86 cases of "acute interstitial pneumonitis" as being treated in the Cornell University Hospital between October 1937, and January 24, 1939. They describe this disease as follows: "It was apparently a new acute disease of the respiratory tract having as its cardinal feature specific lesions in the lungs inaudible to the stethoscope but definite in the roentgenogram of the chest." They further state, "Though this is apparently a new disease in this area, it is probably identical with the 'acute influenza pneumonitis' described by Bowen, the 'acute pneumonitis' described by Allen and the 'atypical pneumonia' of Reimann." Murray (*6*), in April 1940, reported a further collection of cases at the Stillman Infirmary at Harvard University. During the fall and winter of 1938–39 there were 81 cases of what Murray termed "atypical bronchopneumonia." Even more recently Kneeland and Smentana (*7*) reported 52 cases of "atypical bronchopneumonia" from the Presby-

terian Hospital in New York City during the past two years, while Longcope (*8*) in the same journal reported 32 cases of "bronchopneumonia of unknown etiology (variety X)," observed at the Johns Hopkins Hospital.

It seems from these reports that there is a disease or diseases widespread in geographical distribution which conform clinically to the disease which appeared here in 1940. The etiological agent in our outbreak has been isolated and identified but it is a matter of conjecture whether or not these other cases may have had a similar etiology.

As this epidemic progressed, the clinical and epidemiological behavior of the disease made it appear likely that it was due to a specific infectious agent. Various procedures were, therefore, employed in an effort to isolate and identify this agent. Routine serological studies were negative throughout as were attempts to isolate an organism through the employment of the usual bacteriological procedures. Animal inoculations were carried out by various members of the staff on a variety of species of laboratory animals. To this end whole blood, nose and throat washings were obtained from a number of the patients during the early stages of illness. Material obtained at autopsy of the single fatal case was also used for inoculation.

The principal collaborators in this work were Armstrong, Oliphant, and Haas, who, using mice, ferrets, monkeys, and chicken embryos, directed their efforts toward isolating or ruling out the viruses of lymphocytic choriomeningitis, influenza, and psittacosis, while having the hope of picking up any other virus to which these animals were susceptible.

It is the purpose of this communication to describe the isolation of a rickettsia from three of these epidemic cases and to give the details of the evidence which demonstrates its identity with the rickettsia previously isolated from cases of "Q" fever (*9–16*).

ISOLATION OF STRAINS

From attempts on 4 separate cases, 3 isolations were made.

1. *"A" strain.*—Blood was drawn from C. A. on the day of onset, April 19, 1940, and about 4 cc. of whole blood were inoculated intraperitoneally into each of 2 guinea pigs. After an 11-day incubation period both of these guinea pigs had an elevation of temperature. After 2 or 3 days of fever heart blood from each animal was passed to 4 more guinea pigs, thus establishing two lines of the infectious agent. One of these lines was dropped after passage through 4 generations of guinea pigs. The other line of this strain was studied through 17 serial passages before it was discontinued.

2. *"P" strain.*—Blood was drawn from C. P. on April 19, 1940, the eighth day of fever, and about 3.5 cc. of whole blood were immediately inoculated intraperitoneally into each of 2 guinea pigs. After 3 and 9 days, respectively, each of these guinea pigs had an elevation of temperature. From the animal with the 9-day incubation period a strain was started and passed through 3 generations of

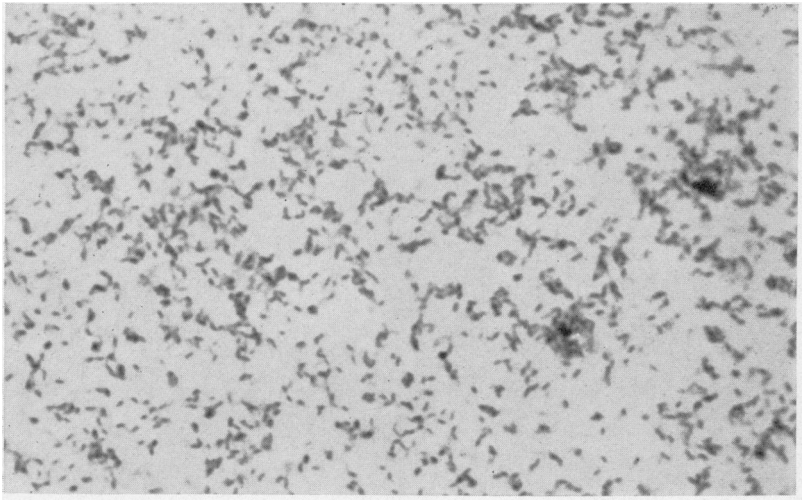


FIGURE 1.—Rickettsiae of the X strain of "Q" fever. Machiavello stain, × 2,000.

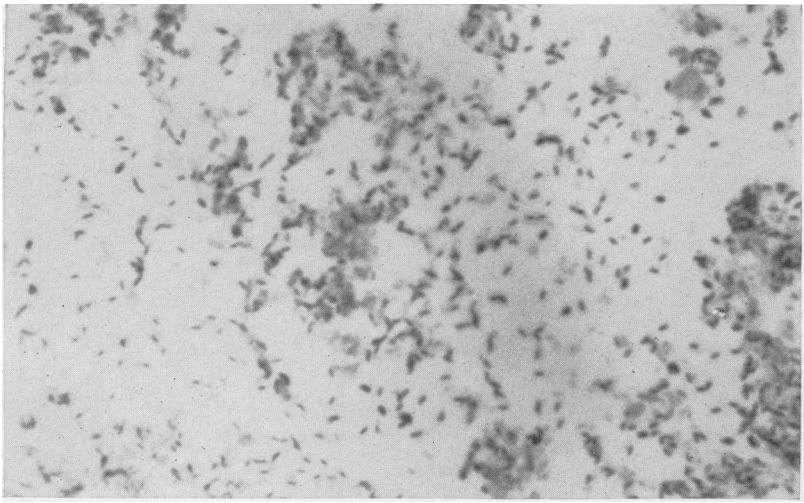


FIGURE 2.—Rickettsiae of the A strain from recovered case C. A. Machiavello stain, × 2,000.

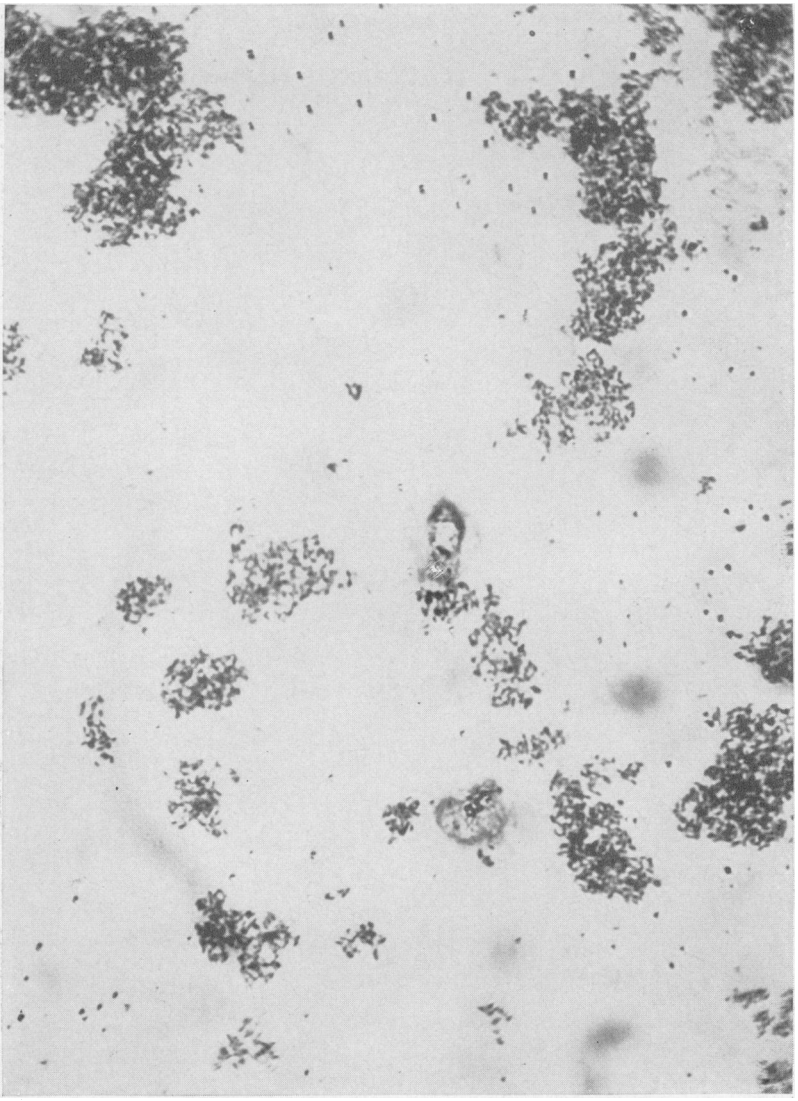


FIGURE 3.—Agglutinated rickettsiae. Immune guinea pig serum + X strain rickettsiae. Machiavello stain, × 1,500.

guinea pigs after which it was discontinued. The other line of this strain was studied through 16 passages before it was discontinued.

3. *"M" strain.*—At the autopsy of A. M. on April 26, 1940, a small piece of spleen was removed, macerated in sterile saline, and 3 cc. of the suspension was inoculated into each of 2 guinea pigs. After a 7-day incubation period both guinea pigs had an elevation of temperature. From each of them a line of the third strain of the infectious agent was started. One line was passed through 3 generations of guinea pigs and then dropped. The other line of this strain has been passed through more than 20 serial passages in guinea pigs and this strain is being carried routinely in this laboratory as the type strain.

During the first transfer of the "P" strain it was noticed that the gross pathology closely resembled that described (*11*, *14*) and observed here in guinea pigs for American "Q" fever. As the other strains were isolated the same gross pathological changes in the guinea pigs were noted.

DEMONSTRATION OF RICKETTSIAE

Mice were inoculated intraperitoneally with 0.5 cc. each of defibrinated blood from an infected guinea pig of the first passage of the "A" strain. The spleens of these mice all contained a few typical "Q" fever rickettsiae, recorded as +. A second passage in mice yielded rickettsiae recorded as ++ and +++ in the spleens, and + and ++ in the livers of all 6 mice inoculated. Titrations of the mouse spleen in guinea pigs showed infection resulting from the 1×10^{-8} and possibly 1×10^{-9} dilutions. The animal receiving the 1×10^{-2} dilution was used for pathological examination; those inoculated with dilutions 1×10^{-3} to 1×10^{-6} ran temperatures typical of "Q" fever. Of these, the ones inoculated with dilutions 1×10^{-3} and 1×10^{-6} succumbed before being tested for immunity. Those inoculated with dilutions 1×10^{-4} to 1×10^{-7} were immune to the "Q" virus. Results with the animal inoculated with the 1×10^{-9} dilution were equivocal as a slight elevation of temperature occurred both at the time of the original inoculation and also when the immunity test was made. Similar results were secured with the "M" strain.

CROSS-IMMUNITY TESTS

Cross-immunity tests were performed in order to determine the identity of the three strains isolated from the cases of pneumonitis.

Figure 4 illustrates the fact that these three strains give cross-immunity to each other and figure 5 that they give cross-immunity to both a strain of American "Q" fever previously reported from this laboratory under the designation of "Strain X" (*14*) and to a strain of Australian "Q" fever received from Burnet (*17*).

PROTECTION TESTS WITH IMMUNE ANIMAL SERA

Hyperimmune sera were produced in guinea pigs and rabbits by repeated injections of phenolized rickettsiae of the "X" strain of "Q" fever, followed by the injection of living rickettsiae from heavily infected mouse or guinea pig spleen. Agglutinating titers of 1: 5,120 and 1: 10,240 were reached in some of the individual guinea pigs.

Amounts of hyperimmune sera varying from 0.01 to 0.5 cc. were mixed with 0.5 cc. amounts of sera from guinea pigs infected with the "M" strain and with the "X" strain of "Q" fever, taken on the second or third day of fever. The results obtained in four groups of protection tests against the two strains were

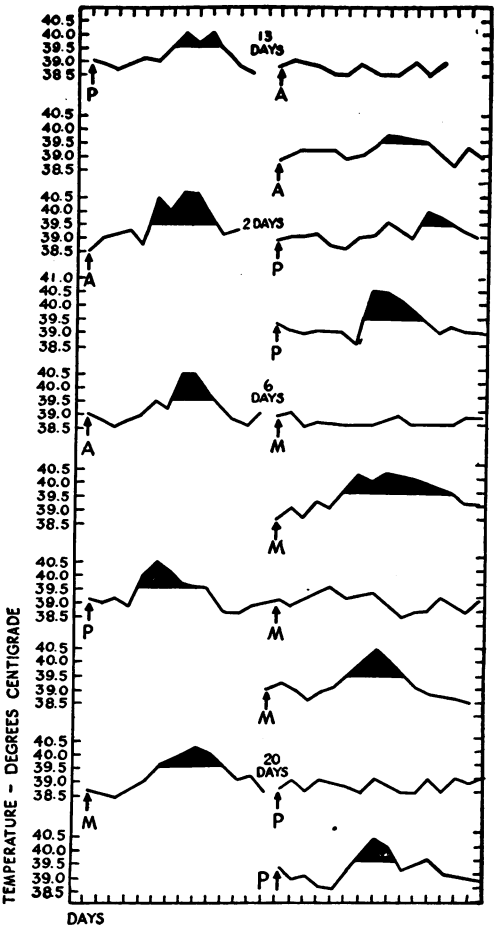


FIGURE 4.—Results of cross-immunity tests in guinea pigs between the three strains, A, P, and M. Arrows indicate inoculation with designated strain.

similar. In one test there was complete protection with all dilutions of the immune serum against both strains. The other three tests were less satisfactory but parallel results were obtained in all cases against the two viruses. The results of the first test are tabulated in the accompanying table.

TABLE 1.—*Protection test in guinea pigs with hyperimmune "Q" serum ("X" strain) against "M" strain virus*

Guinea pig number	Immune serum	Virus	Result	Guinea pig number	Immune serum	Virus	Result
	cc.	cc.			cc.	cc.	
838	0.01	0.5	Protection, no fever.	847	0.2	0.5	Protection, no fever.
839	.01	.5	Do.	848	.5	.5	Do.
840	.02	.5	Do.	849	.5	.5	Do.
841	.02	.5	Do.	850	0	.5	6 days of fever.
842	.05	.5	Do.	851	0	.5	2 days of fever.
843	.05	.5	1 day of fever.	852	0	.5	6 days of fever.
844	.1	.5	Protection, no fever.	853	0	.5	8 days of fever.
845	.1	.5	Do.				
846	.2	.5	Do.				

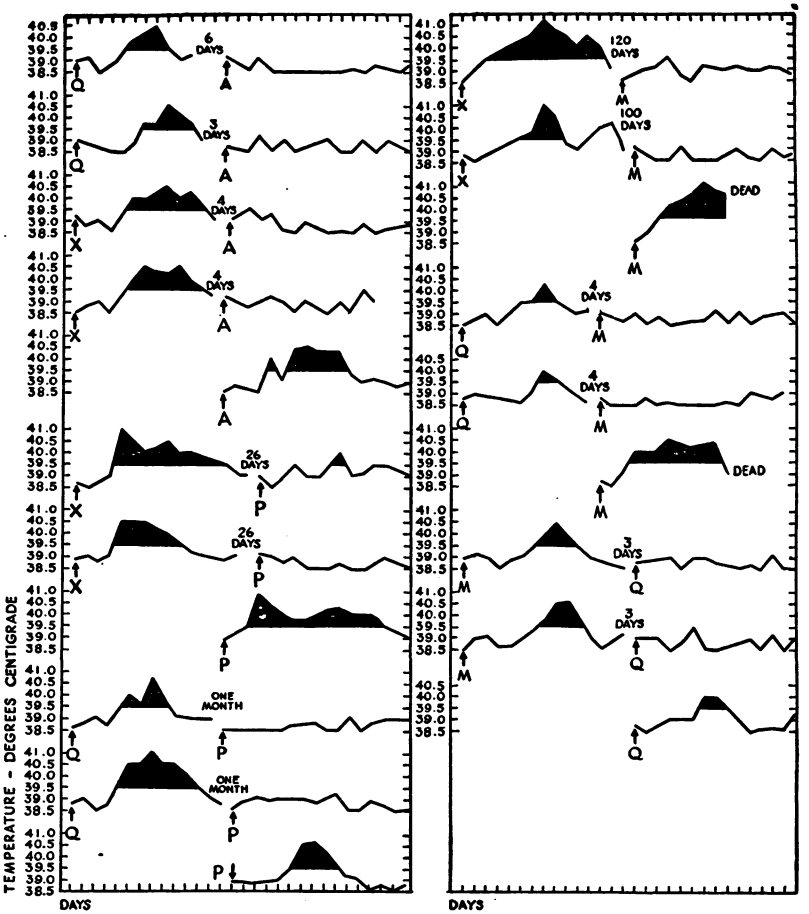


FIGURE 5.—Results of cross-immunity tests in guinea pigs between known "Q" fever strains (Q and X) and the A, P, and M strains.

VACCINE TESTS

Vaccines were prepared from the "X" strain of "Q" fever as follows.

Passage in mice was continued by the intraperitoneal inoculation of infected yolk sac or mouse spleen until rickettsiae were very numerous in the mouse spleens (+++). This was also done in guinea pigs. The heavily infected spleens were macerated and 10 percent suspensions in buffered salt solution (pH 7.0) prepared. The larger particles were precipitated by centrifugation at 1,000 r. p. m. for 5 minutes, followed by centrifugation of the supernatant fluid at 4,500 r. p. m. for 1 hour. The precipitated rickettsiae were resuspended in one-fourth the original volume of salt solution and then acidified to pH 5.0 with dilute glacial acetic acid. This precipitated further protein material. Phenol was added to a concentration of 0.4 percent and formalin to 0.1 percent. None of the guinea pigs inoculated with the vaccines developed febrile reactions, showing that the material was not infectious.

Guinea pigs received two inoculations of 1 cc. each of a 5-percent suspension of the vaccine, the interval between the two inoculations being 1 week.

Approximately 2 weeks after the last inoculation of vaccine, the vaccinated animals were inoculated with either guinea pig blood, virus, or infected yolk sac suspension. Parallel tests were carried out against both the "M" strain and the "X" strain of "Q" fever. Similar results were obtained with both strains. The results of one test are summarized in the accompanying table.

TABLE 2.—*Identification of "M" strain with the "X" strain of "Q" fever by vaccine tests*

Vaccine X 25144 (spleen). Immunity tested with yolk sac or guinea pig virus

Guinea pig number	Inoculations of vaccine	Virus	Result	Guinea pig number	Inoculations of vaccine	Virus	Result
		Yolk sac				*Yolk sac*	
786	2	$1x10^{-2}$ "X" strain	No fever.	945	0	$1x10^{-4}$ "M" strain	4 days fever.
787	2	do	Do.	946	0	$1x10^{-3}$ "M" strain	Do.
788	2	$1x10^{-2}$ "M" strain	1 day fever.	947	0	$1x10^{-2}$ "M" strain	5 days fever.
789	2	do	No fever.			*Guinea pig virus*	
932	0	$1x10^{-1}$ "X" strain	6 days fever.				
933	0	$1x10^{-2}$ "X" strain	8 days fever.	790	2	1 cc. "X" strain	No fever.
934	0	$1x10^{-7}$ "X" strain	1 day fever.	791	2	do	Do.
935	0	$1x10^{-6}$ "X" strain	5 days fever.	792	2	1 cc. "M" strain	Do.
936	0	$1x10^{-4}$ "X" strain	Died.	793	2	do	Do.
937	0	$1x10^{-4}$ "X" strain	6 days fever.	1002	0	1 cc. "X" strain	4 days fever.
938	0	$1x10^{-3}$ "X" strain	8 days fever.	1003	0	do	3 days fever.
939	0	$1x10^{-3}$ "X" strain	4 days fever.	1004	0	do	5 days fever.
940	0	$1x10^{-5}$ "M" strain	5 days fever.	1005	0	do	6 days fever.
941	0	$1x10^{-5}$ "M" strain	4 days fever.	1006	0	1 cc. "M" strain	5 days fever.
942	0	$1x10^{-7}$ "M" strain	3 days fever.	1007	0	do	4 days fever.
943	0	$1x10^{-6}$ "M" strain	Do.	1008	0	do	7 days fever.
944	0	$1x10^{-4}$ "M" strain	1 day fever.	1009	0	do	Do.

Since rickettsiae have been demostrated to be the etiological agent of "Q" fever, cross-immunity tests were performed with the "A," "P," and "M" strains against known strains of other rickettsial diseases. There was no cross-immunity demonstrated with either Rocky Mountain spotted fever or with endemic or epidemic typhus.

Armstrong, of this laboratory, in unpublished work, has similarly shown that there is no cross-immunity between the "M" strain and a strain of lymphocytic choriomeningitis. Oliphant has likewise demonstrated that there was no cross-immunity between Australian "Q" and psittacosis virus.

FILTRATION EXPERIMENTS

It has been reported that the rickettsiae of both the Australian and American varieties of "Q" fever can be passed through filters capable of holding back ordinary bacteria (*10, 11*). An experiment was designed to test the filterability of our "M" strain, and, at the same time, to compare it in this respect with a strain of Rocky Mountain spotted fever.

The spleen was removed from a guinea pig infected with Rocky Mountain spotted fever, macerated and suspended in saline. Two guinea pigs were each inoculated with 2 cc. of this suspension. The remainder was filtered through a Berkefeld "N" filter and 2 cc. of the filtrate were inoculated into each of two guinea pigs.

The filter was then washed by passing through it a large quantity of sterile saline. The same procedure was then followed only using a spleen suspension prepared from our "M" strain. Two guinea pigs were inoculated with the unfiltered suspension and two were inoculated with the filtrate. Again the filter was washed. An agar culture of *Staphylococcus aureus* was suspended in saline, broth was inoculated by adding 0.5 cc. of this suspension and then the remainder was passed through the filter. A second tube of broth was then inoculated with 0.5 cc. of the filtrate.

The results of these various filtrations were as follows: 1. The two guinea pigs inoculated with unfiltered virus of Rocky Mountain spotted fever each developed typical Rocky Mountain spotted fever; 2. The two guinea pigs inoculated with the filtrate of Rocky Mountain spotted fever failed to develop the infection; 3. The two guinea pigs inoculated with the unfiltered "M" virus developed the typical disease; 4. The two guinea pigs inoculated with the filtered "M" virus developed the typical disease; 5. There was a profuse growth of staphylococcus in the broth inoculated with the unfiltered suspension; and, 6. The broth inoculated with the filtrate of the staphylococcus suspension remained sterile.

From this experiment it is obvious that the "M" virus successfully passed through a Berkefeld "N" filter which completely held back *Staphylococcus aureus* as well as the rickettsiae of Rocky Mountain spotted fever.

PROTECTION TESTS AND AGGLUTINATION TESTS. RESULTS WITH SERA FROM CONVALESCENT CASES AND OTHER INDIVIDUALS

As in the isolation of any infectious agent from animals which were inoculated with material from human cases, the question arises as to whether or not the agent originated from the human case or was simply an accidentally encountered infection of the animal. The instances here reported, in which 6 guinea pigs inoculated with material from 3 similar human cases each developed the same disease, offer strong evidence that the guinea pig disease originated from the three cases of pneumonitis.

Further evidence that the infectious agent originated from these human cases was acquired by two separate techniques. Shortly after the appearance of the last case of pneumonitis, sera were collected from most of the staff of the affected building. Part of these sera were used in agglutination tests in which the rickettsiae from the "X" strain of "Q" fever and our "A" strain were used as antigens.

Suspensions of the rickettsiae of the "X" strain of "Q" fever and our "A" strain were prepared from heavily infected mouse spleens, the technique being that used in the preparation of the vaccines with the exception that merthiolate 1:10,000 was used as preservative instead of phenol and formalin. The suspensions were standardized to correspond to 300 parts per million of silica.

Small tubes were used for the tests and 0.1 cc. amounts of serum dilutions and antigens were employed. Incubation was at 45° C. for 5 hours. Readings were made immediately after removing from the water bath and on the following morning after standing at 4° C. overnight.

The macroscopic readings of the agglutination test recorded in table 3 ranged from a maximum of 2 to a minimum of 0.

The serums were obtained from all individuals between May 22 and June 1, 1940. These sera have been divided into three groups: (I) Proved and suspicious cases; (II) other individuals employed in the section of the building given over to the study of rickettsial diseases; and (III) individuals employed in other parts of the building.

TABLE 3.—*Results of agglutination test using sera from proved and suspicious cases and normal controls against the rickettsiae of the "X" strain of "Q" fever and our "A" strain*

Number of serum	"X" strain antigen					"A" strain antigen				
	1/10	1/20	1/40	1/80	1/160	1/10	1/20	1/40	1/80	1/160
Group I (proved cases):										
E. M.	1	2	2	2	1	2	2	2	1	1−
H. D.	2	2	2	2	2	2	2	2	2	1
C. P.	2	2	2	2	1	1	1	1	1−	0
L. B.	1	1	1	1−	0	2	2	2	1	1−
T. P.	1	2	2	2	1	1	1	1	1−	0
B. P.	0	0	0	0	0	0	0	0	0	0
C. A.	1	1−	1−	0	0	1	1	1−	0	0
I. N.	2	2	2	1	0	1	1	1	1−	0
R. R.	0	0	0	0	0	1	1−	0	0	0
E. T.	2	2	2	1	0	1	1	1−	0	0
W. P.	2	2	2	1	0	1	1	1−	1−	0
C. L.	0	0	0	0	0	0	0	0	0	0
A. M. (died).										
R. P. (not done).										
J. F. (not done).										
Suspicious cases:										
J. O.	0	0	0	0	0	0	0	0	0	0
C. B.	2	2	2	2	1	1	1	1	1−	0
Group II (controls in rickettsial unit):										
No. 2	1	1	1−	0	0	1	1	1−	0	0
No. 4	1−	0	0	0	0	1−	0	0	0	0
No. 5	1−	1−	0	0	0	0	0	0	0	0
No. 6	0	0	0	0	0	1−	0	0	0	0
No. 7	1	1−	0	0	0	1−	0	0	0	0
No. 12	1−	0	0	0	0	1−	0	0	0	0
No. 14	1−	1−	0	0	0	0	0	0	0	0
No. 19	0	0	0	0	0	1−	1−	0	0	0
No. 20	0	0	0	0	0	1−	1−	1−	0	0
No. 21	0	0	0	0	0	0	0	0	0	0
Group III (controls not in rickettsial unit):										
No. 8	0	0	0	0	0	0	0	0	0	0
No. 9	0	0	0	0	0	0	0	0	0	0
No. 10	0	0	0	0	0	0	0	0	0	0
No. 11	0	0	0	0	0	0	0	0	0	0
No. 13	1−	1−	1−	1−	0	0	0	0	0	0
No. 17	0	0	0	0	0	0	0	0	0	0
No. 18	0	0	0	0	0	0	0	0	0	0
No. 22	1	1	1	1−	0	1	2	2	1−	0
No. 23	0	0	0	0	0	0	0	0	0	0
No. 24	0	0	0	0	0	0	0	0	0	0
No. 25	0	0	0	0	0	0	0	0	0	0
No. 27	0	0	0	0	0	1−	0	0	0	0
No. 28	0	0	0	0	0	1−	0	0	0	0
No. 34	0	0	0	0	0	0	0	0	0	0
No. 35	0	0	0	0	0	0	0	0	0	0
No. 36	0	0	0	0	0	0	0	0	0	0
No. 37	0	0	0	0	0	0	0	0	0	0
No. 38	0	0	0	0	0	0	0	0	0	0
No. 41	0	0	0	0	0	0	0	0	0	0
No. 42	0	0	0	0	0	0	0	0	0	0
Immune sera										
Guinea pig						4	4	4	4	3
Rabbit	4	4	4	3	3					

Table 3 offers evidence that the majority of these cases developed agglutinins for "Q" fever rickettsiae. There is no explanation for the failure of cases B. P., R. R., and C. L. to develop agglutinins.

That the developed agglutinins were specific for the "Q" rickettsiae was demonstrated by using these same sera in a test identical except for the antigen which was the rickettsiae of typhus fever. There was no agglutination in the test although the control serum from a recovered typhus fever case agglutinated these rickettsiae well.

The control sera collected from presumably unaffected people throughout the building failed to show any consistent agglutination of the "Q" rickettsiae with the possible exception of the sera from those working in the rickettsial unit. One of these, No. 7, had an illness in 1938 and was the original source of the "X" strain of "Q" fever (*14*). Unrecognized illnesses or inapparent infections may or may not explain the presence of the low titer agglutinins in Nos. 2, 4, 5, 12, and 14 in the rickettsial unit, and similarly in the controls not in this unit, Nos. 13 and 22.

The second method employed to acquire knowledge as to the exact origin of the three strains isolated was the demonstration of protective antibodies in the sera of convalescents. The technique of these tests was that usually described for virus neutralization tests, and though this work is incomplete, several convalescent sera tested have been shown to have demonstrable virus-neutralizing bodies for the "M" strain.

SUMMARY AND CONCLUSION

1. An epidemic of pneumonitis comprising 15 proved cases occurred in one building of the National Institute of Health in Washington, D. C., in the spring of 1940.

2. Four attempts were made to isolate a causative agent from proved cases of pneumonitis. The identical agent was isolated from 3 of these cases and later identified as the rickettsia of "Q" fever.

3. No valid evidence was adduced that personal contact or the intervention of an arthropod vector was responsible for the transmission of the disease.

4. Strains of "Q" fever have been carried in animals and tissue cultures in one unit of the Institute since 1938. Whether or not this unit served as a source of infection is open to question, since the personnel of this unit were spared and the cases were widely distributed throughout the building.

5. A comparison of the clinical features and physical findings in these cases with various series reported from other sections of the United States in the past few years reveals suggestive similarities.

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THE RELATION OF BODY BUILD TO DRUG ADDICTION[1]

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The frequency with which drug addicts have been characterized as abnormal with respect to temperament justifies a search into the possibility of finding constitutional factors associated with addiction. From the time that Hippocrates presented his phthisic and apoplectic constitutions, a number of writers have emphasized the significance of the biological structure in relation to behavioral and pathological predispositions. Today there are several so-called schools of clinical anthropology. The German school is best known through the work of Bauer, Kretschmer, and Wertheimer; the Italian school through Viola, Pende, and Naccarati; the French school through Sigaud and his pupils; and the English and American work is typified by Draper,

[1] The term "drug addiction" as used in this paper refers to the habitual use of opium or one of its derivatives.

Berman, and MacAuliffe. Although all of these schools are united in the hypothesis of an association between physical proportion and mental predisposition, the great diversity of morphologic classifications and terminology has led to considerable confusion. Freeman (*10*) states, "The age old tendency to classify and codify was responsible for the division of all individuals into two or more types, the number of classifications now rapidly approaching legion: the herbivorous and the carnivorous; the mensontomorph and the hyperontomorph; the linear and the lateral; the cerebral, respiratory, digestive, and muscular; the asthenic, athletic, and the pyknic—to mention but a few." The fact of outstanding significance, however, is not the diversity of classification, which is really a matter of terminology, but rather the fact that so many authors, many unknown to each other, have observed similar relationships between certain types of body build and certain mental or physical predispositions. It matters little whether we call a tall, thin person an asthenic, a linear type, a microsplanchnic, or a hyperontomorph, but it is significant that the various authors have in general agreed as to the physical and mental characteristics of these types.

Those workers who have attempted to check on the claims of the various constitutional schools have generally neglected to consider in detail the ramifications and complexities of body-type differentiation. For example, although the height-weight ratio may serve as a rough index of Kretschmer's types, it does not separate the dysplastic from the other groups, and furthermore this ratio is a function of age and race. Pende (*27*) has consistently emphasized the frequency of independent variation of the cardiovascular, the lymphopoietic, and other subordinate systems, and has called attention to the psychological differences accompanying these variations.

Narcotic drug addiction has been described as a symptom of social failure. If this postulate is correct, it would seem reasonable to expect to find predominance of mental and physical inferiority or abnormality in the addict group. The large-scale studies of Hooton (*15*) on criminal populations were initiated from this point of view, and in a very excellent study of body build in its relation to personality, P. S. DeQ. Cabot (*4*) finds support for a theory of socio-biological advantage which postulates a correspondence between socio-sthenic traits and biologically "good" physique.

In the present study an attempt has been made to obtain sufficient measures for reliable classification of body types. In addition to a variety of body measurements, a number of "subjective" estimations were made concerning contours, profiles, and general indications of disproportionate development. Wherever possible, these subjective estimates were made with the help of charts so as to increase reliability of observation.

According to McDougall's metabolic theory of temperament (*21*), one would expect a preponderance of introverts in any group addicted to alkaloid drugs, and this prediction is partly substantiated in the Mayor's Committee Report (*28*) on 318 morphine addicts, in which 132 of the cases were classified as schizoid as compared with 97 syntoids and 89 mixed. On the other hand, Wilson's study (*37*) of 216 incarcerated addicts does not agree with the results reported by the Mayor's Committee. On the Neymann-Kohlstedt Diagnostic Test for Introversion-Extroversion, Wilson's group falls in the ambivert class, with a slight tendency toward introversion. On the Bernreuter Personality Schedule, however, the group showed distinct tendency toward extroversion.

On the basis of subjective judgments, the Mayor's Committee found that 167 of the 318 morphine addicts would be classified as asthenics, with 84 pyknics and 67 athletics (Kretschmer's body-type classification). These results are difficult to reconcile with the findings of Light, Torrance, et al. (*20*), who, on the basis of actual measurements, found that a group of 100 addicts were slightly heavier for their ages and heights than the normal standard as given by the Mutual Life Insurance Co. of New York.

Relatively few measures on the narcotic drug addict are available in a form admitting of comparison with other groups. Light, Torrance, et al. have stated, "We have been unable to find in the literature any data on actual weights, heights, vital capacities and tests of physical fitness in opium addicts. The various statements made in reference to opium addiction and its effects on physical appearance and physical fitness apparently are based on limited inspection." For this reason, the data of this study are presented in complete form.

Procedure.—Four hundred native-born, white, adult males with verified records of addiction were studied anthropometrically following admission to the United States Penitentiary Annex, Fort Leavenworth, Kans. These cases represented routine admissions, the only selecting factors being those of color, nativity, and verified history of drug usage. Measurements were taken on unclothed patients according to the technique in Hrdlicka's Anthropometry (*16*). Subjective estimates of certain body features were made prior to measurement, using pantograph enlargements of Wertheimer-Hesketh charts (*35*). The following estimates were made:

1. *Face shape:* Five cornered, shield shaped, long egg, and short egg. (Wertheimer-Hesketh chart.)
2. *Face profile:* Forehead (Wertheimer-Hesketh chart). Nose: Large, small, or medium. Cheekbone: Hyperplastic or hypoplastic. Jaw: Receding, protruding, massive, or deviating. Mouth: Overbite, straight, or underbite.
3. *Conformation of head:* (Wertheimer-Hesketh chart.)
4. *Baldness:* Described.
5. *Neck:* Long, medium, or short; thick or thin.

6. *Trunk profile:* (Wertheimer-Hesketh chart.)
7. *General appearance as to nutrition:* Described.
8. *Skin color:* Described.
9. *Musculature:* Firm, soft, with notation as to location of greatest development.
10. *Dysplastic traits:* Special attention given to size and shape of hands, disproportion between trunk and limb length, unusual distribution of fat, unusual arrangement or amount of body hair, and distribution of pubic hair.
11. *Estimate of body type:* (Kretschmer.)

The following anthropometric measurements were made:

1. Height.
2. Weight.
3. Leg length: (Lower border of the internal malleolus to crest of anterior-superior iliac spine.)
4. Transverse chest diameter.
5. Sagittal chest diameter.
6. Trunk height: (Symphysis pubis to supra-sternal notch.)
7. Head circumference.
8. Neck circumference.
9. Forearm circumference.
10. Calf circumference.
11. Umbilicus to symphysis pubis.
12. Umbilicus to supra-sternal notch.

The following indexes were calculated:

1. Wertheimer index (*35*): $\frac{\text{Leg length} \times 1{,}000}{\text{Trunk height} \times \text{chest width} \times \text{chest depth.}}$
2. Pignet index (*6*): Stature in cm. − (chest circumference plus weight in kg.)
3. Height/weight ratio (*26*): $\frac{\text{Height in cm.}}{\text{Weight in kg.}} \times 100.$

The sagittal and transverse chest measures were obtained by means of a Martin (*22*) anthropometer, the recorded reading being midpoint between the readings on normal inspiration and expiration.

One hundred and twenty-seven cases were remeasured 5½ months after their initial examination for the purpose of determining reliability of measurement and the directions of change following incarceration. These cases represented an unselected sampling of the original 400, recall being based upon the numerical order of initial examination.

In the light of general influence of age upon physical development, the data are analyzed and presented in the various age groupings shown in table 1. The largest number of cases falls into the 30–40 age decade, the mean age of the total group being 36.7 years. A comparison of the 20–39 with the 40–59 age group is shown in table 2. There is no significant difference between the older and younger groups with reference to stature and weight, but the bodily proportions show certain significant differences. The older group shows a greater development of the trunk as compared with the extremities. It was found (table 2) that both groups reported their usual weight to be higher than their actual admission weight, with the older group

showing the greater discrepancy. The reported weight corresponded with the actual weight after 5½ months of incarceration.

TABLE 1.—*Body measurements of 400 white male drug addicts from various States incarcerated at Fort Leavenworth, Kans.*

Measure	Sym-bol	Ages 20–29 N–89		Ages 30–39 N–172		Ages 40–49 N–111		Ages 50–59 N–22		Ages 20–39 N–261		Ages 40–59[1] N–133	
		Mean	S. D.[2]	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Stature in cm.	S	171. 46	6. 66	172. 19	5. 71	171. 89	6. 76	172. 64	6. 74	171. 94	5. 99	172. 01	6. 81
Weight in kg.	W	63. 98	7. 05	64. 79	6. 92	65. 24	10. 35	66. 04	9. 92	64. 51	6. 97	65. 38	10. 28
Usual weight	UW	67. 78	7. 43	69. 11	8. 18	70. 44	11. 03	72. 62	10. 26	68. 65	8. 06	70. 80	11. 21
Greatest weight	GW	73. 07	8. 72	74. 65	9. 33	76. 88	12. 77	80. 63	11. 99	74. 11	9. 18	77. 50	12. 60
Leg length	LL	86. 55	4. 47	86. 33	4. 18	85. 81	4. 59	88. 09	4. 67	86. 40	4. 30	86. 19	4. 73
Trunk height	TH	57. 27	2. 53	57. 69	2. 44	57. 72	2. 83	57. 94	3. 12	57. 55	2. 56	57. 76	2. 93
Transverse chest	TCH	27. 88	1. 59	27. 89	1. 53	27. 87	2. 07	27. 61	1. 81	27. 89	1. 60	27. 83	2. 03
Sagittal chest	Sg Ch	20. 01	1. 36	20. 41	1. 51	21. 16	2. 00	21. 62	2. 05	20. 27	1. 48	21. 24	2. 01
Head circumference	Hd C	56. 47	1. 42	56. 92	1. 44	56. 76	1. 56	57. 20	1. 40	56. 77	1. 45	56. 83	1. 53
Neck circumference	NC	35. 27	1. 78	35. 62	1. 66	34. 68	1. 97	34. 87	1. 74	35. 50	1. 72	34. 71	1. 80
Chest circumference	Ch C	89. 77	4. 71	90. 29	4. 75	91. 24	6. 57	91. 91	6. 23	90. 11	4. 81	91. 35	6. 68
Abdomen circumference	Ab C	80. 51	5. 88	82. 55	5. 80	84. 02	8. 57	86. 99	8. 85	81. 86	5. 92	84. 51	8. 69
Calf circumference	Cf C	33. 43	1. 98	33. 59	2. 00	33. 41	2. 73	33. 76	2. 64	33. 54	2. 01	33. 47	2. 70
Forearm circumference	FmC	25. 84	1. 50	25. 86	1. 44	25. 53	1. 69	25. 31	1. 25	25. 86	1. 46	25. 50	1. 62
Indexes													
Wertheimer index		274. 55	31. 99	268. 42	33. 48	257. 09	40. 40	254. 59	37. 28	270. 51	33. 37	256. 68	40. 15
Pignet index		17. 02	10. 15	17. 40	11. 02	16. 29	13. 58	14. 51	14. 57	17. 27	11. 03	16. 00	13. 35
Ht./wt. ratio $\left(\frac{\text{Ht. in cm.}}{\text{Wt. in kg.}} \times 100\right)$		269. 28	26. 57	267. 16	25. 41	269. 13	36. 35	265. 32	34. 05	267. 89	26. 33	268. 50	36. 32

[1] 6 cases in age group 60–72 included in total, but not listed separately.
[2] "S. D." is the standard deviation. This is a measure of variability based on the formula, $\sqrt{\frac{\Sigma d^2}{N}}$, where Σd^2 is the sum of the squared deviation from the mean and N is the number of cases.

TABLE 2.—*Comparison of 20-year age groups*

Measure	Ages 20–39 N–361 Mean	Ages 40–59 N–133 Mean	Difference	Critical ratio[1]
S	171. 94	172. 01	0. 07	0. 11
W	64. 51	65. 38	. 86	. 87
U. W	68. 65	70. 80	2. 15	1. 97
G. W	74. 11	77. 50	3. 38	2. 74
L. L	86. 40	86. 19	. 22	. 44
T. H	57. 55	57. 76	. 21	. 70
T. Ch	27. 89	27. 83	. 06	. 29
Sg. Ch	20. 27	21. 24	. 97	4. 92
Hd. C	56. 77	56. 83	. 06	. 39
N. C	35. 50	34. 71	. 79	4. 21
Ch. C	90. 11	91. 35	1. 24	1. 91
Ab. C	81. 86	84. 51	2. 66	3. 17
Cf. C	33. 54	33. 47	. 07	. 25
Fm. C	25. 86	25. 50	. 36	2. 15
Indexes				
Wertheimer	270. 51	256. 68	13. 84	3. 42
Pignet	17. 27	16. 00	1. 27	. 95
Ht./wt	267. 89	268. 50	. 61	. 17

[1] The critical ratio expresses the ratio of the difference between the two means to the standard error of that difference. A ratio of 3 or more is taken to indicate a true difference between the means, although a ratio of 2 may be considered as indicative (977 chances in 1,000 that a true difference exists).

There is a statistically significant difference between the older and younger groups with respect to the Wertheimer-Hesketh index (*34*) of body build, whereas the height-weight and Pignet indexes show no significant differences. The Wertheimer-Hesketh index is based on

the relationship of trunk volume to leg length without making direct use of body weight. The difference between the old and the young groups with respect to this index would be expected in light of the greater trunk development of the older group.

Table 3 presents the distribution of body types according to the subjective and Wertheimer-Hesketh classifications. The athletic type predominates with both classifications, showing a slight predominance of cases toward the pyknic end of the distribution. Table 3 also presents body-type groupings on Illinois convicts as found by Mohr and Gundlach (*23*). It may be noted that the addicts tend more toward the pyknic end of the distribution than do the convicts.

TABLE 3.—*Body type of the drug addict and comparison with convicts*

Type	Drug addicts, Wertheimer index [1]		Drug addicts, subjective rating [3]		Convicts (from Mohr and Gundlach (*23*)), subjective rating
	Admission	Recheck [2]	Admission	Recheck [2]	
	N-400	N-127	N-400	N-127	N-485
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
Pyknic	28	47	15	15	19
Pyknoid			11	27	20
Athletic	53	45	45	42	27
Athletic-asthenic			9	9	15
Asthenic	19	8	4	1	19
Eunuchoid			3	3	
Unclassified			13	3	

[1] See page 1957 for Wertheimer-Hesketh formula.
[2] After 5½ months.
[3] See page 1956 for statement of items on which subjective ratings are based.

DISCUSSION OF RESULTS

Before comparing these body measures and indexes with those of other groups, the question of reliability of the present findings should be considered. As mentioned previously, 127 cases were recalled 5½ months later for reexamination. A comparison of the first and second measures should give an indication of the reliability of the measurements. Coefficients of correlation, means, and mean differences are shown in table 4. With the exception of trunk height, all of the measures show an increase after 5½ months. The high coefficients of correlation indicate that the increase is general, with the individuals of the group retaining their respective positions. When we eliminate those patients who gained more than 2.3 kilograms on the second examination, the coefficients of correlation increase and the mean differences decrease (table 5). This would seem to indicate that the large increases in weight significantly affect other body measures. Both sets of correlations, however, indicate that these measures are reliable.

TABLE 4.—*Reliability of anthropometric measures*

(Coefficient of correlation between measurements made at time of admission and measurements made 5½ months later—all 127 individuals remeasured. N-127)

	Coefficient of correlation	First examination mean (on admission)	Second examination mean (5½ months later)	Mean difference
Wt. (kg.)	0.89	65.84	69.20	3.36
Ht. (cm.)	.98	171.07	171.24	.17
L. L. (before D. for ht.)	.94	90.29	90.39	.09
Tk. H. (cm.)	.82	57.21	57.01	.21
T. Ch. (cm.)	.89	27.72	28.09	.37
S. Ch (cm.)	.85	20.56	21.41	.85
N. C. (cm.)	.78	35.65	36.02	.37
Ch. C. (cm.)	.89	91.59	93.48	1.89
Ab. C. (cm.)	.87	83.38	85.35	1.97
Cf. C. (cm.)	.85	33.50	34.54	1.03
Fm. C. (cm.)	.82	25.80	26.76	.96
Hd. C. (cm.)	.94	56.58	56.70	.13
Wertheimer index	.91	262.70	251.06	11.64
Pignet index	.88	15.40	9.98	5.42
Ht./wt.	.88	265.00	249.80	15.20

TABLE 5.—*Reliability of anthropometric measures*

(Means and coefficients of correlation in subjects changing 2.3 kg. or less. N-41)

	Coefficient of correlation	First examination (on admission)	Second examination (5½ months later)	Mean difference
Wt. (kg.)	0.98	66.47	66.81	0.34
Ht. (cm.)	.99	170.30	170.60	.30
L. L. (before D. for ht.)	.89	89.15	89.50	.35
Tk. H. (cm.)	.91	57.80	37.48	.33
T. Ch. (cm.)	.93	27.78	28.00	.23
S. Ch. (cm.)	.86	21.08	21.65	.58
Hd. C. (cm.)	.97	56.78	56.70	.08
N. C. (cm.)	.92	35.25	35.43	.18
Ch. C. (cm.)	.91	92.10	92.70	.60
Ab. C. (cm.)	.92	82.90	82.40	.50
Cf. C. (cm.)	.90	33.53	33.95	.42
Fm. C. (cm.)	.94	25.78	26.28	.50
Wertheimer index	.84	257.68	252.30	5.38
Pignet index	.96	13.70	12.10	1.60

In table 6 the drug addict is compared with other groups on the basis of height and weight. In height, the addict population is equal to Hooton's convict group and taller than United States Army Draft (1918) (*6*) and the Illinois convicts reported by Gray (*12*). The addicts are slightly shorter than the Illinois convicts reported by Mohr and Gundlach and markedly below Hooton's "civil check samples" (*15*), Columbia University students (*23*), and University of Chicago football players of 1929 (*13*). The admission weight of the addict is greater only than the Army group, but this would be expected in view of the fact that the Army group is approximately 10 years younger. The weight after 5½ months of incarceration, however, is greater than all the above convict populations but is lower than the weights reported for Hooton's civil check samples and the college groups. If proper allowance is made for the age difference

between the Army and addict groups, using the standards of the Metropolitan Life Insurance Co., there is slight difference between height and weight (addict recheck weight) in favor of the addict group. It should be noted here that the usual weight reported by the total addict group is 153 pounds (69.4 kg.), which is almost identical with the measured recheck weight (69.2 kg.).

TABLE 6.—*Comparison of drug addicts with other populations*

	Number	Mean age	Height (cm.)	Weight (kg.)
Drug addicts	400	36.7	171.9	64.8 (69.2)[1]
Convicts (Gray) (*12*)	587	33.9	170.4	66.9
Convicts (Hooton) (*15*)	4,188	30.7	171.9	68.5
Convicts (Mohr and Gundlach) (*23*)	486	28.8	172.6	68.3
Army recruits (Mohr and Gundlach) (*23*)	868,445	24.9	171.4	64.3 (68.4)[2]
Tennessee fireman (Hooton) (*15*)	146	38.9	172.8	78.0
Massachusetts civil sample (Hooton) (*15*)	167	30.7	173.0	73.8
Columbia students (Sommerville) (*33*)	110	.....	173.8	67.6
Univ. of Chicago football players (Horace Gray) (*13*)	109	20.0	178.0	77.3

[1] Weight after 5½ months' incarceration. Reported usual weight 153 lb. (69.4 kg.).
[2] Estimate of Army weight at age 35, using Metropolitan Life Insurance Co. standards for height and weight by age. The insurance figures show an increase of 9 pounds (4.1 kg.) from age 25 to age 35 for persons 171 centimeters in height.

INTERPRETATIONS OF RESULTS

The data presented in table 1 and the comparisons with convict and Army groups (table 6) indicate no physical inferiority in the average narcotic addict as far as height and weight are concerned. The objective and subjective body-type classifications lend further support to this interpretation. The Pignet index of 16.8 on the total group (see table 1) is classified as "good constitution" according to the United States Army classification (*6*). The weight on admission to the institution is below the expected level as judged by the Metropolitan Life Insurance Co.'s standards, but the rapid general increase in weight following incarceration suggests that the admission weight is not representative of that which would be obtained under adequate dietary conditions.

With reference to body build, it appears that the narcotic drug addict is of normal proportions with a slight leaning toward the pyknic end of the distribution. This would place the addicts in the athletoid classification described by P. S. DeQ. Cabot (*4*) as having a sociobiological advantage over leptosomic and pyknosomic groups.

The findings of Kretschmer concerning the relationship of body build to temperament have not been entirely confirmed by later American investigators (Campbell (*5*), Klineberg (*17*), and Cabot (*4*)). The question is not completely settled, however, inasmuch as various workers, particularly those in European countries, continue to report their findings in support of Kretschmerian contentions (Enke (*8*), Willemse (*36*), Weissenfeld (*33*), and Burchard (*3*)). To the extent to which constitution-temperament relationships may hold true, the

narcotic drug addict would tend toward extroversion, since pyknics predominate over asthenics. These data substantiate an earlier report (*2*) on 162 cases and are in general agreement with the observations of Kolb (*18*), who speaks of addicts as having "outgoing" personalities.

CONCLUSIONS

On the basis of measurements taken on 400 native, white, male drug addicts, the following conclusions appear to be justified:

1. The narcotic drug addicts included in this study were average or slightly superior in height and weight.

2. There was an average gain in weight of a little more than 3 kg. after 5½ months of institutionalization.

3. The body build of this narcotic drug addict group was found to be within normal limits with a trend toward the pyknic end of the distribution.

4. The etiology of drug addiction cannot be ascribed in these cases to gross constitutional weakness.

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COURT DECISION ON PUBLIC HEALTH

Compensation under workmen's compensation act awarded for tuberculosis.—(North Carolina Supreme Court; *MacRae* v. *Unemployment Compensation Commission of North Carolina*, 9 S. E. (2d) 595; decided June 19, 1940.) The plaintiff sought compensation under the North Carolina Workmen's Compensation Act for tuberculosis which developed while in the employ of the defendant State unemployment compensation commission. It appeared that the plaintiff worked in close proximity to another employee who had active pulmonary tuberculosis

and who coughed frequently. On one occasion while they were working across a very narrow table or desk the tuberculous employee unexpectedly and involuntarily coughed directly into the face of the plaintiff with the result that the spray or sputum entered the plaintiff's mouth. Shortly thereafter the plaintiff commenced to have symptoms of tuberculosis and about 3½ months after the said incident was found to be suffering from pulmonary tuberculosis. The compensation law provided that "injury and personal injury" should mean only injury by accident arising out of and in the course of the employment and should not include a disease in any form except where it resulted naturally and unavoidably from the accident.

The view of the supreme court was that the plaintiff's disease was the result of an injury by accident within the meaning of the said statutory provision. The court said that the plaintiff's disability was directly attributable to his infection when the other employee involuntarily and unexpectedly coughed spray and sputum into plaintiff's face and mouth. "Such coughing was untoward, unfortunate, and unusual in its proximity to and its effect upon plaintiff. * * * This overt, positive action is sufficient to satisfy the definition of accident." And later in the opinion it was stated that the court thought that "plaintiff's disease was proximately produced by infection from germs transmitted him in droplets of spray and sputum coughed up and expectorated into his face and mouth by a negligent fellow-employee in the course of his employment" and that "the unusual circumstances and conditions under which said injury was produced constituted an accident arising out of his employment."

DEATHS DURING WEEK ENDED OCTOBER 12, 1940

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

	Week ended Oct. 12, 1940	Corresponding week, 1939
Data from 88 large cities of the United States:		
Total deaths	7,764	7,593
Average for 3 prior years	7,820	
Total deaths, first 41 weeks of year	345,231	339,048
Deaths under 1 year of age	499	488
Average for 3 prior years	515	
Deaths under 1 year of age, first 41 weeks of year	20,566	20,554
Data from industrial insurance companies:		
Policies in force	64,819,862	66,584,285
Number of death claims	10,763	8,774
Death claims per 1,000 policies in force, annual rate	8.7	6.9
Death claims per 1,000 policies, first 41 weeks of year, annual rate	9.7	10.0

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 OCTOBER 19, 1940

Summary

For the country as a whole, there was no unusual prevalence of any of the 9 communicable diseases reported weekly by the State health officers, with the exception of poliomyelitis, although the week shows slightly increased incidence in each of these diseases except poliomyelitis and typhoid fever.

Of the 514 cases of poliomyelitis reported for the current week, as compared with 517 for the preceding week and a 5-year (1935–39) median of 246, the North Central and South Atlantic States reported 397, or 77 percent. The number of cases reported currently is higher than that for the corresponding week in any of the 5 preceding years.

Texas reported 231 cases of influenza and South Carolina reported 103 cases. The highest incidence of measles appears to be in the New England, Middle Atlantic, and East North Central States, and of scarlet fever, in the North Central, Atlantic, and South Central States. Only 1 case of Rocky Mountain spotted fever was reported (in Virginia), and 43 cases of endemic typhus fever, of which 14 were in Georgia and 6 each in Alabama and Mississippi.

The Bureau of the Census reports 7,632 deaths in 88 major cities of the United States for the current week, as compared with 7,764 for the preceding week, and with a 3-year (1937–39) average of 8,026 for the corresponding week. The total deaths in these cities for the first 42 weeks of the current year is 352,863, as compared with 346,894 for the corresponding period in 1939.

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Telegraphic morbidity reports from State health officers for the week ended October 19, 1940, and comparison with corresponding week of 1939 and 5-year median

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

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median, 1935–39	Week ended—		Median, 1935–39	Week ended—		Median, 1935–39	Week ended—		Median, 1935–39
	Oct. 19, 1940	Oct. 21, 1939		Oct. 19, 1940	Oct. 21, 1939		Oct. 19, 1940	Oct. 21, 1939		Oct. 19, 1940	Oct. 21, 1939	
NEW ENG.												
Maine	0	0	3	------	1	1	63	1	18	0	1	0
New Hampshire	0	0	0	------	------	------	6	5	2	0	0	0
Vermont	0	0	0	------	------	------	10	7	3	0	0	0
Massachusetts	9	7	3	------	------	------	143	71	68	2	1	1
Rhode Island	1	0	0	------	------	------	1	29	1	0	1	1
Connecticut	0	0	2	1	------	2	2	6	8	0	0	0
MID. ATL.												
New York	14	17	19	[1] 2	[1] 11	[1] 11	138	135	91	1	0	8
New Jersey	9	4	11	3	5	5	84	8	15	0	0	0
Pennsylvania	12	15	27	------	------	------	368	18	45	2	6	4
E. NO. CEN.												
Ohio [2]	21	33	45	19	1	4	14	9	11	1	1	7
Indiana	12	23	25	3	6	14	9	3	5	0	1	1
Illinois	18	27	30	2	2	9	78	11	13	1	4	3
Michigan [3]	2	5	13	1	------	------	133	0	36	0	1	1
Wisconsin	0	2	5	35	15	30	179	20	20	3	0	0
W. NO. CEN.												
Minnesota	0	4	14	------	1	1	0	8	8	0	0	0
Iowa	5	2	7	1	------	------	26	8	3	0	1	0
Missouri	10	11	29	------	------	27	5	4	7	0	0	1
North Dakota	6	0	1	7	2	------	1	1	1	1	0	0
South Dakota	0	1	1	------	------	------	4	28	8	0	0	0
Nebraska	3	1	5	------	------	------	14	1	1	1	0	0
Kansas	1	8	8	1	9	3	8	33	2	1	1	0
SO. ATL.												
Delaware	1	0	1	------	------	------	2	0	0	0	0	0
Maryland [3]	3	8	9	1	7	10	2	1	4	0	0	2
Dist. of Col	0	8	6	------	------	------	0	1	1	0	0	0
Virginia [4]	16	80	77	70	33	------	35	6	6	4	0	4
West Virginia	8	18	40	15	15	15	2	3	3	1	2	1
North Carolina [2]	67	143	143	2	5	4	3	93	80	0	1	2
South Carolina [2]	17	32	26	103	209	169	2	0	3	0	0	1
Georgia [2]	28	53	53	16	34	------	1	0	0	0	0	0
Florida [2]	8	3	11	1	2	2	0	19	5	0	3	0
E. SO. CEN.												
Kentucky	17	11	32	18	3	9	19	2	3	0	1	2
Tennessee [2]	16	40	65	16	22	22	0	12	8	1	0	1
Alabama [3]	28	41	41	16	41	26	3	0	3	0	7	2
Mississippi [2 3]	16	24	24	------	------	------	------	------	------	1	0	0
W. SO. CEN.												
Arkansas	14	29	26	16	18	18	3	2	1	0	0	0
Louisiana [2]	12	28	26	2	1	6	0	1	3	0	0	1
Oklahoma	22	9	10	30	26	36	2	2	2	0	0	0
Texas [2]	39	28	48	231	140	123	17	38	4	1	1	2
MOUNTAIN												
Montana	1	13	1	14	15	15	14	13	13	0	0	0
Idaho	2	0	0	------	------	1	3	0	19	1	0	0
Wyoming	0	1	1	------	------	------	5	98	1	1	0	0
Colorado	8	9	9	7	9	------	19	19	3	0	0	0
New Mexico	0	3	8	------	2	1	7	2	13	0	0	0
Arizona	2	3	5	81	53	40	16	0	0	0	1	0
Utah [3]	1	0	0	6	7	------	3	4	4	1	0	0
Nevada [5]	0	------	------	------	------	------	0	------	------	0	------	------
PACIFIC												
Washington	5	2	2	------	------	------	5	240	18	0	1	0
Oregon	5	1	1	14	4	15	12	17	7	0	0	0
California	23	22	42	14	18	18	48	105	105	1	2	3
Total	482	769	908	748	717	705	1,503	1,084	1,084	25	37	67
42 weeks	11,697	16,960	20,021	174,065	156,030	144,721	235,896	353,771	353,771	[6] 1,347	1,625	4,672

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended October 19, 1940, and comparison with corresponding week of 1939 and 5-year median—Continued.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39	Week ended		Median, 1935–39
	Oct. 19, 1940	Oct. 21, 1939		Oct. 19, 1940	Oct. 21, 1939		Oct. 19, 1940	Oct. 21, 1939		Oct. 19, 1940	Oct. 21, 1939	
NEW ENG.												
Maine	0	0	1	4	8	14	0	0	0	0	4	2
New Hampshire	0	0	1	6	6	3	0	0	0	0	0	0
Vermont	0	0	0	9	3	4	0	0	0	1	0	0
Massachusetts	1	4	4	74	54	72	0	0	0	2	1	3
Rhode Island	1	0	0	0	2	7	0	0	0	0	4	1
Connecticut	0	1	1	23	14	23	0	0	0	1	2	2
MID. ATL.												
New York	13	63	29	123	117	187	0	0	0	14	11	20
New Jersey	11	9	5	66	53	51	0	0	0	2	3	3
Pennsylvania	7	28	8	122	179	208	0	0	0	20	7	42
E. NO. CEN.												
Ohio [3]	36	6	3	106	174	186	0	1	0	9	15	16
Indiana	21	4	3	76	103	120	0	8	2	4	4	4
Illinois	42	5	7	168	156	194	3	1	1	5	26	11
Michigan [3]	81	37	12	147	165	165	0	1	0	3	7	7
Wisconsin	29	7	3	97	90	126	0	1	1	1	0	1
W. NO. CEN.												
Minnesota	18	20	3	45	64	64	3	1	3	0	0	0
Iowa	55	12	7	52	52	66	0	1	2	3	3	4
Missouri	18	1	1	27	56	67	1	1	6	3	15	11
North Dakota	3	1	1	11	14	19	4	0	0	2	0	1
South Dakota	4	1	1	18	24	24	0	0	1	0	0	1
Nebraska	8	2	1	19	8	23	1	1	1	0	0	0
Kansas	23	2	1	62	75	80	0	0	0	3	3	2
SO. ATL.												
Delaware	0	1	0	1	5	5	0	0	0	1	4	2
Maryland [3]	0	2	2	35	41	41	0	0	0	8	6	9
Dist. of Col	0	1	1	14	12	12	0	0	0	0	1	1
Virginia [4]	16	2	2	32	44	42	0	0	0	12	10	10
West Virginia	37	3	1	38	102	86	0	0	0	3	7	10
North Carolina [3]	5	9	3	70	84	88	0	0	0	5	5	8
South Carolina [3]	0	0	1	9	13	14	0	0	0	4	8	6
Georgia [3]	0	1	1	53	35	28	0	0	0	17	6	8
Florida [3]	1	1	1	1	11	8	0	0	0	2	2	2
E. SO. CEN.												
Kentucky	12	25	4	56	52	85	0	0	0	11	11	12
Tennessee [3]	1	1	1	82	62	62	1	0	0	5	14	19
Alabama [3]	2	1	1	31	53	31	0	0	0	6	2	4
Mississippi [2 3]	0	0	1	20	10	18	0	0	0	5	2	7
W. SO. CEN.												
Arkansas	1	3	3	26	17	17	0	2	0	19	9	7
Louisiana [3]	5	0	1	15	8	8	0	0	0	8	12	14
Oklahoma	3	2	0	23	20	20	0	1	1	5	5	12
Texas [3]	7	11	3	40	27	45	0	0	1	13	27	27
MOUNTAIN												
Montana	4	0	0	14	28	28	0	0	3	2	1	2
Idaho	5	1	1	14	9	21	0	0	0	4	2	2
Wyoming	1	0	0	4	4	7	0	2	0	0	0	0
Colorado	6	12	1	15	30	27	1	1	1	3	2	3
New Mexico	2	9	2	2	8	16	0	0	0	9	6	16
Arizona	0	1	0	1	5	7	0	0	0	0	3	3
Utah [3]	2	5	1	6	17	17	0	0	0	0	0	0
Nevada [5]	0	-----	-----	0	-----	-----	0	-----	-----	0	-----	-----
PACIFIC												
Washington	18	2	2	23	29	29	0	1	1	4	6	4
Oregon	5	4	4	16	13	15	1	0	0	0	7	3
California	10	34	17	89	121	154	0	5	3	12	15	10
Total	514	334	246	1,985	2,277	2,816	15	28	51	231	278	379
42 weeks	7,949	5,998	5,998	129,251	128,555	180,486	2,061	8,885	8,546	8,160	11,003	12,339

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended October 19, 1940, and comparison with corresponding week of 1939 and 5-year median—Continued.

Division and State	Whooping cough	
	Week ended	
	Oct. 19, 1940	Oct. 21, 1939
NEW ENG.		
Maine	8	48
New Hampshire	1	0
Vermont	1	41
Massachusetts	175	76
Rhode Island	6	19
Connecticut	88	55
MID. ATL.		
New York	329	217
New Jersey	123	76
Pennsylvania	558	297
E. NO. CEN.		
Ohio [3]	261	80
Indiana	28	37
Illinois	149	149
Michigan [3]	371	85
Wisconsin	113	109
W. NO. CEN.		
Minnesota	42	43
Iowa	16	13
Missouri	7	15
North Dakota	34	3
South Dakota	0	3
Nebraska	2	7
Kansas	87	3
SO. ATL.		
Delaware	3	3
Maryland [3]	93	37
Dist. of Col	2	7
Virginia [4]	31	51
West Virginia	25	35
North Carolina [3]	99	67
South Carolina [3]	22	12
SO. ATL.—continued		
Georgia [3]	9	18
Florida [3]	1	3
E. SO. CEN.		
Kentucky	56	26
Tennessee [3]	31	46
Alabama [3]	9	14
Mississippi [2 3]	----------	----------
W. SO. CEN.		
Arkansas	12	29
Louisiana [3]	8	8
Oklahoma	12	0
Texas [3]	119	27
MOUNTAIN		
Montana	3	8
Idaho	4	0
Wyoming	0	1
Colorado	13	8
New Mexico	17	23
Arizona	12	9
Utah [3]	7	48
Nevada [5]	0	----------
PACIFIC		
Washington	80	10
Oregon	13	11
California	249	111
Total	3,329	1,988
42 weeks	131,501	147,861

[1] New York City only.
[2] Typhus fever, week ended October 19, 1940, 43 cases as follows: Ohio, 1; North Carolina, 1; South Carolina, 5; Georgia, 14; Florida, 4; Tennessee, 1; Alabama, 6; Mississippi, 6; Louisiana, 2; Texas, 3.
[3] Period ended earlier than Saturday.
[4] Rocky Mountain spotted fever, week ended October 19, 1940, Virginia, 1 case.
[5] A delayed report from Nevada for the week ended October 12, 1940, showed 1 case of meningococcus meningitis and 1 case of poliomyelitis.

WEEKLY REPORTS FROM CITIES

City reports for week ended October 5, 1940

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

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	146	61	19	188	368	526	3	326	60	920	------
Current week [1]	58	48	15	296	253	344	2	310	43	863	------
Maine:											
Portland	0	------	0	0	1	1	0	0	0	4	28
New Hampshire:											
Concord	0	------	0	0	0	2	0	0	0	0	9
Manchester	0	------	0	0	1	0	0	0	0	0	21
Nashua	0	------	0	0	0	0	0	0	0	0	9
Vermont:											
Barre	------	------	------	------	------	------	------	------	------	------	------
Burlington	0	------	0	0	0	0	0	0	0	0	8
Rutland	0	------	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	3	------	0	10	10	7	0	6	1	54	202
Fall River	0	------	0	1	0	1	0	1	0	4	27
Springfield	0	------	0	0	1	6	0	0	0	1	34
Worcester	0	------	0	43	4	1	0	0	1	2	41
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	11
Providence	2	------	1	1	2	1	0	0	0	7	80
Connecticut:											
Bridgeport	0	------	0	1	0	1	0	0	0	1	15
Hartford	0	------	0	0	0	1	0	0	0	5	32
New Haven	0	------	0	0	0	0	0	0	0	26	38
New York:											
Buffalo	0	------	1	2	8	5	0	3	0	7	133
New York	13	8	2	30	33	32	0	70	4	86	1,356
Rochester	0	------	0	0	1	1	0	1	1	9	66
Syracuse	0	------	0	0	1	1	0	0	0	1	45
New Jersey:											
Camden	0	------	1	14	1	4	0	1	1	4	34
Newark	0	------	0	5	1	4	0	4	2	14	107
Trenton	0	------	0	0	2	0	0	3	0	1	30
Pennsylvania:											
Philadelphia	1	1	0	77	9	13	0	24	2	75	428
Pittsburgh	0	1	1	0	12	8	0	6	0	17	171
Reading	0	------	0	3	2	0	0	1	0	32	18
Scranton	0	------	------	0	------	1	0	------	0	2	------
Ohio:											
Cincinnati	1	1	0	0	0	3	0	3	0	7	126
Cleveland	1	11	0	2	7	7	0	10	0	53	162
Columbus	1	------	0	0	2	4	0	0	0	9	94
Toledo	0	------	0	1	1	6	0	5	1	9	67
Indiana:											
Anderson	0	------	0	0	1	0	0	1	0	0	15
Fort Wayne	0	------	0	0	0	2	0	1	0	0	25
Indianapolis	1	------	1	0	4	2	0	7	0	5	108
Muncie	0	------	0	0	3	0	0	0	0	2	12
South Bend	0	------	0	0	1	0	0	1	0	0	10
Terre Haute	0	------	0	0	0	0	0	0	0	0	17
Illinois:											
Alton	0	------	0	0	0	14	0	1	0	0	7
Chicago	5	1	1	20	22	57	0	32	1	63	628
Elgin	0	------	0	0	0	1	0	0	0	2	9
Moline	0	------	0	1	0	0	0	0	0	0	9
Springfield	0	------	0	0	2	0	0	0	0	2	17
Michigan:											
Detroit	3	1	0	47	4	35	0	19	2	121	246
Flint	0	------	0	2	1	1	0	0	0	4	22
Grand Rapids	0	------	0	1	1	7	0	0	0	35	33
Wisconsin:											
Kenosha	0	------	0	0	0	2	0	0	0	1	9
Madison	0	------	0	1	0	0	0	1	0	0	18
Milwaukee	0	------	0	10	3	20	0	4	8	8	84
Racine	0	------	0	1	0	3	0	1	0	0	9
Superior	0	------	0	0	0	2	0	0	0	0	9

[1] Figures for Barre, Vt., and Wilmington, N. C., estimated; reports not received.

City reports for week ended October 5, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth	0	------	0	0	0	0	2	0	0	1	16
Minneapolis	2	------	0	1	3	2	0	1	1	9	103
St. Paul	0	------	0	0	4	5	0	3	0	9	56
Iowa:											
Cedar Rapids	0	------	--------	0	-------	3	0	-------	0	1	--------
Davenport	1	------	--------	0	-------	3	0	-------	0	0	--------
Des Moines	0	------	0	0	0	4	0	0	1	0	22
Sioux City	0	------	--------	0	-------	0	0	-------	0	1	--------
Waterloo	0	------	--------	0	-------	1	0	-------	0	0	--------
Missouri:											
Kansas City	0	------	0	0	3	3	0	6	2	10	104
St. Joseph	0	------	0	0	1	0	0	0	1	0	10
St. Louis	2	------	0	1	14	10	0	7	3	3	212
North Dakota:											
Fargo	0	------	--------	0	-------	3	0	-------	0	3	--------
Grand Forks	0	------	--------	0	-------	0	0	-------	0	0	--------
Minot	0	------	0	1	0	0	0	0	0	1	8
South Dakota:											
Aberdeen	0	------	--------	0	-------	1	0	-------	0	0	--------
Sioux Falls	0	------	0	0	0	5	0	0	0	0	7
Nebraska:											
Lincoln	0	------	--------	1	-------	1	0	-------	0	2	--------
Omaha	0	------	0	0	3	7	0	2	0	0	40
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	0	5
Topeka	0	------	0	0	2	3	0	2	0	0	29
Wichita	0	------	0	1	6	1	0	0	1	2	25
Delaware:											
Wilmington	0	------	0	1	2	0	0	1	0	5	33
Maryland:											
Baltimore	2	1	0	2	8	4	0	14	1	66	207
Cumberland	0	------	1	0	0	0	0	0	0	0	11
Frederick	0	------	0	0	0	3	0	0	0	0	4
Dist. of Col.:											
Washington	0	------	0	0	6	4	0	13	1	6	165
Virginia:											
Lynchburg	1	------	0	0	0	0	0	0	0	2	10
Norfolk	1	------	0	0	0	1	0	1	1	0	28
Richmond	0	------	0	0	2	3	0	0	1	0	53
Roanoke	0	------	0	0	0	0	0	1	0	2	19
West Virginia:											
Charleston	1	------	0	0	3	0	0	0	0	0	14
Wheeling	0	------	0	1	1	0	0	0	1	5	12
North Carolina:											
Gastonia	0	------	--------	1	-------	0	0	-------	0	1	--------
Raleigh	0	------	0	0	1	0	0	1	0	0	18
Wilmington	------	------	------	------	------	------	------	------	------	------	------
Winston-Salem	1	------	0	0	0	1	0	1	0	4	17
South Carolina:											
Charleston	0	1	0	1	1	1	0	0	2	0	15
Florence	0	------	0	0	0	0	0	0	0	0	4
Greenville	0	------	0	0	1	0	0	0	0	1	13
Georgia:											
Atlanta	3	6	1	0	5	4	0	6	0	0	76
Brunswick	0	------	0	0	0	0	0	0	0	0	2
Savannah	0	------	0	0	1	0	0	0	0	0	26
Florida:											
Miami	0	------	0	0	1	0	0	2	0	0	36
Tampa	0	------	0	0	1	1	0	1	0	0	22
Kentucky:											
Ashland	1	------	0	0	1	0	0	0	0	0	6
Covington	0	------	0	1	0	8	0	1	0	0	9
Lexington	0	------	0	5	1	0	0	0	0	0	12
Louisville	0	------	0	0	0	4	0	2	0	11	50
Tennessee:											
Knoxville	1	------	0	0	0	1	0	0	0	0	20
Memphis	2	------	0	0	1	5	0	2	1	6	51
Nashville	0	------	1	1	4	4	0	2	1	0	47
Alabama:											
Birmingham	0	4	0	2	1	0	0	3	0	0	53
Mobile	1	------	0	0	0	2	0	0	0	0	26
Montgomery	1	------	--------	0	-------	0	0	-------	1	7	--------
Arkansas:											
Fort Smith	0	------	--------	0	-------	1	0	-------	0	0	--------
Little Rock	1	------	0	0	2	1	0	1	0	0	3
Louisiana:											
Lake Charles	0	------	0	0	0	1	0	0	0	0	1
New Orleans	2	------	0	1	10	4	0	2	3	0	153
Shreveport	1	------	0	0	1	1	0	0	1	0	24

City reports for week ended October 5, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Oklahoma:											
Oklahoma City	0	2	0	0	4	3	0	0	0	0	48
Tulsa	0	------	0	0	0	1	0	0	1	6	11
Texas:											
Dallas	0	------	0	0	1	2	0	1	0	2	65
Fort Worth	0	------	0	1	2	4	0	1	0	2	43
Galveston	0	------	0	0	0	0	0	0	0	0	10
Houston	0	------	1	0	2	2	0	3	0	0	79
San Antonio	1	1	1	0	3	0	0	7	0	3	61
Montana:											
Billings	0	------	0	0	0	1	0	0	0	0	8
Great Falls	0	------	0	0	2	0	0	0	0	0	7
Helena	0	------	0	0	0	1	0	0	0	0	2
Missoula	0	------	0	0	1	0	0	0	0	0	5
Idaho:											
Boise	0	------	0	0	2	1	0	0	0	0	3
Colorado:											
Colorado Springs	0	------	0	0	0	1	0	0	0	2	9
Denver	2	------	0	3	5	3	0	6	0	4	83
Pueblo	0	------	1	1	0	0	0	0	0	0	10
New Mexico:											
Albuquerque	0	------	0	0	1	0	0	0	2	3	11
Utah:											
Salt Lake City	0	------	1	1	1	0	0	0	1	7	35
Washington:											
Seattle	3	------	0	0	3	6	0	4	0	3	88
Spokane	0	------	0	0	1	2	0	0	0	0	30
Tacoma	0	------	0	0	1	0	0	0	0	0	28
Oregon:											
Portland	2	1	0	1	7	3	0	3	0	1	74
Salem	0	------	------	0	------	1	0	------	0	0	------
California:											
Los Angeles	2	7	0	5	4	9	0	13	0	24	275
Sacramento	0	2	0	1	4	6	0	2	0	0	31
San Francisco	0	2	0	2	3	5	0	5	0	24	142

State and city	Meningitis, meningococcus		Poliomyelitis cases	State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				North Dakota:			
Boston	1	0	0	Grand Forks	0	0	1
Rhode Island:				Nebraska:			
Pawtucket	0	0	1	Lincoln	0	0	1
Providence	1	0	0	Omaha	0	0	2
New York:				Virginia:			
Buffalo	0	1	0	Lynchburg	0	0	1
New York	0	0	3	Richmond	0	0	1
Pennsylvania:				West Virginia:			
Philadelphia	0	0	3	Charleston	0	0	1
Pittsburgh	0	0	1	Kentucky:			
Ohio:				Ashland	0	0	3
Cleveland	0	0	3	Lexington	0	0	2
Columbus	0	0	2	Alabama:			
Toledo	1	1	0	Birmingham	1	1	0
Indiana:				Oklahoma:			
Indianapolis	1	0	0	Tulsa	0	0	1
Illinois:				Texas:			
Chicago	1	0	8	Houston	0	0	2
Michigan:				Montana:			
Detroit	0	0	6	Missoula	0	0	1
Grand Rapids	0	0	2	Colorado:			
Wisconsin:				Denver	0	0	1
Madison	0	0	1	Utah:			
Milwaukee	0	0	2	Salt Lake City	0	0	2
Minnesota:				Washington:			
Minneapolis	0	0	3	Seattle	0	0	9
St. Paul	0	0	1	Tacoma	0	0	1
Iowa:				California:			
Des Moines	0	0	6	Los Angeles	0	0	2
Sioux City	0	0	1	San Francisco	0	0	1
Waterloo	0	0	2				
Missouri:							
Kansas City	0	0	6				
St. Joseph	0	0	3				

Encephalitis, epidemic or lethargic.—Cases: St. Louis, 1; Great Falls, 1; Sacramento, 1.
Pellagra.—Cases: Boston, 1; Charleston, S. C., 1; Savannah, 1; Montgomery, 1; Los Angeles, 1.
Typhus fever.—Cases: New York, 1; Charleston, S. C., 2; Savannah, 1; Miami, 1; Birmingham, 3; New Orleans, 1; Shreveport, 1; Galveston, 1; Houston, 1. Deaths: New Orleans, 1.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended September 7, 1940.—During the week ended September 7, 1940, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				2	2					4
Chickenpox		2		13	38	15	9	1	8	86
Diphtheria		1	1	9	4	2				17
Dysentery									2	2
Influenza		14			8	3			10	35
Measles	3			12	97	4	5	32	18	171
Mumps			1	7	33	10	1	1	6	59
Pneumonia		2			5	1			4	12
Poliomyelitis				10	4	1				15
Scarlet fever		2		36	50	8		4	9	109
Tuberculosis	1	4	5	35	45	3				93
Typhoid and paratyphoid fever		1	1	20	1	2	1	1	1	28
Whooping cough				190	71	37	11	8	15	332

HAWAII

Influenza.—Under date of October 4, Senior Surgeon M. F. Haralson reported an outbreak of influenza in the Territory of Hawaii, principally in Honolulu, with the occurrence of 1,800 cases and 2 deaths on the Island of Oahu since September 26. On October 13, Dr. Haralson reported a total of 4,298 cases with 6 deaths. He stated that the disease was of mild type, the cases averaging about 3 days of acute illness. For the two weeks ended October 19 and 26, respectively, there were 1,532 and 1,585 cases reported with no deaths. For the latter week, 725 cases were reported on the island of Oahu.

Influenza is not reportable in Hawaii except when officially declared to be epidemic.

JAMAICA

Communicable diseases—4 weeks ended September 28, 1940.—During the 4 weeks ended September 28, 1940, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chickenpox	6	15	Scarlet fever	1	1
Diphtheria	3	2	Tuberculosis	25	76
Dysentery	10	7	Typhoid fever	14	63
Puerperal sepsis		1			

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths]

NOTE.—Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates.

Place		January–July 1940	August 1940	September 1940—week ended—			
				7	14	21	28
ASIA							
China:							
Dairen	C	1	1				
Foochow	C		29	11			
Hong Kong	C		5	76	413	196	68
Macao	C		20	39	87	149	70
Manchuria	C		31				
Shanghai	C	92	249	45	42	21	16
Shantung Province	C	40	204				
India	C	32,069					
Bassein	C	164					
Bombay	C		5			1	
Calcutta	C	1,673	132	17	25	22	23
Cawnpore	C	21	270	26	8	2	2
Chittagong	C	4					
Madras	C	1					
Moulmein	C	16					
Porto Novo	C	1					
Rangoon	C	43					
Vizagapatam	C	16	4				
India (French)	C	34					
Indochina (French)	C	436					
Thailand	C	235					

PLAGUE

[C indicates cases; D, deaths]

AFRICA							
Algeria	C		4		1		2
Plague-infected rats			2				
Belgian Congo	C	20	1				
British East Africa:							
Kenya	C	7					
Uganda	C	124					
Egypt	C	[1] 409					
Madagascar	C	472					
Morocco.[2]							
Rhodesia, Northern	C	1					
Senegal:							
Dakar	D	[3] 1					
Thies	C	1					
Tivaouane	C	3					
Tunisia: Tunis	C			2			3
Plague-infected rats							1
Union of South Africa	C	25					
ASIA							
China:[4]							
Dutch East Indies: Java and Madura	C	247					
India	C	13,108					
Bassein	C	18					
Cochin	C	1					
Plague-infected rats		3					
Rangoon	C	5					
Indochina (French)	C	3					

See footnotes at end of table.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths]

Place		January–July 1940	August 1940	September 1940—week ended— 7	14	21	28
ASIA—continued							
Thailand:							
Bangkok	C	3					
Bisnulok Province	C	3					
Chingmai	C		3				
Dhonpuri Province	C	1					
Jayanad Province	C	3					
Kamphaeng Bajr Province	C	29					
Kanchanapuri Province	C	12					
Koan Kaen Province	C	5					
Nagara Svarga Province	C	30					
Noangkhay Province	C	4					
Sukhodaya Province	C	22					
EUROPE							
Portugal: Azores Islands	C	2					
SOUTH AMERICA							
Argentina:							
Catamarca Province	C		8				
Cordoba Province	C	[6] 21	9				
Jujuy Province	C	9					
Salta Province	C	8					
Santiago del Estero Province	C	30	16				
Tucuman Province	C	18	1				
Brazil:							
Alagoas State	C	5					
Pernambuco State	C	1					
Ecuador: El Oro Province	C		6				
Peru:							
Cajabamba Department	C	1					
Cajamarca Department	C	27					
Lambayeque Department	C	12					
Libertad Department	C	46					
Lima Department	C	44					
Piura Department	C	6					
Tumbes Department	C	[6] 18					
OCEANIA							
Hawaii Territory: Plague-infected rats		29	7		2	1	

SMALLPOX

AFRICA							
Algeria	C	5					
Angola	C	71					
Belgian Congo	C	2,657	353				
British East Africa	C	25					
Dahomey	C	48					
French Guinea	C	13					
Gibraltar	C	[7] 1					
Ivory Coast	C	113					
Nigeria	C	1,866	103				
Niger Territory	C	594					
Nyasaland	C	57	3				
Portuguese East Africa	C	1					
Rhodesia:							
Northern	C		6				
Southern	C	191	5				
Senegal	C	134					
Sierra Leone	C	10					
Sudan (Anglo-Egyptian)	C	441	60	9	6	2	
Sudan (French)	C	1					
Union of South Africa	C	84	22				

See footnotes at end of table.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths]

Place		January–July 1940	August 1940	September 1940—week ended—			
				7	14	21	28
ASIA							
Arabia	C	255					
China	C	798	1				
Chosen	C	533					
Dutch East Indies—Sabang	C	4					
India	C	145,500					
India (French)	C	5					
India (Portuguese)	C	20					
Indochina (French)	C	1,033					
Iran	C	151					
Iraq	C	168	50	71	157	13	20
Japan	C	500					
Straits Settlements	C	1					
Sumatra	C	1					
Thailand	C	104	64	3		5	1
EUROPE							
Great Britain	C	2					
Greece	C	23					
Portugal	C	241	6				
Spain	C	557					
Turkey	C	139					
NORTH AMERICA							
Guatemala	C	21	14				
Mexico	C	53					
SOUTH AMERICA							
Bolivia	C	189					
Brazil	C	1					
Colombia	C	1,227	1				
Ecuador	C	4					
Peru	C	45					
Venezuela (alastrim)	C	150	13				

TYPHUS FEVER

AFRICA							
Algeria	C	1,695	89				
Belgian Congo	C	1,210					
British East Africa	C	2					
Egypt	C	3,491	83	9	7	3	2
Eritrea	C	40					
Morocco	C	277					
Tunisia	C	515					
Union of South Africa	C	108					
ASIA							
China	C	2,030	36	13			
Chosen	C	359					
India	C	3					
Indochina (French)	C	2					
Iran	C	233					
Iraq	C	116	7	4	1		
Japan	C	2					
Palestine	C	70	39	5	4	5	2
Straits Settlements	C	6	1				
Sumatra	C	[8]1					
Trans-Jordan	C	15					
EUROPE							
Bulgaria	C	134	5				
Germany	C	173	40				
Greece	C	28	1	1		3	1
Hungary	C	75	1			1	
Irish Free State	C	9	1				
Lithuania	C	115					
Rumania	C	1,232	11		2	2	1
Spain	C	14					
Turkey	C	503					
Yugoslavia	C	270	12				

See footnotes at end of table.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths]

Place		January–July 1940	August 1940	September 1940—week ended—			
				7	14	21	28
NORTH AMERICA							
Guatemala	C	255	14				
Mexico	C	172	3	3	4	1	1
Panama Canal Zone	C	3					
SOUTH AMERICA							
Bolivia	C	499					
Chile	C	233	3				
Ecuador	C	2					
Peru	C	[9] 304					
Venezuela	C	8	3				
OCEANIA							
Australia	C	10					
Hawaii Territory	C	17	2	1		1	

YELLOW FEVER

[C indicates cases; D, deaths]

AFRICA							
Cameroon: Nkongsamba	C	[10] 1					
French Equatorial Africa: Fort Archambault	C	[10] 1					
Gold Coast	C	1					
Ivory Coast	C	1	[10] 2				
Nigeria:							
Ibadan	C	1					
Oshogbo	C	[10] 1					
Togo (French)	C	1					
SOUTH AMERICA							
Brazil:							
Espirito Santo State	D	[11] 23					
Rio de Janeiro State	D	[11] 1					
Colombia:							
Antioquia Department—San Luis	D	2					
Caldas Department—							
La Pradera	D	1					
Samana	D	1					
Victoria	D	1					
Meta Department [12]	D		2				
Santander Department	D	1					

[1] Includes 5 cases of pneumonic plague.
[2] A report dated May 11, 1940, stated that there was an epidemic of bubonic plague in southern Morocco, where several hundred cases had been unofficially reported.
[3] Imported.
[4] Information dated July 7 states that up to July 6, 17 cases of plague had been reported near Tungliao, Hsingan Province, China; and a report dated July 13 states that an outbreak of bubonic plague occurred along the Yunnan-Burma border in the districts of Loiwing, Chefang, Juili, and Muchieh. Information dated Aug. 17, states that 45 cases of plague with 36 deaths have occurred in Nungen District and a telegram dated Oct. 2 states that 15 cases of bubonic plague with 3 deaths occurred in Hsinking, Manchuria.
[5] Includes 11 cases of pneumonic plague.
[6] Includes 3 suspected cases.
[7] Imported.
[8] July only.
[9] January to March inclusive.
[10] Suspected.
[11] Jungle type.
[12] During the week ended Oct. 5, 1940, 1 case of yellow fever was reported in Meta Department, Colombia.