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Prevention of Gonorrhea With Penicillin Tablets Preliminary Report

By HARRY EAGLE, *National Institutes of Health, Public Health Service*; A. V. GUDE, M. D., Lt. jg., MC, USNR; G. E. BECKMANN, M. D., Lt. jg., MC, USNR; GEORGE MAST*, M. D.; J. J. SAPERO, M. D.; Capt., MC, USN, *Research Division, Bureau of Medicine and Surgery*; and J. B. SHINDLEDECKER, HMC, USN.

Studies on pneumococcal and streptococcal infections in mice (1) and on syphilitic infection in rabbits (2) have shown that the curative dosage of penicillin increases with the number of organisms in the infected animal, and with the age of the infection. These results suggested the possibility that in man, penicillin tablets taken by mouth within a few hours after exposure might prove effective in the prevention of gonorrhea.

To test that possibility, a unit comprising approximately 350 naval personnel under fairly close medical supervision was divided into two equal groups. One group received 100,000 units of penicillin (increased to 250,000 units after the first 16 weeks), taken as a single peroral tablet as the men returned to the ship from shore liberty,¹ and whether or not they had been exposed. The second group received a similar placebo tablet, containing no penicillin. (See table and figure.)

The penicillin tablets used in this study were the ordinary buffered tablets of commerce, generously supplied by the Abbott Laboratories, Commercial Solvents Corp., Lederle Laboratories, Lilly Research Laboratories, Chas. Pfizer and Co., Schenley Laboratories, Inc., Sharp and Dohme, Inc., and The Upjohn Co. All were crystalline penicillin G; and the specific lots used included the K, Ca, and Na

*Commander, MC, USN, Preventive Medicine Division, Bureau of Medicine and Surgery, at the time this study was planned.

¹ The duration of liberty varied from 2 to 22 hours, with the mode at 6 to 8 hours. The average time which had elapsed between the first exposure and the ingestion of the tablet was similarly variable, but probably averaged less than 2 hours.

salts. No difference was noted in prophylactic efficacy, and the various lots are not distinguished in the table and figure.

Controls

During the first 24 weeks of this study there were 43 cases of gonorrhea in the control group receiving no penicillin. The number of subjects in this control group varied from 137 to 217 over the 6-month period, and the total number of liberties was 3,616. There were thus 11.9 cases of gonorrhea per 1,000 liberties, and the average morbidity rate was 508 cases per 1,000 men per year.

Experimental: 100,000-unit tablets

In the experimental group, actually receiving 100,000 units of penicillin, there were 5 cases of gonorrhea over a 16-week period. This figure includes 3 cases in which there is reason to doubt that the subject had actually received penicillin; it does not include 9 cases which developed in subjects who were supposed to receive penicillin, but definitely failed to take the tablet provided (footnote 2, table).

The number of subjects in this treated group varied from 151 to 213, and there was a total of 3,218 liberties. The incidence of gonorrhea in this group was 1.8 per 1,000 liberties, and the average morbidity rate was 105 per 1,000 men per year. These rates are corrected for those in the experimental group who failed to take penicillin (footnote 3, table).

Experimental: 250,000-unit tablets

When, over the last 8 weeks of the controlled study, the size of the tablet was increased to 250,000 units (in a total of 569 liberties and 87 to 141 subjects), only one case developed in those receiving penicillin. That case was complicated by the fact that although gonorrhea developed 5 days after a supposedly "penicillin-protected" liberty, the subject denied having taken the pill.

Volunteer Study: 250,000-unit tablets

At the end of the 24 weeks of the controlled study, the penicillin tablets were made available to the entire station on a voluntary basis. (See figure.) Over an 8-week period, involving 225 individuals, there was a total of 1,943 liberties. Penicillin prophylaxis was requested after 670 liberties, and at least once by 70 percent of the personnel who took leave. It may be assumed that in the great majority of these "protected" liberties the men had been exposed. In this group, there was one questionable failure in a man who developed gonorrhea 7 days after receiving penicillin prophylaxis, but who had, in the meantime, been on unauthorized leave for 5 days, with repeated exposures.

The remaining 1,273 liberties were not followed by prophylaxis,

Effect of a single peroral tablet of penicillin on the incidence of gonorrhea

	Control group (no penicillin)	Experimental group	
		100,000 units	250,000 units
Duration of study	24 weeks	16 weeks	8 weeks
Number of subjects ¹	137-217	151-213	87-141
Number of liberties	3,616	3,218	569
Number of cases ²	43	5	0 (1?)
Incidence of gonorrhea ^{3 4}	Per 1,000 men per year	508	105
	Per 1,000 liberties	11.9	1.8

¹ The figures in this row represent the variations in the total number of subjects in each group during single 4-week periods of the study. Men were included even though they may have been in the study or in the group for only a fraction of that period. This figure is, therefore, somewhat greater than the average number of subjects in the study. In consequence, the rates per 1,000 per year given in the table are somewhat lower than was actually the case.

² These figures do not include a total of 9 cases of gonorrhea which developed in men supposed to have taken penicillin, but who are known definitely not to have taken the drug after the leave in which the infection was contracted, either because they refused, because the leave was unauthorized, or because of the laxity of the watch in charge of dispensing tablets. These cases should obviously not be included in assessing the efficacy of the procedure. By the same token, however, there must have been many others in the experimental group, supposed to have taken the drug, who failed to do so. (See footnote 3.) The total of 5 failures charged to the experimental group receiving 100,000 units of penicillin includes 3 cases in which there was no record on the individual card that the penicillin had been taken, and which may therefore not have been penicillin failures. They have nevertheless been treated as failures in the calculations because there was no proof that the tablets had not been taken.

³ Because some of the men supposed to receive penicillin actually failed to do so, in calculating these rates an attempt has been made to correct for these omissions. If in a given month there were, e. g., 10 cases in a control group of 200 men, with a total of 500 liberties, and if in the same period there was, e. g., 1 case in the supposedly experimental group who failed to take penicillin, it is assumed in calculating the rates that $1/10 \times 200 = 20$ men in the experimental group had failed to take the drug, and that this had occurred in a total of $1/10 \times 500/50$ liberties. The values so calculated have been subtracted from the totals in the experimental group in calculating the rates per 1,000 men per year, and per 1,000 liberties. The correction is obviously approximate, but to exclude the cases developing in subjects who had failed to take penicillin without at the same time changing the base figure would result in rates biased in favor of the prophylactic procedure.

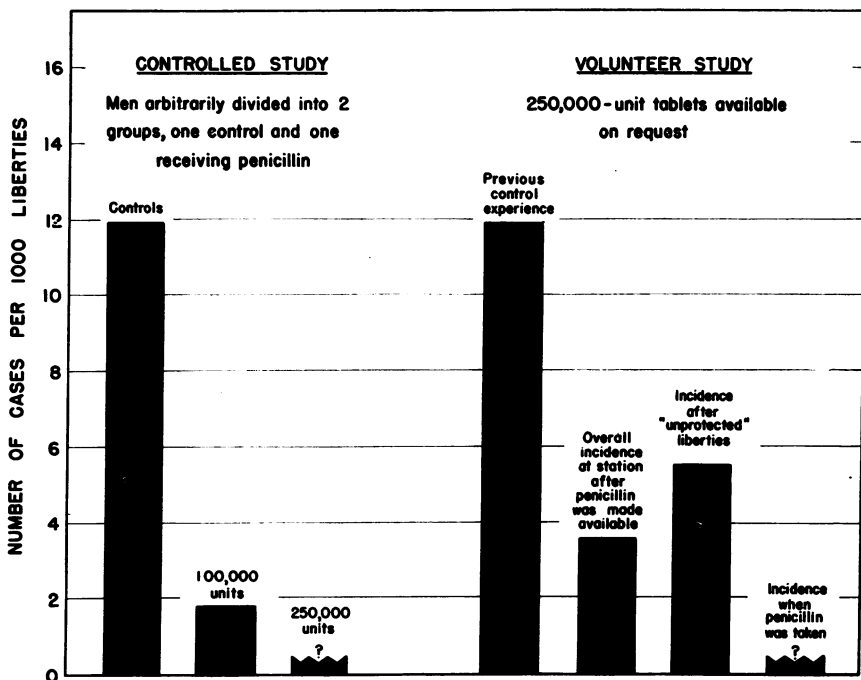
⁴ The assistance of Jerome Cornfield and Nathan Mantel, Office of the Statistical Coordinator, Division of Public Health Methods, in calculating these rates and making the appropriate corrections, is gratefully acknowledged.

either because there had been no exposure, because exposure was to a marital partner, or because the subject was disinterested. Following those "unprotected" liberties there were 6 cases.

The 7 cases of gonorrhea which developed at the station during this period of voluntary prophylaxis represent an average incidence of 187 cases per 1,000 men per year, and 3.6 cases per 1,000 liberties, as

contrasted with the previously observed average incidence in a control group of 508 and 11.9, respectively. At least 6 and perhaps all 7 of these cases developed in subjects who had elected not to take penicillin after the infecting exposure.

THE PREVENTION OF GONORRHEA WITH PERORAL PENICILLIN



Summary of results in the prevention of gonorrhea with peroral penicillin:

(1) Controlled Study (24 weeks)—In the first 16 weeks, the experimental group received a single 100,000-unit tablet of penicillin G, and in the last 8 weeks a 250,000-unit tablet. There was a single questionable failure in the latter group.

(2) Volunteer Study (8 weeks: 250,000-unit tablets available on request)—In those taking the penicillin there was a single questionable failure in a case developing 7 days after a penicillin "protected" liberty. In the meantime, however, the subject had been on unauthorized leave for 5 days with repeated exposures.

General Considerations

Under the conditions of the present experiment, and in the dosages used, peroral penicillin was highly effective in the prevention of gonococcal infection. In a control group receiving no penicillin, there were 43 cases after 3,616 liberties, or 11.9 per thousand. In 3,218 liberties which were followed within a few hours after exposure by the ingestion of a single 100,000-unit tablet of crystalline penicillin G, there were 5 cases. In 1,239 liberties which were similarly followed by the ingestion of a single 250,000-unit tablet there were 2 cases of gonorrhea. In one of these the subject stated that he had not taken

the pill. In the other, gonorrhea developed 7 days after a "protected" liberty, the subject having in the meantime been absent without leave for 5 days, with frequent exposure.

The maximum length of time after exposure for which a single tablet of 250,000 units would be reasonably effective remains to be determined. In confirmation of the results in experimental infections (1, 2), a study by Campbell and Curtis (3) indicates that the efficacy of the prophylactic procedure falls off materially with increasing time elapsed since exposure. It may well be that if the penicillin were taken, e. g., 12 to 18 hours after exposure, it might then be necessary to take, e. g., two tablets at 6-hour intervals.

In the present study, there have been no complications to date which might militate against the general use of peroral penicillin for the prevention of gonorrhea. The average frequency at which penicillin was taken during the first 16 weeks of the study varied from once monthly to as high as five times weekly, and the average intake in the entire group was 1.1 tablets weekly. There has been to date no evidence of sensitization to penicillin, no apparent development of penicillin-fast strains of gonococcus, and no instance of suppressed syphilitic infection. Studies on the effect of the continued intake of penicillin on the bacterial flora of the mouth and intestine are now in progress (4).²

REFERENCES

- (1) Eagle, H., Musselman, A. D., and Fleischman, R.: The effect of the size of the inoculum on a therapeutic dose of penicillin in experimental infections. To be published (1948).
- (2) Eagle, H., Magnuson, H. J., and Fleischman, R.: Relation to the size of the inoculum and the age of the infection to the curative dose of penicillin in experimental syphilis, with particular reference to the feasibility of its prophylactic use. *J. Exp. Med.* **85**: 423-440 (1948).
- (3) Campbell, V. W. H., and Curtis, C. E.: Delayed administration of oral penicillin as prophylaxis for gonorrhea. To be published.
- (4) Romansky, M. J.: Personal communication.

² The opinions or assertions contained herein are the private ones of the writers and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

Histoplasmosis in Wild Rats

Occurrence and Histopathology

By C. W. EMMONS, *Principal Mycologist*,¹ and L. L. ASHBURN, *Senior Surgeon*,¹
Public Health Service

The isolation of *Histoplasma capsulatum* from the common brown rat was reported in an earlier paper (1). At the time the report was made 1,620 wild animals, representing 16 genera had been examined. From one house mouse (*Mus musculus*) and five rats (*Rattus norvegicus*) *H. capsulatum* was isolated in culture, and tissues of these six animals were examined microscopically. As stated in a footnote, five additional rats with naturally acquired histoplasmosis were trapped after the preparation of the paper and were not included in the tabulations.

In an attempt to learn more about the occurrence in host species, the nature of an infecting exposure to *Histoplasma*, and the geographic distribution of histoplasmosis, the trapping of rodents, particularly of rats, has been continued. From November 21, 1945 to June 14, 1948, a grand total of 565 wild rats were trapped in Loudoun County, Virginia, and examined. Among this number 16 (2.8 percent) had histoplasmosis as proved by isolation of *H. capsulatum* in culture. The diagnosis was confirmed by microscopic examination of tissues in 12 of these naturally infected rats (see table).

This paper discusses the conditions under which histoplasmosis was found in rats and the histopathology of the disease as seen in one mouse and 15 rats.²

Methods

The rats were caught in steel traps, brought to the laboratory alive and autopsied promptly. Cultures were made on modified Sabouraud's agar³ from liver, spleen, adrenal, urinary bladder, and lung, and the organs were fixed in formaldehyde. Sections of tissue were prepared from animals from which cultures were obtained.

It is recognized that this procedure may have failed to detect histoplasmosis in all infected animals trapped. The development of *Histoplasma* may have been inhibited in some cultures by the growth of contaminating fungi or bacteria or of bacteria from concomitant bacterial infections, which were frequently observed. However, the diagnosis of histoplasmosis in these animals could be made with certainty only by the isolation of *Histoplasma* in culture, and,

¹ From the Division of Infectious Diseases and Pathology Laboratory, The National Institutes of Health, Bethesda 14, Maryland.

² Fixed tissues from one infected rat were inadvertently discarded.

³ Neopeptone 1 percent, c. p. dextrose 2 percent, agar 2 percent.

*Spontaneous infection with Histoplasma capsulatum. Frequency and distribution of the fungus and of lesions based on cultures and histopathologic study*¹

Animal number	Lung				Liver				Spleen			
	Culture	Granulomata	Fungus in granulomata	Fungus outside granulomata	Culture	Granulomata	Fungus in granulomata	Fungus outside granulomata	Culture	Granulomata	Fungus in granulomata	Fungus outside granulomata
Mouse: 1120.....	+	-	-----	±	+	++	±	±	+	++	+	+
Rats:												
1690.....	-	-	-----	-	+	-	±	±	-	0	-----	+++
1697.....	-	-	-----	-	+	++	±	-	+	-	-----	+++
1742.....	-	-	-----	-	+	±	±	-	+	±	-----	±
1783.....	-	-	-----	-	+	±	±	-	+	±	-----	±
1808.....	-	-	-----	±	+	++	±	++	+	+++	++	++
1879.....	+	0	-----	-----	+	±	±	±	+	+++	++	±
1880.....	-	-	-----	-	+	±	±	-	+	±	-----	-
1911.....	-	-	-----	-	+	++	±	-	+	+++	±	±
1921.....	-	+	++	++	+	++	±	+	+	+++	++	++
2030.....	-	-	-----	-	+	±	±	-	+	±	-----	±
2052.....	-	-	-----	-	+	±	-	-	+	0	-----	-----
2114.....	-	-	-----	-	+	±	-	-	+	-	-----	-
2115.....	-	-	-----	-	+	±	-	-	+	±	-----	-
2121.....	-	-	-----	-	+	±	-	-	+	±	-----	-
2168.....	-	-	-----	-	+	±	-	-	+	±	-----	-

0 not examined; - negative; ± rare; ± occasional; + few; ++ moderate numbers; +++ numerous.

¹ See text for the one instance of adrenal involvement.

accordingly, this criterion was used in the selection of animals for the study of the histopathology of histoplasmosis in the wild rat.

The possibility that additional rats in this series had histoplasmosis but were missed because of failure to isolate *Histoplasma* was suggested by the following observations. Thirteen rats from which *Histoplasma* was not isolated in culture were selected for microscopic examination either because other interesting fungi were isolated in culture or because splenomegaly was observed at autopsy. In three of these, occasional small granulomata of the type to be described were found in the liver, but *Histoplasma* cells were not found. These may have been lesions of histoplasmosis but, lacking cultures, a definite diagnosis can not be made.

Rats were trapped on 29 farm premises located in Loudoun County within an area 20 miles in diameter. Infected rats were found on six of these premises. The number of infected animals ran as high as 3 out of 9 trapped at one house, while at another farm only 2 out of 81 trapped were infected. The collection of infected animals from only about one-fifth of the farm areas sampled does not necessarily indicate a permanent localization of rodent histoplasmosis on those farms. Rather, the distance between such farms and the rather erratic incidence of histoplasmosis may indicate a widespread occurrence of the disease in rats which might be detected by more adequate sampling.

During autopsy of animals from which *Histoplasma* was subsequently isolated, macroscopic lesions were observed in only four rats.

In one there was pneumonic consolidation, apparently of non-mycotic etiology, involving all lung lobes. In one rat enlargement of the liver and spleen was noted. Encysted tapeworms were observed in the livers of two rats.

Histopathology

Various organs and tissues from 15 rats and 1 mouse spontaneously infected with *Histoplasma capsulatum* as proved by culture were examined microscopically. The examination included the liver of all animals, the lungs of 15, the spleen, spinal bone marrow, and adrenal of 13, the heart of 12, the kidneys of 11, the stomach or small intestines of 4, the pancreas of 2, and the urinary bladder of 1 animal. All

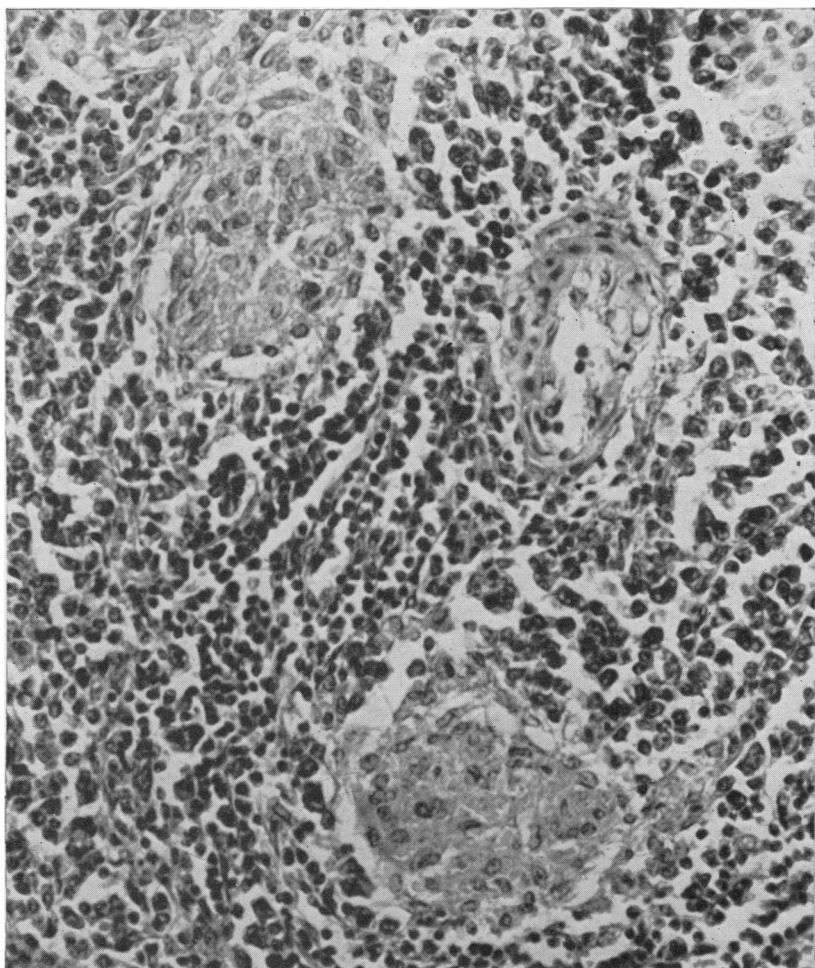


Figure 1. Rat spleen. Granulomata within a lymphoid follicle. Van Gieson stain, X 400.

tissues were fixed in 10 percent formalin and embedded in paraffin for sectioning. Sections were stained with azure eosinate and by the Van Gieson and the Bauer techniques with hematoxylin counterstain. The latter method (3) stains the capsules of *Histoplasma* red on a gray background which greatly facilitates the finding of these organisms, particularly when they are present in small numbers.

No lesions of significance were found in the heart, kidney, pancreas, stomach, small intestine, or urinary bladder.

Lesions characteristic of *Histoplasma* infection as it occurred in these animals were found in the spleen, liver, lung, and the adrenal (see table). The lesions in these organs consisted of scattered or

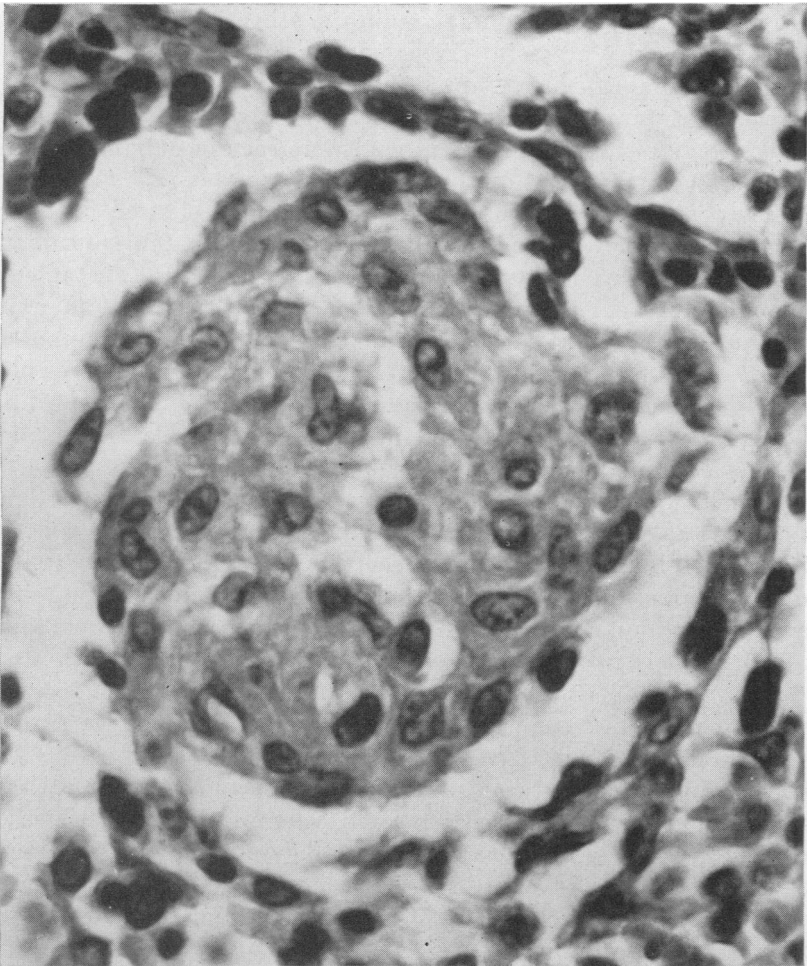


Figure 2. Rat spleen. Higher power of a granuloma showing more detail of cell type and arrangement. Van Gieson stain, X 1100,

diffusely disposed, sharply circumscribed, round or oval epithelioid cell granulomata varying in size from 30μ to 200μ . Most, however, were between 50μ and 100μ in their greatest dimension. The epithelioid cells which made up the granulomata were generally polygonal with pale, oxyphil cytoplasm. In a few lesions some were fusiform, had indistinct margins, and were loosely disposed. In one animal, a few of the granulomata showed a very loose collagen stroma. In three rats a few lymphocytes and rare polymorphonuclear leucocytes were admixed with the epithelioid cells. Occasional giant cells were seen in only one animal. These occurred in liver granulomata, were few in number, and had indistinct margins.

Granulomata were found in the lung of only one animal, and these were not as sharply defined as those in the other organs. In addition there were patchy areas in which mononuclear septal cells were increased in number causing appreciable thickening of septa. Mononuclear cells were also seen in moderate numbers around some pulmonary veins. Lesions in the adrenal were seen in only one animal, were few in number, and quite small.

The consolidated lung observed in one animal showed on microscopic examination bronchitis, bronchiectasis, and patchy pneumonia involvement. Granulomata were not present nor could Histoplasma be found. The enlarged spleen and liver of one rat showed no granulomatous involvement. There was much blood in the red pulp of the spleen. Histoplasma was demonstrated histologically in one or more organs of nine animals (see table). They were found in the lung, liver, and spleen in three animals, in the liver and spleen in four, and in the spleen in two. In most instances the parasites were present in very small numbers and occasionally only one or two were found. There was no correlation between number of parasites and the extent of granulomatous involvement; three livers showed 3-plus involvement but few parasites. Parasitized cells were not found in the single instance of granulomatous involvement of the adrenal, but were found in two animals in septal cells of the lung unassociated with tissue reaction. Histoplasma was found within granulomata and in extragranulomatous mononuclear cells of the liver, spleen, and lung. In a few instances these parasitized cells were moderately numerous. In general, the parasitized cells occurring outside the granulomata contained many more organisms than did cells forming the lesions. A number of parasites did not show a central cytoplasmic mass although the capsule stained brilliantly. The well preserved Histoplasma cells seen in all animals were characteristic in form and general structure and need no description.

The frequency and distribution of lesions and of Histoplasma observed in these animals are shown in the accompanying table.

Discussion

The type of cellular reaction occurring in these animals spontaneously infected with *Histoplasma capsulatum* was similar, from a cell-type standpoint, to that seen in human cases at autopsy. However, the lesions seen in animals were more sharply outlined, forming striking epithelioid cell granulomata. Convincing evidence of a progressive infection was lacking. Parasites were not numerous and in a number of animals were not found on histologic examination. These facts, together with the observation that a number of organisms apparently were nonviable at the time of autopsy (only the capsule being demonstrable) suggest that the spontaneous infection in rats is a self-limited or chronic disease.

The observation of proved histoplasmosis in the brown rat has several implications. It may explain the observations of a Histoplasma-like organism in the rat by Sangiorgi (5), in mice and a rat by Shortt (6), and in the ferret by Levine et al. (2). However, as previously pointed out (1), if the fungus isolated in culture by Sangiorgi was actually the one he observed in tissue it was not *H. capsulatum*, nor, indeed, does it belong to the genus *Histoplasma*. The frequent isolation of a *Cryptococcus* from mice and rats from Loudoun County (1) may support Sangiorgi's designation of the fungus he isolated as a *Cryptococcus*.

The fungus observed in mice and a rat inoculated with *Herpetomonas* and named *Cryptococcus muris* by Shortt (6) may have been a *Cryptococcus* or it may have been *Histoplasma*. No information about its cultural characteristics was given. Redaelli and Ciferri transferred it to the genus *Histoplasma* as *H. muris* (4). However, if it was a *Histoplasma* there is no reason for separating it from *H. capsulatum* until cultures of a large number of strains from mice in India demonstrate that such strains are significantly different from strains in other parts of the world.

In this connection, it should be remembered that there are considerable differences in growth rate, sporulation, and other characteristics between the strains of *H. capsulatum* isolated from man. These differences are transitory for the most part, or are not of specific significance, and some of them may appear in pure cultures of any strain kept in the laboratory over a long period of time. New species names should not be created for strains unless a comparison of many strains of the fungus and a consideration of the mutability of fungi indicate permanent and significant differences in important characteristics. Since *H. capsulatum* has now been isolated from naturally infected feral rodents, and since it is known to be pathogenic for a wide variety of laboratory animals under experimental conditions, *Histoplasma muris* should be considered a synonym and dropped from use.

It should be restated that although four fatal human cases and three canine cases of histoplasmosis have occurred in Loudoun County, there was no demonstrable association between recognized cases of histoplasmosis in man and the infected animals. The only possible association between canine and rodent disease as observed in this series was in the case of the mouse which was trapped at a farm house where one of the infected dogs had lived more than a year previously. Therefore it is not intended to suggest that histoplasmosis is transmitted directly from rodents to man, although the strains of *Histoplasma* causing rodent histoplasmosis are typical of *H. capsulatum*.

The occurrence of histoplasmosis in animals as ubiquitous and world-wide in distribution as *Rattus norvegicus* and *Mus musculus* may be significant in explaining the occurrence of histoplasmosis in man in all parts of the world. On the basis of the above findings it may be suggested that the brown rat may be a reservoir host which determines the endemicity of histoplasmosis. *H. capsulatum* has been isolated from man, the dog, and rodents. No common environmental source from which these hosts are infected has yet been found.

Summary

Typical strains of *Histoplasma capsulatum* have been isolated from 16 feral rats (*Rattus norvegicus*) and one mouse (*Mus musculus*) trapped in Loudoun County, Virginia. No association was observed between these rodent cases and the previously reported human cases of the disease in this area.

The microscopic lesions were small epithelioid granulomata in which fungi were generally few in number. *Histoplasma* was found also in monocytes outside of lesions.

It is suggested that the frequent occurrence of *H. capsulatum* in the common brown rat may be important in the endemicity of histoplasmosis in many widely separated areas of the world. The data suggest that *H. muris* should be reduced to synonymy.

REFERENCES

- (1) Emmons, Chester W.; Bell, Joseph A.; and Olson, Byron J. Naturally occurring histoplasmosis in *Mus musculus* and *Rattus norvegicus*. Pub. Health Rep. **62**: 1642-1646 (1947).
- (2) Levine, N. D.; Dunlap, G. L.; and Graham, R. An intracellular parasite encountered in ferret. Cornell Veterinarian. **28**: 249-251 (1938).
- (3) Lillie, R. D. Histopathologic Technic. The Blakiston Co., Philadelphia and Toronto. 1948, pp. 143-212.
- (4) Redaelli, P. and Ciferri, R. Affinité entre les agents de l'histoplasmose humaine, du farcin équin et d'une mycose spontanée des Muridés. Boll. Ital. Soc. Intern. Microb. **10**: 1-6 (1934).
- (5) Sangiorgi, G. Blastomicosi spontanea nei muridi. Pathologica. **14**: 493-495 (1922).
- (6) Shortt, H. E. The pathogenicity of insect flagellates to vertebrates, with special reference to *Herpetomonas clenoccephali* Fantham. Indian J. Med. Research. **10**: 908-933 (1923).

Inspection Officer Examination

The United States Civil Service Commission has announced an examination for filling inspection officer positions in the Public Health Service, General Field Duty, Foreign Quarantine Division. The positions pay \$4,479 a year and are located in Washington, D. C., and throughout the country.

To qualify, applicants must have had 5 years of experience in any one or a combination of the following: (a) Communicable disease control and environmental sanitation in a local, county, State, or Federal public health service; (b) work with the Public Health Service as an administrative assistant or inspection officer; or (c) technical nursing and allied hospital duties in the Army, Navy, Coast Guard, or Maritime Service. Appropriate education may be substituted for part of the experience. No written test is required.

Further information and application forms may be obtained from most first- and second-class post offices, from Civil Service regional offices or from the United States Civil Service Commission, Washington 25, D. C. Applications must be received in the Commission's Washington office not later than November 16, 1948.

Notifiable Diseases, Second Quarter, 1948¹

The figures in the following table are the totals of the monthly morbidity reports received from State health authorities for April, May, and June, 1948. These reports are preliminary and the figures are more or less incomplete and subject to correction by final reports. The figures may be assumed to represent the civilian population only, although in some instances a few cases in the military population may be included. The comparisons made are with similar preliminary reports; but, owing to population shifts in many States since the 1940 census, the figures for some States may not be comparable with those for prior years, especially for certain diseases. Each State health officer has been requested to include in the monthly report for his State all diseases that are required by law or regulation to be reported in the State, although some do not do so. The list of diseases required to be reported is not the same for each State. Only 11 of the common communicable diseases are notifiable in all the States. In some instances cases are reported, in some States, of diseases that are not required by law or regulation to be reported and the figures are included although manifestly incomplete. There are also variations among the States in the degree of, and checks on, the completeness of reporting of cases of the notifiable diseases; therefore, comparisons as between States may not be justified for certain diseases. As compared with the deaths, incomplete case reports are obvious for such diseases as malaria, pellagra, pneumonia, and tuberculosis, while in many States other diseases, such as puerperal septicemia, rheumatic fever, and Vincent's infection, are not reportable.

In spite of these and other deficiencies inherent in morbidity reporting, these monthly reports, which are published quarterly and annually in consolidated form, have proved of value in presenting early information regarding the reported incidence of a large group of diseases and in indicating trends by providing a comparison with similar preliminary figures for prior years. The table gives a general picture of the geographic distribution of certain diseases, as the States are arranged by geographic areas. Leaders are used in the table to indicate that no case of the disease was reported.

Consolidated monthly State morbidity reports for April, May, and June, 1948

Division and State	Anthrax	Chick-enpox	Conjunctivitis ²	Diphtheria*	Dysentery, amebic	Dysentery, bacillary	Dysentery, undefined	Enteric, infectious	German measles	Hookworm disease	Influenza	Malaria ³	Measles*	Meningitis, meningococcal*	Mumps	Ophthalmia	Pellagra	Pneumonia, all forms
NEW ENGLAND		1,362		11		48			64		32	2	347	2	253			222
Maine		161							12		8		559	4	51			15
New Hampshire	1			1					59				172		112			15
Vermont		866							454				18,262	12	7,053			244
Massachusetts		5,258	79	70		47		12	10			4	7	1	139	45		60
Rhode Island		326		1	10				195		6		1,734	6	1,484			386
Connecticut		3,226	26	10	5			4			33							
MIDDLE ATLANTIC																		
New York	3	9,819	15	82	150	44		12	1,923	613	44	14	31,986	78	64,071	10		2,832
New Jersey	9	11,024		27	18	1	1		1,106		42	5	25,532	22	15,095			857
Pennsylvania	4	6,883		98		1		4			17		24,420	55	6,471	2		1,071

EAST NORTH CENTRAL									
Ohio.....	5,083	75	44	1	3	12	151	21	1
Indiana.....	8,066	115	103	32	113	24	127	5	1
Illinois.....	4,349	32	103	19	324	4	155	50	7
Michigan.....	7,025	59	114	19	324	4	324	8	4
Wisconsin.....	11,855	10	3	---	453	---	453	147	2
WEST NORTH CENTRAL									
Minnesota.....	800	26	7	9	2	3	3	3	23
Iowa.....	1,071	15	2	1	---	3	3,430	1	1
Missouri.....	850	36	---	---	---	---	2	68	7
North Dakota.....	135	6	14	---	---	1	3,394	22	2
South Dakota.....	122	10	---	---	---	---	425	5	5
Nebraska.....	441	6	16	2	---	4	650	4	4
Kansas.....	1,255	37	2	2	---	1	2,685	11	200
SOUTH ATLANTIC									
Delaware.....	101	4	---	---	---	---	467	1	211
Maryland.....	1,145	41	---	15	---	---	7,797	16	2,270
District of Columbia.....	1,387	3	4	1	---	---	1,490	7	1,490
Virginia.....	1,070	47	3	---	726	1	3,435	26	1,611
West Virginia.....	1,169	39	---	1	---	---	2,908	11	126
North Carolina.....	919	63	6	4	1	2	3,146	46	1,051
South Carolina.....	510	32	7	89	4	7	1,847	19	528
Florida.....	453	13	39	123	11	2	1,451	79	21
EAST SOUTH CENTRAL									
Kentucky.....	212	53	3	14	---	2	498	8	10
Tennessee.....	545	34	90	9	2	4	53	1	319
Alabama.....	393	54	6	---	---	2	4	509	139
Mississippi.....	78	40	21	---	---	---	591	76	42
West South Central									
Arkansas.....	426	19	81	4	219	---	59	2	808
Louisiana.....	1	32	35	1	4	---	382	34	8
Oklahoma.....	346	26	18	1	---	---	124	602	171
Texas.....	6,438	196	251	5,287	1,133	12	7,481	965	27,721
MOUNTAIN									
Montana.....	502	21	2	---	---	---	39	122	690
Idaho.....	341	8	1	---	7	---	41	205	975
Wyoming.....	203	3	---	---	---	2	118	3	1,085
Colorado.....	1,421	37	17	---	---	---	173	163	2
New Mexico.....	1,170	4	1	---	---	---	26	32	556
Arizona.....	596	29	---	---	540	2	209	469	6
Utah.....	860	52	---	1	---	---	36	15	1
Nevada.....	36	10	---	3	---	---	---	9	4,786
PACIFIC									
Washington.....	2,327	31	5	---	9	---	280	37	2
Oregon.....	812	34	10	39	2	1	185	7	3,319
California.....	17,542	109	85	---	84	9	1,952	300	42,264
Total									
Second quarter 1947.....	18,113,339	1,777	1,885	5,878	2,691	115	8,909	17,977	2,788
Median 1943-47.....	15,110,965	2,353	809	3,706	2,079	81	4,931	4,536	101,166
	12,96,805	2,522	809	8,354	1,903	138	21,103	23,340	14,540
Alaska, Hawaii Territory, Panama Canal Zone ^u									
Alaska.....	17	---	3	11	---	---	49	11	---
Hawaii Territory.....	773	---	17	6	---	---	2	---	---
Panama Canal Zone ^u	55	11	---	---	---	---	42	44	42

See footnotes on page 1428.

Consolidated monthly State morbidity reports for April, May, and June, 1948—Continued

Division and State	Polio- myeli- tis*	Rabies in man	Rheu- matic fever	Rocky Moun- tain spotted fever	Scar- let fever*	Septic sore throat	Small pox*	Teta- nus	Tru- cho- ma	Trich- inosis	Tuber- culosis, all forms*	Tuber- culosis, respi- ratory	Tula- re- mia	Ty- phoid fever*	Para- ty- phoid fever	Ty- phus fever, en- demic	Un- du- lant fever*	Vin- cent's in- fec- tion	Whoop- ing cough*
NEW ENGLAND																			
Maine.....					116	10					139	126		2	5	2	4	9	159
New Hampshire.....					31	20					41			2	1		3	5	90
Vermont.....					31	9		1			47			2	2		23		360
Massachusetts.....	3				2,637	27		3		7	780	742	5	13	13		12		420
Rhode Island.....					118	4					186	177		2	2		3	1	79
Connecticut.....	2				267	67		2		5	395	366		2	13		17		198
MIDDLE ATLANTIC																			
New York.....	29			1	2,495			2		101	4,149	3,915		17	13	4	72		1,170
New Jersey.....	37			8	690	32		1		10	781			5	1		10		631
Pennsylvania.....	17			5	3,277			1		3	1,400		2	37	13		15		799
EAST NORTH CENTRAL																			
Ohio.....	33			1	2,945	9		5		4	2,688			28	2		82	2	566
Indiana.....	27	1		7	483	9		4			695	640	2	12	4		22		249
Illinois.....	21			4	1,222	24		4	2	1	1,803	1,661	6	27	1		126	46	479
Michigan.....	11	1			1,862	168		1		3	1,484			14	13		54		577
Wisconsin.....	10				617	11			1		570		2	9	2		93		762
WEST NORTH CENTRAL																			
Minnesota.....	15				377	61		2	1	12	1,136			5	13		75	52	159
Iowa.....	60				303	9					241			4			47		109
Missouri.....	11				251	21	1	251			741		6	13	2		31	2	222
North Dakota.....	3			1	40				6		95	88		7				9	46
South Dakota.....	20			2	31	8		35	7		35		2	1			13	1	61
Nebraska.....	27				165		1				105			5			18		53
Kansas.....	16				209	15	3	1			314	309	2	3	2		43	23	583
SOUTH ATLANTIC																			
Delaware.....	3			4	41						70	70		3			1		27
Maryland.....				30	261	24					803	794		9	1		5		149
District of Columbia.....				1	73			1						4					37
Virginia.....	16			22	221	464		3			1,046	1,034	10	26	6	1	26		780
West Virginia.....	2			5	134	28					600	599		9	2		1		286

North Carolina.....	289	7	191	10	2	---	---	779	758	5	15	1	3	2	731
South Carolina.....	23	3	33	1,487	---	6	---	115	---	5	16	3	9	7	1,201
Georgia.....	27	8	158	49	---	10	---	987	970	24	26	21	42	55	1,191
Florida.....	34	---	66	21	---	10	---	804	804	7	38	13 27	38	20	290
EAST SOUTH CENTRAL															
Kentucky.....	15	6	180	7	---	1	5	525	525	1	39	1	2	5	13
Tennessee.....	12	5	216	84	---	6	---	1,309	---	10	22	3	---	19	62
Alabama.....	13	1	92	---	---	9	---	755	---	6	15	1	50	19	594
Mississippi.....	9	1	18	---	1	---	1	509	550	17	19	---	11	18	42
WEST SOUTH CENTRAL															
Arkansas.....	15	2	42	315	---	8	19	595	596	66	28	---	---	13	385
Louisiana.....	26	1	30	11	1	6	---	775	747	14	40	1	7	11	41
Oklahoma.....	14	8	90	44	---	1	81	642	631	36	24	1	---	11	387
Texas.....	555	---	347	928	---	---	35	4,167	---	40	117	5	84	150	5,096
MOUNTAIN															
Montana.....	5	---	102	16	---	---	41	192	187	4	1	---	---	3	89
Idaho.....	18	---	37	78	---	---	2	82	---	---	1	1	---	4	85
Wyoming.....	4	---	26	2	1	---	---	15	---	4	1	---	---	6	3
Colorado.....	7	13	220	63	---	---	---	581	---	1	4	1	---	62	6
New Mexico.....	5	17	52	3	---	---	14	444	9424	1	5	---	---	---	286
Arizona.....	15	---	38	---	1	---	153	720	691	3	---	---	---	7	455
Utah.....	6	2	140	6	---	---	1	17	16	5	2	---	---	9 30	186
Nevada.....	---	---	8	4	---	---	---	20	8	---	---	---	---	1	6
PACIFIC															
Washington.....	20	---	449	14	---	---	17	708	---	---	3	13 3	---	9	315
Oregon.....	8	---	168	51	---	---	---	218	202	4	4	1	---	11	400
California.....	307	---	1,059	145	---	9	1	2,196	2,018	2	45	18	7	48	1,060
Total.....	1,790	178	22,637	4,348	12	96	387	37,531	19,638	285	725	192	260	1,307	436
Second quarter 1947.....	1,536	170	22,993	3,532	73	125	216	34,008	19,533	303	699	207	409	1,529	708
Median 1943-47.....	680	168	43,121	2,447	101	112	352	33,157	18,804	221	832	204	716	1,359	642
Alaska.....	---	---	10	---	---	---	---	1	---	---	---	---	---	---	68
Hawaii Territory.....	---	---	38	10	---	2	---	360	346	---	1	---	4	---	189
Panama Canal Zone ¹¹	2	---	1	---	---	---	---	13 9	---	---	3	2	1	---	13 1

See footnotes on page 1428.

Footnotes for Table on Pages 1424 to 1427

Diseases marked with an asterisk () are reportable by law or regulation in all the States, including the District of Columbia. Typhoid fever is reportable in all the States; paratyphoid fever in all except 6 States. Syphilis is reportable in all the States and the District of Columbia but is not included in the table. Some States have increased and some have reduced the list of reportable diseases since the latest published compilation of reportable diseases (PUBLIC HEALTH REPORTS 58: 317-340, 1944. Reprint No. 2544).

¹ For report for first quarter of 1948 see p. 950 of the PUBLIC HEALTH REPORTS for July 16, 1948.

² Includes cases of kerato- and suppurative conjunctivitis and pink eye.

³ In some instances the infection was probably acquired outside the United States.

⁴ Reported as ophthalmia neonatorum.

⁵ Lobar pneumonia only.

⁶ New York City only.

⁷ Reported as gonorrheal ophthalmia.

⁸ Contracted outside United States.

⁹ Includes nonresident cases.

¹⁰ Corrected figures.

¹¹ Includes the cities of Colon and Panama.

¹² In the Canal Zone only.

¹³ Includes cases reported as salmonella infection.

¹⁴ Includes septic sore throat.

¹⁵ Includes cases reported as rheumatic heart trouble.

¹⁶ 5-year median 1945-47.

Corrections, first quarter 1948 (see p. 950, PUBLIC HEALTH REPORTS, July 16, 1948): Maine, meningococcus meningitis 3 cases (instead of 4). Poliomyelitis, South Carolina 9 cases (instead of 8). California 46 cases (instead of 47). Tuberculosis, Rhode Island 125 cases (for January, February, and March).

The following list includes certain rare conditions, diseases of restricted geographical distribution, and those reportable in or reported by only a few States; last year's figures in parentheses (where no figures are given, no cases were reported last year for the States listed as figures for the diseases were not compiled).

Actinomycosis: New York 2, Michigan 1, Minnesota 1 (5), South Dakota 3, Nebraska, 1, New Mexico 1.

Botulism: New Mexico 9 (2), California 2 (6).

Cancer: North Dakota 201, Kansas 952, South Carolina 423, Georgia 49, Florida 551, Kentucky 2, Tennessee 654, Alabama 846, Mississippi 606, Arkansas 193, Louisiana 439, Montana 198, Idaho 248, New Mexico 144, Utah 63, Nevada 4.

Coccidioidomycosis: New Mexico 1, Arizona 1 (2), California 16 (18).

Colorado tick fever: Colorado 52 (65).

Dengue: Oklahoma 1.

Dermatitis: New Hampshire 31, Missouri 5, Kentucky 80 (reported as mycoses).

Diarrhea: Connecticut 9, New York 14 (90), Pennsylvania 55 (21) (includes enteritis), Ohio 126 (129) (enteritis), Indiana 9, Illinois 5 (57), Michigan 14 (1), Maryland 7 (42), West Virginia 1 (enteritis), South Carolina 2,548 (4,071), Florida 38 (10), Kentucky 3, Oklahoma 2, Idaho 85 (includes enteritis) (2), Colorado 14 (enteritis), New Mexico 12 (9), Utah 1, Washington 25 (7), California 12 (34), Alaska 25 (includes enteritis). Dog bite: Illinois 4,979 (4,264) (and other animal bites), Michigan 3,489 (2,282), Arkansas 248 (190) (all animal bites).

Erysipelas: Connecticut 6, Ohio 8, Indiana 4, Illinois 48, Michigan 27, Wisconsin 17, North Dakota 5, South Dakota 3, Nebraska 1, Kansas 3, Maryland 5, Florida 9, Kentucky 2, Tennessee 5, Arkansas 3, Louisiana 2, Montana 4, Idaho 3, Colorado 13, Utah 1, Washington 5, Oregon 7.

Flariasis: New York 1.

Food poisoning: Maine 10, New Jersey 8 (1), Ohio 4, Illinois 29 (48), Minnesota 34, Louisiana 2 (4), Oklahoma 50, Colorado 5 (2), New Mexico 6 (25), Washington 20 (13), California 246 (146).

Granuloma inguinale: Missouri 8 (4), Florida 182 (47), Kentucky 5, Tennessee 20 (16), Mississippi 66 (94), Louisiana 43 (67), Arizona 1.

Impetigo contagiosa: Rhode Island 1, Ohio 5 (3), Indiana 1 (29), Illinois 3 (3), Michigan 247 (244), Missouri 4 (5), North Dakota 16 (3), Kansas 2 (4), Kentucky 8, Idaho 9 (28), Wyoming 4 (1), Colorado 15 (37), Nevada 34 (19), Washington 112 (90), Hawaii Territory 8 (2), Alaska 3 (2).

Jaundice (including hepatitis and Weil's disease): Maine 1 (6), New York 64 (120), Pennsylvania 14 (10), Illinois 2 (5), Michigan 3, Minnesota 6 (5), Maryland 1 (2), Florida 55 (7), Kentucky 38, Tennessee 11 (3), Idaho 2, Washington 2 (4), Oregon 1 (25), California 11 (39), Hawaii Territory 2 (1), Panama Canal Zone 12.

Kala azar: Montana 1.

Leprosy: New York 3, Florida 7, Louisiana 2 (2), Texas 3 (7), California 6 (3), Hawaii Territory 8 (11), Panama Canal Zone 2.

Lymphocytic choriomeningitis: Tennessee 1 (1).

Lymphogranuloma venereum: Missouri 4 (7), Florida 38 (42), Kentucky 2, Tennessee 17 (29), Louisiana 38 (15), Arizona 2, Nevada 1.

Mononucleosis: Connecticut 22, Michigan 38, Minnesota 49, Maryland 4, Kentucky 4, Tennessee 11, Oklahoma 1, Idaho 13, Oregon 2.

Psittacosis: Michigan 3, California 1 (1).

Puerperal septicemia: Ohio 2, Florida 1, Tennessee 1 (1), Mississippi 1 (1), Louisiana 1 (3). "Q" Fever: Arizona 1.

Rabies in animals: New York 118 (157), Pennsylvania 16, Ohio 164 (259), Indiana 287 (147), Illinois 53 (105), Michigan 94 (118), Wisconsin 1, Minnesota 1 (5), Iowa 13, Missouri 1, Kansas 2 (9), Virginia 37, West Virginia 2 (8), South Carolina 62 (53), Georgia 90, Florida 75, Kentucky 73, Alabama 114 (139), Arkansas 21 (20), Louisiana 26 (5), Oklahoma 41, Texas 360 (283), Colorado 1 (1), Arizona 29, California 80 (82).

Relapsing fever: Texas 16 (3), Panama Canal Zone 2.

Rickettsialpox: New York 60.

Ringworm disease: Connecticut 12, Pennsylvania 25 (121), Ohio 29 (23), Indiana 66, Illinois 976 (756), Michigan 401 (294), Minnesota 11 (21), Missouri 40, Kansas 9 (3), Kentucky 11 (17), Idaho 12 (19), Utah 7 (105), Nevada 2 (2), Washington 55 (77).

Scabies: Pennsylvania 74 (154), Ohio 14 (9), Indiana 1, Michigan 215 (204), Missouri 6 (16), North Dakota 5 (5), Kansas 2 (18), Maryland 1, Kentucky 47, Montana 2 (8), Idaho 28 (42), Wyoming 10 (1), Alaska 4 (1).

Schistosomiasis: New York 6.

Silicosis: Arkansas 3, Colorado 1, New Mexico 5 (3).

Yaws: Panama Canal Zone 1.

INCIDENCE 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 9, 1948

Summary

The incidence of poliomyelitis again declined, from 1,529 cases last week to 1,207 for the current week, as compared with 1,142 for the corresponding week of 1946 and a 5-year (1943-47) median of 639. Declines were reported in all of the nine geographic divisions. Of 23 States reporting 10 or more cases, only 6 showed increases—Maryland from 8 to 12, Minnesota 72 to 86, South Dakota 42 to 58, Nebraska 48 to 53, Kansas 16 to 18, and Kentucky 5 to 14—while 17 States reported an aggregate decline of 329 cases (from 1,172 to 843).

The cumulative total since March 20 (average date of seasonal low incidence) is 20,037, as compared with 19,177 for the corresponding period of 1946, the highest of the past 5 years, and 9,522, the lowest for the period, reported in 1943.

Four cases of Rocky Mountain spotted fever were reported for the current week, one each in Illinois, Virginia, Alabama, and Oklahoma. Other reports include 1 case of anthrax, in New Mexico, 8 cases of infectious encephalitis in 7 States, and 13 cases of tularemia occurring in 8 States, of which 3 were in Virginia and 4 in Arkansas. No case of smallpox was reported during the week.

Of the total of 9,476 cases of influenza reported since the average seasonal low incidence date (July 31), 7,913 cases occurred in 3 States—Virginia, South Carolina, and Texas. For the same period last year the total was 6,575, of which the same States reported 5,397 cases. A total of 3,896 cases of measles has been reported since the average seasonal low week of the disease (September 4, 1948), as compared with 2,915 cases for the 5-year median.

Deaths recorded during the week in 93 large cities in the United States totaled 8,385, as compared with 8,518 last week, 9,175 and 8,585, respectively, for the corresponding weeks of 1947 and 1946, and a 3-year (1945-47) median of 8,585. The total for the year to date is 377,266, as compared with 377,017 for the same period last year. Infant deaths totaled 597, as compared with 684 last week and a 3-year median of 702. The cumulative figure is 27,306, as compared with 30,381 for the same period last year.

Telegraphic case reports from State health officers for week ended October 9, 1948

(Leaders indicate that no cases were reported)

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Menigitis, meningococcal	Pneumonia	Polio-myelitis	Rocky Mt. spotted fever	Scarlet fever	Small-pox	Tularemia	Typhoid and paratyphoid fever ^a	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine.....				57		2	2		7			2	10	
New Hampshire.....													20	
Vermont.....				56		5	11						6	
Massachusetts.....	16			73		10	11		42			6	52	
Rhode Island.....	1			1		1	1		2				2	
Connecticut.....		1		14	4	19	7		10				4	
MIDDLE ATLANTIC														
New York.....	9		b 1	28	3	115	92		e 58			7	104	7
New Jersey.....			3	28		75	41		8				43	2
Pennsylvania.....	8		(b)	62	6		33		54			1	86	3
EAST NORTH CENTRAL														
Ohio.....	10			10	6	44	62		81			4	43	3
Indiana.....	6	1	3	1		2	12		128			1	11	
Illinois.....	1			3	1	81	70	1			1		42	
Michigan.....	2			50	5	22	35		51			2	15	1
Wisconsin.....	1		1	50	1	6	35		12	(1)			21	
WEST NORTH CENTRAL														
Minnesota.....	4			22	1	2	86		17				6	
Iowa.....				2	1	4			9				9	3
Missouri.....	2			5		5	14		11			1	6	
North Dakota.....		1		6			9		2			2		
South Dakota.....	1				2		58		2		1			
Nebraska.....	1	1	8	3		2	53		6				6	
Kansas.....	1		6	1		6	18		10				1	
SOUTH ATLANTIC														
Delaware.....							3							
Maryland.....			1	14		24	12		4			2	16	
District of Columbia.....	1			4	1	12	6		4				9	
Virginia.....	4		238	22	3	23	17	1	14		3	3	5	2
West Virginia.....		1	15	3		2	7		11				8	
North Carolina.....	14				1		47		24			2	32	
South Carolina.....	35		246	1		55	8		34			2	33	2
Georgia.....	21		1	3		11	16		17				1	3
Florida.....	9			1	1	6	7		4				2	

EAST SOUTH CENTRAL

Kentucky.....	30				2		5	14		30				1	8
Tennessee.....	8				16		17	12		44				3	6
Alabama.....	32				6		21	7	1	19				2	12
Mississippi *.....	10				6		7	2		9				1	3

WEST SOUTH CENTRAL

Arkansas.....	3						10	3		7			4	1	16
Louisiana.....	1						8	9		5				3	4
Oklahoma.....	2				2		11	9	1	11	(1)			3	1
Texas.....	27				130		82	30		12			1	7	54

MOUNTAIN

Montana.....					4			4		2			1	1	1
Idaho.....	1				21		4	3		2			1	4	1
Wyoming.....	2				23		8	1		12			1	2	2
New Mexico.....	3						2	4		2				1	4
Arizona.....	2				12		8	7		2			1	5	5
Utah *.....	7				39		2	8		3					
Nevada.....															

PACIFIC

Washington.....					15		2	25		29				1	4
Oregon.....					31		14	8		11				4	4
California.....	3				35		17	223		48				6	40

Total.....	285	8	1,493	864	46	753	1,207	4	783	13	72	2,832	63,094		
Median, 1943-47.....	387	16	1,171	737	91		639	6	1,473	2	122	3,942	96,343		
Year to date, 40 weeks.....	6,087	465	148,201	555,310	2,557		20,386	501	59,467	776		2,832	63,094		
Median, 1943-47.....	9,450	511	197,065	544,415	6,770		10,296	443	106,353	295		3,942	96,343		
Seasonal low week ends.....	July 10		July 31	Sept. 4	Sept. 18		(11th)	Mar. 20	Aug. 14	35th		(11th)	Mar. 20		
Since seasonal low week.....	2,077		9,476	3,896	121		20,036		3,851	12		2,359	771		
Median, 1943-47.....	3,159		6,868	2,915	275		8,899		7,556	14		3,318	1,807		

* Period ended earlier than Saturday.

* New York City only and Philadelphia only, respectively.

* Including cases reported as streptococcal infections and septic sore throat.

* Including paratyphoid fever and salmonella infection, currently reported separately as follows: Maine 2; Massachusetts (salmonella infection 4; New York 1; Ohio 2; Virginia 1; Alabama 1; Louisiana 2; Texas 2; California 2.

* Corrections: Poliomyelitis—Vermont, week ended Sept. 4, 1 case (instead of 2); Georgia, week ended Sept. 25, 9 cases (instead of 10). Scarlet fever—Indiana, week ended Oct. 2, 15 cases (instead of 1). Smallpox—deducted from cumulative totals, 1 case in Oklahoma, week ended Sept. 11, and 1 case in Wisconsin, week ended Sept. 18 (diagnoses changed).

* Anthrax: New Mexico, 1 case.

Alaska: Chickenpox 3.

Territory of Hawaii: Measles 28, lobar pneumonia 1.

PLAGUE INFECTION IN YAKIMA COUNTY, WASH.

Under date of October 8, the San Francisco office of the Communicable Disease Center reported plague infection found in Yakima County, Wash., as follows:

In a pool of 241 fleas from 84 meadow mice, *Lagurus curtatus*, and in a pool of 63 fleas from 50 white-footed mice, *Peromyscus maniculatus*, trapped on September 25, 1948, on the United States Army Firing Range, 10 miles northeast of Yakima.

TERRITORIES AND POSSESSIONS

Panama Canal Zone

Notifiable diseases—August 1948.—During the month of August 1948, certain notifiable diseases were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Residence ¹									
	Panama City		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox.....	6						3		9	
Diphtheria.....							1		1	
Dysentery, bacillary.....	1		1						2	
Leprosy.....					1					1
Malaria ²	1		1		12		13	1	28	2
Measles.....					1		1		2	
Mumps.....					2		1		2	
Paratyphoid fever.....					1				1	
Pneumonia.....		6	6		9			5	19	17
Relapsing fever.....	2								2	
Tuberculosis.....		14	5		3			9	13	28
Typhoid fever.....							1		1	
Whooping cough.....					2				2	
Yaws.....	1								1	

¹ If place of infection is known, cases are so listed instead of by residence.

² 2 recurrent cases.

³ Cases reported in the Canal Zone only.

DEATHS DURING WEEK ENDED OCTOBER 2, 1948

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended Oct. 2, 1948	Correspond- ing week, 1947
Data for 93 large cities of the United States:		
Total deaths.....	8,518	8,604
Median for 3 prior years.....	8,503	
Total deaths, first 40 weeks of year.....	368,881	367,842
Deaths under 1 year of age.....	684	692
Median for 3 prior years.....	692	
Deaths under 1 year of age, first 40 weeks of year.....	26,709	29,679
Data from industrial insurance companies:		
Policies in force.....	70,860,825	67,090,537
Number of death claims.....	11,156	11,300
Death claims per 1,000 policies in force, annual rate.....	8.2	8.8
Death claims per 1,000 policies, first 40 weeks of year, annual rate.....	9.3	9.3

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended September 18, 1948.—During the week ended September 18, 1948, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox.....	-----	5	-----	9	56	14	3	20	37	144
Diphtheria.....	-----	-----	-----	7	2	-----	-----	4	-----	13
Dysentery, bacillary.....	-----	-----	-----	7	-----	1	-----	-----	-----	8
Encephalitis, infectious.....	-----	-----	-----	-----	3	-----	3	-----	-----	3
German measles.....	-----	-----	-----	-----	-----	-----	3	3	3	12
Influenza.....	-----	26	-----	-----	5	-----	-----	-----	3	34
Measles.....	-----	2	-----	97	13	4	3	28	10	157
Meningitis, meningococcus.....	-----	-----	-----	1	1	2	-----	-----	3	7
Mumps.....	-----	3	1	14	42	24	1	20	7	112
Poliomyelitis.....	-----	5	1	6	23	17	5	30	9	96
Scarlet fever.....	-----	1	2	36	15	2	4	5	7	72
Tuberculosis (all forms).....	-----	2	14	188	15	15	9	13	-----	256
Typhoid and paratyphoid fever.....	-----	1	-----	7	-----	1	2	1	1	13
Undulant fever.....	-----	-----	-----	5	3	-----	1	1	-----	10
Venereal diseases:	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Gonorrhea.....	-----	17	8	101	89	28	30	44	65	382
Syphilis.....	-----	4	3	76	31	11	5	5	13	148
Whooping cough.....	-----	-----	-----	67	17	2	1	4	1	92

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

From consular reports, international health organizations, medical officers of the Public Health Service, 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.

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

CHOLERA

(Cases)

Place	January— July 1948	August 1948	September 1948—week ended—			
			4	11	18	25
AFRICA						
Egypt.....	1					
Cairo.....	1					
ASIA						
Burma ¹	40	4				
Akyab ¹	5					
Bassein.....	1					
Rangoon.....	2					
China:						
Hupeh Province.....	3					
Wuchang.....	3					
Kiangsi Province.....	29					
Kiangsu Province.....	1	1				
Shanghai.....		1				

See footnotes at end of table

CHOLERA—Continued

Place	January July 1948	August 1948	September 1948—week ended—			
			4	11	18	25
ASIA—continued						
India.....	105,536	26,488	\$ 92	\$ 95	\$ 128	\$ 126
Ahmadabad.....	54	13	3	1	5	—
Alleppey.....	1	—	—	—	—	—
Bombay ¹	29	6	4	1	—	—
Calcutta ¹	6,813	252	45	49	43	—
Cawnpore.....	103	28	7	12	—	5
Cocanada.....	2	8	1	2	—	2
Colachel.....	12	—	—	—	—	—
Cuddalore.....	12	—	—	—	—	1
Jodhpur ²	3	—	—	—	50	3
Kilakarai.....	21	—	—	—	—	—
Lucknow.....	40	3	—	—	1	—
Madras.....	122	96	27	31	35	71
Nagpur.....	48	13	5	—	2	—
Nagapatam.....	16	—	—	—	—	—
New Delhi.....	26	—	—	—	—	—
Raj Samand.....	6	—	—	—	—	—
Tuticorin.....	16	—	—	—	—	—
Visagapatam.....	1	—	—	—	—	—
India (French):	—	—	—	—	—	—
Chandernagor.....	21	—	—	—	—	—
Karikal.....	300	—	—	—	—	—
Pondicherry.....	175	194	—	—	—	—
India (Portuguese):	1	28	—	—	—	—
Indochina (French):	—	—	—	—	—	—
Annam.....	—	—	—	6	3	13
Cambodia.....	1,337	7	2	—	1	—
Cochinchina.....	587	1	—	—	—	—
Bien Hoa.....	1	—	—	—	—	—
Chaudoc.....	2	—	—	—	—	—
Cholon.....	29	—	—	—	—	—
Giadinh.....	23	—	—	—	—	—
Longxuyen.....	7	—	—	—	—	—
Mytho.....	56	—	—	—	—	—
Rachgia.....	132	—	—	—	—	—
Saigon.....	136	1	—	—	—	—
Laos.....	32	—	—	—	—	—
Tonkin.....	20	—	—	—	—	—
Pakistan.....	23,929	—	—	—	—	—
Chittagong.....	34	—	—	—	—	—
Karachi.....	4	—	—	—	—	—
Lahore.....	\$ 2,634	6	6	4	34	—
Siam.....	42	1	—	—	—	—
Syria.....	3	—	—	—	—	—

¹ Includes imported cases.² Suspected.³ In ports only.⁴ Includes 12 deaths reported as cases in February 1948.⁵ In Lahore City and District.

PLAGUE

(Cases)

AFRICA						
Belgian Congo.....	15	1	—	1	—	—
Costermansville Province.....	11	—	—	—	—	—
Stanleyville Province.....	4	1	—	1	—	—
British East Africa:	—	—	—	—	—	—
Kenya.....	24	8	—	—	—	—
Tanganyika.....	278	—	—	—	—	—
Madagascar.....	347	7	1	—	1	—
Tamatave.....	1	—	—	—	—	—
Tananarive.....	30	2	1	—	1	—
Rhodesia, Northern.....	26	—	—	—	—	—
Union of South Africa.....	37	—	—	—	—	—
ASIA						
Burma ¹	589	49	27	17	—	—
Mandalay.....	17	—	—	—	—	—
Rangoon.....	17	2	—	—	—	—
China:	—	—	—	—	—	—
Chekiang Province.....	34	3	—	—	—	—
Wenchow.....	11	1	—	—	—	—
Fukien Province.....	329	11	—	—	—	—
Foochow.....	4	—	—	—	—	—
Kiangsi Province.....	19	—	—	—	—	—
Kwangtung Province.....	116	—	—	—	—	—
Yunnan Province.....	95	—	—	—	—	—

See footnotes at end of table

PLAGUE—Continued

Place	January— July 1948	August 1948	September 1948—week ended—			
			4	11	18	25
ASIA—continued						
India.....	19,991	4 136	5 1			
Indochina (French):						
Annam.....	142					
Cambodia.....	3					
Cochinchina.....	43					
Laos.....	2					
Mountain Area South-Indochina.....	12					
Java.....	743	10	6 1	6 7 2		
Pakistan.....	11					
Siam.....	113	1		3		
EUROPE						
Portugal: Azores.....	12	1		1		
SOUTH AMERICA						
Argentina.....	12					
Buenos Aires Province.....	9					
Ecuador.....	18	9				
Chimborazo Province.....	1					
Loja Province.....	17	9				
Peru.....	22					
Cajamarca Department.....	11					
Huacho Department.....	1					
Libertad Department.....	1					
Lima Department.....	5					
Venezuela:						
Aragua State.....	7					
OCEANIA						
Hawaii Territory: Plague-infected rats ⁵	5					

¹ Corrected figure.² Includes 4 cases of pneumonic plague.³ Includes imported cases.⁴ Preliminary figures.⁵ In Bombay (imported).⁶ In ports only.⁷ Includes 1 case of pneumonic plague.⁸ Plague infection was also reported in Hawaii Territory, under date of Feb. 27, 1948, in a mass inoculation of tissue from 19 rats.

SMALLPOX

(Cases)

(P=present)

AFRICA						
Algeria.....	239	35				
Angola ¹	138					
Basutoland.....	3					
Belgian Congo ¹	1,424	134				
British East Africa:						
Kenya.....	99	7	4			
Nyasaland.....	3,069	324	112	170	100	
Tanganyika.....	778	36	23			
Uganda.....	202	1				
Cameroon (French).....	3					
Dahomey.....	288	49		2 42	3 41	
Egypt ⁴	5 448	1	1		1	
Eritrea.....	9					
Ethiopia.....	19					
French Equatorial Africa.....	14	2				
French Guinea.....	125	4	2 3			
French West Africa: Haute-Volta.....	5 412	25				
Gambia.....	27					
Gold Coast.....	1,042	88	65	68	55	182
Ivory Coast.....	567	59		2 3	3 1	
Libya.....	255	1				
Mauritania.....	1					
Mauritius.....	6 1					
Morocco (French).....	33	2				
Mozambique.....	127	92	6			
Nigeria.....	3,476					
Niger Territory.....	329	32	2 4			

See footnotes at end of table

SMALLPOX—Continued

Place	January— July 1948	August 1948	September 1948—week ended—			
			4	11	18	25
AFRICA—continued						
Rhodesia:						
Northern.....	480	105	2		35	
Southern.....	726					
Senegal.....	9					
Sierra Leone.....	155	10				
Sudan (Anglo-Egyptian) ¹	1,302	84	7	5		
Sudan (French).....	16					
Swaziland.....	5					
Togo (British).....	9					
Togo (French).....	91	1		2		
Tunisia.....	516	1				
Union of South Africa.....	30	P	P			
ASIA						
Arabia.....	8					
British North Borneo.....	1					
Burma ⁴	2,669	67	7	2		
Ceylon ⁴	19					
China ⁴	3,673	12				
India.....	55,846	7,484	8	22	15	9
India (French).....	6					
India (Portuguese).....	143	7	5	8		
Indochina (French).....	3,176	606	14	15	29	
Iran.....	518	26	1	1		
Iraq.....	731	91	13	21	25	39
Japan.....	26			1		
Java.....	1					
Lebanon.....	57					
Malay States (Federated).....	418	1	1	6	19	
Manchuria.....	78					
Pakistan ⁴	11,678	2	1	5		1
Palestine.....	8					
Siam.....	491	7	3	7	8	14
Straits Settlements ⁴	170			2		
Sumatra ⁴	1,695	1		2		
Syria.....	63	35	11	11	8	
Transjordan.....	13			1		
EUROPE						
France.....	3					
Germany.....	3					
Greece.....	7	1				
Italy.....	1	10	1			11
Portugal.....	74					
Spain.....	19					
Canary Islands.....	9					
NORTH AMERICA						
British Honduras.....		2				
Guatemala.....	2					
Mexico.....	908	12	6	12	2	
SOUTH AMERICA						
Argentina.....	10	2	12	3	13	2
Bolivia.....	31					
Brazil.....	42	1				
Chile.....	5					
Colombia.....	4,976	400				
Ecuador ¹	2,422	346		16	8	14
Paraguay ¹	81	15				
Peru.....	253					
Trinidad.....	15	12				
Venezuela ¹	3,321	66	26	32	16	29

¹ Includes alastrim.² Sept. 1-10, 1948.³ Sept. 11-20, 1948.⁴ Includes imported cases.⁵ Corrected figure.⁶ Imported.⁷ Preliminary figures.⁸ In ports only.⁹ In Singapore.¹⁰ In Naples, imported.¹¹ At Genoa off vessel from Australia and India to United Kingdom.¹² In Mexico City only.¹³ In Buenos Aires.¹⁴ In Guayaquil.¹⁵ Alastrim.¹⁶ Sucre State, Aug. 28-Sept. 11, 1948.

TYPHUS FEVER*

(Cases)

(P = Present)

Place	January— July 1948	August 1948	September 1948—week ended—			
			4	11	18	25
AFRICA						
Algeria.....	154	8		4		
Basutoland.....	8					
Belgian Congo.....	167	7				
British East Africa:						
Kenya ¹	69					
Zanzibar.....	1					
Egypt.....	287	11				2
Eritrea.....	44					
Ethiopia.....	62					
French Equatorial Africa.....		1				
Gold Coast ¹	7					
Libya.....	434	52		1	1	1
Morocco (French).....	73					
Morocco (International Zone).....	3	2				
Morocco (Spanish) ¹	5				3	
Mozambique ¹	3					
Nigeria ¹	5					
Rhodesia (Southern).....	1					
Senegal.....	2					
Sierra Leone.....	8					
Somalia.....	2					
Tunisia ¹	603					
Union of South Africa ¹	302	P	P			
ASIA						
Burma.....	5					
China ¹	145	14				
India (Portuguese).....	7					
Indochina (French) ¹	42	12	6	2	7	
Iran ¹	124	3	2			
Iraq ¹	168	25	2	1	2	2
Japan.....	451	2		3		
Java.....	3					
Manchuria.....	39					
Pakistan.....	22					
Palestine ¹	12					
Philippine Islands ¹	5					
Straits Settlements ¹	16	4				
Syria ¹	54	5				
Transjordan.....	64	13				
Turkey (see Turkey in Europe).....						12
EUROPE						
Albania.....	15					
Bulgaria.....	707	29	2	3		
Czechoslovakia.....	7				1	
France.....	5					
Germany.....	18					
Great Britain:						
Cyprus ²	1					
England and Wales.....	112					
London.....	11					
Ireland (Northern).....	12					
Malta ²	11	3	1			
Greece ¹	85	37	6	8	12	4
Hungary.....	50	1	2	1		1
Italy ¹	201	105		39		
Sicily.....	5					
Netherlands.....	1					
Poland.....	251	4	6			
Portugal—Madeira Islands:						
Funchal.....	1					
Rumania ¹	21,632	40				
Spain.....	17	2				
Turkey.....	264	19	5	3	2	7
Yugoslavia.....	549	16	2	6		

See footnotes at end of table

TYPHUS FEVER—Continued

Place	January— July 1948	August 1948	September 1948—week ended			
			4	11	18	25
NORTH AMERICA						
Costa Rica ¹	8	1			1	
Cuba ²	17	2				
Guatemala	89					
Jamaica ¹	11	6				
Mexico ¹	1,013	23			2	
Panama Canal Zone ¹	3					
Panama Republic	1					
Puerto Rico ²	28	2		2	3	1
SOUTH AMERICA						
Argentina	20					
Bolivia	7 105					
Brazil	104	11				
Chile ¹	167	8 3		8 1	8 3	
Colombia	1,921	257				
Curacao ²	13					
Ecuador ¹	321	52				
Peru	214					
Venezuela	107	9 2	9 1			9 1
OCEANIA						
Australia ²	130	4			3	
Hawaii Territory	10	2				
Honolulu	2					
New Caledonia	1					

* Reports from some areas are probably murine type, while others include both murine and louse-borne types.

¹ Includes murine type.

² Murine type.

³ Imported.

⁴ Includes suspected cases.

⁵ Sept. 1-10, 1948.

⁶ Preliminary figures.

⁷ Includes 9 deaths reported as cases in Cochabamba Department in March 1948.

⁸ In Valparaiso.

⁹ In sea and airports only.

YELLOW FEVER

(D=Deaths)

AFRICA						
Gold Coast:						
Kumasi	D	1				
Accra	D		2			
Ivory Coast:						
Gagnoa	D	1				
SOUTH AMERICA						
Argentina:						
Cerro Azul, Misiones Territory	D	1				
Brazil:						
Ilheus City, Itajuipé, Bahia State	D	1				
Sao Luiz Gonzaga, Rio Grande do Sul State	D	¹ 1				
Colombia:						
Antioquia Department:						
Maceo	D	4				
Yolamba	D	1				
Boyaca Department:						
Campohermoso	D	1				
Caldas Department:						
La Dorado	D	1				
Samana	D	1				
La Victoria	D	1				
Cundinamarca Department:						
Medina	D	7				
Intendencia of Meta:						
Cumará	D	1				
Restrepo	D	1				
San Martín	D	1				

¹ Suspected.