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AGGLUTINATION AND AN AGGLUTININ-"BLOCKING" PROPERTY IN SERUMS FROM KNOWN CASES OF BRUCELLOSIS [1]

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The variability of agglutination reactions in certain infectious diseases is well known. In some respects the failure of certain human cases of bacterial infection to exhibit agglutinins is analogous to the earlier serological findings in serums of Rh-negative mothers who had been delivered of infants with *erythroblastosis fetalis*. Although the disease process was evident, agglutinins for Rh-positive red blood cells could not be demonstrated in approximately one-half the mothers whose infants were so affected (*1, 2*). These tests were performed using saline suspensions of Rh-positive red cells. In 1944, Wiener (*3*) and Race (*4*) described an agglutinin-"blocking" phenomenon in serums of individuals sensitized to Rh factor but lacking agglutinins in the usual tests with red cells suspended in physiological salt solution. This phenomenon appeared to depend upon the combination of Rh antigen with a so-called "blocking or incomplete" antibody which rendered the cells insensitive to the later addition of known anti-Rh agglutinins.

Later, Diamond (*5*) demonstrated the presence of Rh-antibodies in over 99 percent of sensitized mothers by testing the serums with whole blood suspensions of Rh-positive cells on a glass slide. Soon thereafter (*6*) it was shown that the so-called blocking antibody agglutinated Rh-positive red cells in the presence of sufficient serum, plasma, albumin, and more recently other colloidal reagents (*7*).

It is believed that the phenomena observed in Rh sensitization are immunological responses though adequate understanding of them is still lacking. If this theory is correct it should be possible to demonstrate similar phenomena in human infectious disease. The ability

[1] From the Biologics Control Laboratory, National Institute of Health.

of the serums of individuals infected with *Brucella* to agglutinate this organism is known to be variable. For example, it is not unusual to find, in cases wherein the disease process continues, that agglutinins fail to appear in significant titer at any time, or, having been once present, the agglutinins disappear. The absence of agglutinins in instances of apparently active disease is not well explained. It is the purpose of this report to record observations of agglutination and agglutinin-blocking phenomena in serums of persons known to have had brucellosis.

EXPERIMENTAL WORK

Brief histories of the individuals from whom serums were drawn are given in table 1. The individuals with positive histories became infected with *Brucella* in the course of laboratory or field investigations. All had apparently recovered from the disease with the possible exceptions of WA, RC, and FR, who still had occasional recurrence of headaches and muscle aches, at the time this experiment was undertaken. The individuals with negative histories of brucellosis were selected for the probable reliability of their medical histories.

Source of serums.—Blood was obtained by venipuncture, the serum separated, and stored at −18° C. or lower. Small portions were removed on each day of testing after thawing the serum, and the remainder was again stored in the frozen state.

Agglutination titrations.—The routine test for detection of agglutinins for *Brucella* organisms was performed on all serums in the following manner: A formalized saline suspension of *Brucella abortus*, N.I.H. strain 456, was adjusted to a turbidity equal to approximately 500 P. P. M. of silica standard. This antigen was added in equal parts to serum diluted 1: 5, 1: 10, 1: 20, to 1: 1280. The tubes containing the serum-dilution-antigen mixtures were shaken and placed in a water bath at 37° C. for 2 hours. The tubes were then removed and placed overnight in an ice box at 5° C. The reactions were read by the degree of clearing of the supernatant liquid. Readings of 1: 10 to 1: 20 (complete or incomplete agglutination) are not uncommon in serums of normal individuals.

A modification of this procedure was devised by using the same antigen diluted about three times further than in the routine tests above. This antigen was added to tubes containing serum undiluted, and serums diluted 1: 2, 1: 4, 1: 8, etc. The tubes were incubated in a warm room at 37° C. for 1 hour, agitated for 10 minutes on a Boerner rotating machine, and examined macroscopically, with a strong light source, for agglutination. Considering the insignificance attached to 1: 10 and 1: 20 readings in the routine test, the results obtained by the two methods were consistent (see table 5). The organisms were

TABLE 1.—*Summary of histories of brucellosis in individuals whose serums were examined*

Individual	Date of onset	Duration of syptoms	Blood culture	Skin test	Date of highest known agglutination	Infection: Type	Infection: Source	Remarks
POSITIVE HISTORY OF BRUCELLOSIS								
AE	October 1922	Over 10 years	+	Unknown	1923—1 : 40	Melitensis	Laboratory	Chronic symptoms; low or absent agglutinins. Vaccine treatment.
BS	Spring 1923	Several years	Unknown	do	1923—1 : 5,120	do	do	Recurrent attacks.
AC	January 1928	3½ years	+	+to suis antigen	Unknown	Suis	do	Positive stool cultures.
EF	November 1928	5 months	+	Unknown	Over 1 : 1,000	Melitensis	do	Typical symptoms.
CM	February 1934	4 months	Unknown	Negative	1937—1 : 100	Abortus	Field or laboratory.	Possible recurrence 1936. Works with virulent organisms.
CG	do	5 months	do	Slight	1934—1 : 640	do	Field	Treatment with "Brucellin."
EE	April 1938	3 weeks	do	Unknown	1938 report 1 : 100,000	do	Laboratory	Accidental conjunctival infection. Rapid recovery.
MA	January 1939	4 months	+	1939 negative	1944—1 : 200	Melitensis	do	Works with virulent organisms.
LG	May 1939	5 months	+	Unknown	1939—1 : 500	Abortus	Field	"Brucellin" treatment.
FR	June 1942	Over 3 years	Unknown	1942: Positive 1943: Negative	Unknown	Unknown	Unknown	Vaccine treatment over 3-year period.
WA	February 1944	8 months	Negative	Unknown	1944—1 : 200	Abortus	Laboratory	Occasional muscle pains and headaches continue.
RC	August 1944	6 months	Unknown	do	1944—1 : 3,200	do	Field	Works with virulent organisms.
L	(?)	Several years	do	do	3-4 years ago—1 : 600	do	Laboratory	Vague history. Works with virulent organisms.
BP	June 1946	2 months	do	do	1946—1 : 1,280	Melitensis	do	Apparent recovery.

NEGATIVE HISTORY OF BRUCELLOSIS

JG	Undiagnosed illness 1923, lasting 3 months; otherwise nothing suspicious.
VP	Undiagnosed illness 1946 of 10 days duration; otherwise not suspicious for brucellosis.
JS	No history of brucellosis.
KH	Do.
TP	No history of brucellosis. Known pulmonary tuberculosis.
CL	No history of brucellosis. History of tularemia.
GL	No history of brucellosis. Worked as dairyman 10-12 years ago.
VO	No history of brucellosis.
MV	Do.
RH	Do.

distinctly agglutinated by certain serums, and since no period of sedimentation was allowed, the degree of clearing of the suspending medium was disregarded.

Agglutinin-"blocking" phenomenon.—Using the more rapid test method, tubes were examined for agglutination at 1 and 2 hours' incubation. At the end of 1 hour, to each tube of one set of duplicate serum-dilution-antigen mixtures was added one drop of serum containing agglutinins in such dilution that organisms in the saline control tubes would be distinctly agglutinated after further incubation of 1 hour and the usual shaking. All tubes were then re-examined for the presence or absence of agglutination.

It was apparent that serums freshly drawn from individuals with histories of brucellosis prevented or weakened (as compared with the agglutination in saline controls) the action of known agglutinin on *Brucella* organisms. It was also noted that serum freshly drawn from individuals without histories of brucellosis prevented the action of added agglutinin to a somewhat lesser degree. The tests were repeated using *Br. abortus* 428 with consistent results. Table 2 illustrates the results of tests with certain serums selected to show

TABLE 2.—*Agglutinin titrations and the "blocking" effect of serums when known agglutinin is added to serum and* Brucella *antigen mixtures*

Serum	Test	Dilutions of serum in saline									Control antigen and saline
		1:2	1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512	
		Positive history of brucellosis									
AE	Agglutinins	—	—	—	—	—	—	—	—	—	—
	"Blocking"	—	—	—	W	+	+	+	+	+	+
JC	Agglutinins	—	—	—	—	—	—	—	—	—	—
	"Blocking"	—	—	—	—	W	+	+	+	+	+
MA	Agglutinins	W	—	—	—	—	+	—	—	—	—
	"Blocking"	W	—	—	—	—	+	+	+	+	+
RC	Agglutinins	W	—	—	—	—	W	W	—	—	—
	"Blocking"	W	—	—	—	—	+	+	+	+	+
CM	Agglutinins	W	—	—	—	—	—	—	—	—	—
	"Blocking"	W	—	—	—	—	—	W	W	+	+
L	Agglutinins	W	—	—	—	—	—	—	—	—	—
	"Blocking"	W	—	—	—	—	—	W	+	+	+
BP	Agglutinins	W	—	—	—	W	+	+	+	—	—
	"Blocking"	+	—	—	—	+	+	+	+	+	+
		Negative history of brucellosis									
JG	Agglutinins	—	—	—	—	—	—	—	—	—	—
	"Blocking"	—	—	W	+	+	+	+	+	+	+
VP	Agglutinins	—	—	—	—	—	—	—	—	—	—
	"Blocking"	W	+	+	+	+	+	+	+	+	+
KH	Agglutinins	—	—	—	—	—	—	—	—	—	—
	"Blocking"	—	—	W	+	+	+	+	+	+	+
TP	Agglutinins	—	—	—	—	—	—	—	—	—	—
	"Blocking"	—	W	+	+	+	+	+	+	+	+

Titrations were set up in duplicate. In the "blocking" test the diluted serum of BP was added to each tube so that final dilution of this agglutinating serum was 1:91 in each tube. Agglutinins were added at end of 1 hour's incubation. All tubes were incubated 1 hour more, shaken 10 minutes, and read for agglutination.

Antigen = *Brucella melitensis* N. I. H. strain 428.

W = Agglutination weaker than in saline control.

differences in individual serums. The results of all serums are given in the summary in table 5.

Normal serums have not shown complete or partial blocking when diluted beyond 1:32, while serums from cases with a history of brucellosis blocked agglutination from 1:16 to 1:256.

The agglutinating serum used, BP, showed a "zone phenomenon" in which agglutination was weak or absent in serum dilution 1:2 to 1:32 (table 2). It is of interest to note that the antigen was not agglutinated by the addition of known agglutinin, a finding which Diamond (*2*) and Levine (*8*) have observed in tests with certain anti-Rh serums. They suggest that such findings are due to the presence of agglutinins and blocking antibodies in the same serum, the agglutinins becoming effective as the lower-titering but avid blocking antibodies are increasingly diluted. Serums MA and RC showed a similar blocking action although agglutinins were demonstrable at greater dilutions of serum.

Since tests with serums of normal individuals stored for several months did not (in contrast to the freshly drawn serums) show an agglutinin blocking effect, fresh serums of normal individuals and of those with brucellosis histories were heated at 56° C. for 15 minutes. The effect of such heating was to remove the agglutinin-blocking property from serums of normal individuals, from some of those with positive histories, and to reduce this blocking action in serums of others with positive histories. Table 3 illustrates the effect of heating on the blocking property of certain serums.

Serum EF showed little blocking action after heating, and when diluted 1:4 failed to prevent the effect of added agglutinin. However, serum CM after heating showed blocking equal to the relatively high titer noted with unheated serum. Serum MA is included in table 3 to illustrate the effect of heating on a serum which contains agglutinins and exhibits blocking action as well. This serum unheated showed agglutination only in the 1 : 64 dilution, whereas after being heated agglutination was noted in serum dilutions 1 : 16, 1 : 32, and 1 : 64. A similar effect was noted with serum RC.

This would suggest lability of the blocking property of serums, a finding which may account for the observation that further storage of these serums at room temperature and at 5° C. has led to the demonstration of low-titered agglutinins (1 : 8–1 : 64) in almost all of the serums of those having histories of brucellosis.

Table 5 includes the results of agglutinin-blocking tests with all serums. Serums EF, AE, and EE before and after heating had relatively low titers. Serums CM and L had relatively high blocking titers. Between these two groups were the reactions of the other serums.

TABLE 3.—*Agglutinin titrations and tests for "blocking" effect of serums using freshly drawn unheated and heated serums*

Serum	State of serum	Test	Serum dilutions in saline								Control antigen and saline
			1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512	
			Positive history of brucellosis								
EF	Unheated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	–	–	–	W	+	+	+	+	+
	Heated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	W	+	+	+	+	+	+	+	+
MA	Unheated	Agglutinins	–	–	–	–	+	–	–	–	–
		"Blocking"	–	–	–	–	+	+	+	+	+
	Heated	Agglutinins	–	–	W	W	+	–	–	–	–
		"Blocking"	–	–	W	+	+	+	+	+	+
CM	Unheated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	–	–	–	–	W	W	+	+	+
	Heated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	–	–	–	–	–	W	+	+	+
			Negative history of brucellosis								
JG	Unheated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	–	–	W	+	+	+	+	+	+
	Heated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	+	+	+	+	+	+	+	+	+
JS	Unheated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	–	W	+	+	+	+	+	+	+
	Heated	Agglutinins	–	–	–	–	–	–	–	–	–
		"Blocking"	+	+	+	+	+	+	+	+	+

Titrations of serums were set up in duplicate. In the "blocking" test the diluted serum of BP was added so that the final dilution of this agglutinating serum was 1:91 in each tube. The agglutinin was added at the end of 1 hour's incubation. All tubes were incubated 1 hour more, shaken 10 minutes, and read for agglutination.
Antigen = *Brucella melitensis* N. I. H. strain 428.
W = Agglutination weaker than in saline control.

Agglutination titrations using serum as the diluting medium.—Following the demonstration of an agglutinin-blocking phenomenon, the possibility of demonstrating agglutinins by other techniques used in testing serums for Rh-antibodies of the blocking type was investigated. One such method employs the serial dilution of serum to be examined in a "neutral" serum, plasma, or albumin solution. The antigen also is suspended in a protein-containing medium. Under such conditions reactions may be shown with Rh positive red blood cells, although the serum when titrated in a saline diluent would fail to react with Rh positive cells.

Serums were diluted serially with human pooled plasma or serum, normal rabbit serum, and with albumin solutions. The latter in the proportions used were not satisfactory, and investigations are continuing to adapt this material to the test. In the tests described below serums from 10 normal rabbits were pooled. On mixing this serum with human serum a precipitate was noted which was removed by adding human pooled plasma and centrifuging the mixture after 1 hour's incubation. The supernatant serum gave no precipitate and did not agglutinate *Brucella* organisms.

The serums tested were diluted in serial twofold dilutions; the rabbit serum described above was used as a diluent. The cells of a heavy saline suspension of *Brucella melitensis* 428 were packed by centrifuging, and a suspension equal to 0.5 percent by volume of bacterial cells in rabbit serum was prepared. Equal parts of this suspension were added to serum dilutions; the tubes were incubated for 1 hour at 35° C.; shaken for 10 minutes on the rotating machine, and examined for agglutination. An illustrative protocol is shown in table 4.

TABLE 4.—*Agglutinin titrations of serums using saline and rabbit serum as a diluent*

Serum	Diluent	Serum dilutions								
		1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512	1:1024
		Positive history of brucellosis								
CM	Saline	−	−	−	−	−	−	−	−	−
	Absorbed rabbit serum	+	+	+	+	+	+	−	−	−
L	Saline	−	−	−	−	−	−	−	−	−
	Absorbed rabbit serum	+	+	+	+	+	+	+	−	−
		Negative history of brucellosis								
JS	Saline	−	−	−	−	−	−	−	−	−
	Absorbed rabbit serum	−	−	−	−	−	−	−	−	−
KH	Saline	−	−	−	−	−	−	−	−	−
	Absorbed rabbit serum	−	−	−	−	−	−	−	−	−

Brucella melitensis N. I. H. strain 428 as the antigen.
Tubes incubated 1 hour, then shaken 10 minutes.

Serums of all individuals gave as high or higher agglutinin titers in serum diluent than in saline. This was noted with serums showing no agglutination in saline (EF, BS, and AC) as well as serums MA, RC, and BP which had agglutinins operative in saline medium (table 5). Serums of individuals with negative histories of brucellosis did not agglutinate organisms in the presence of the rabbit serum above a serum dilution of 1 : 8.

The character of the aggregates in the serum medium differed from the clumps in saline in that the masses were more fragile and tended to be readily dispersed on vigorous shaking. The reactions obtained with serums CM and L in the presence of rabbit serum represent a marked increase over the titer in saline medium.

Individuals from whom serums CM, L, RC, and MA were obtained, continue to work actively with the organisms in the field and laboratory. The others have had little or no deliberate contact with *Brucella*.

The finding that reactions occurred in the presence of serum may account for the occurrence of agglutination in certain serums when the undiluted serum is combined with antigen, as shown in table 2.

Serums MA, RC, CM, L, and BP show weak agglutination when mixed with an equal volume of saline-suspended antigen.

Reactions with serum and antigen on glass plates.—The mixture of a whole-blood suspension of Rh-positive cells on a heated glass plate with a serum from a sensitized individual is a reliable method of testing for Rh sensitization. The degree of reaction depends in part at least upon the presence of abundant antigen, sufficient protein (serum, plasma, or albumin), the heat of the glass plate, and agitation of the mixture.

Heavy suspensions of *Brucella* organisms suspended in saline are used extensively in the diagnosis of brucellosis in cattle and in man (*9*, *10*). This antigen is usually treated with steam and often has gelatin added to promote the sensitiveness of the antigen. Several of the serums examined had been titered with such antigen and had given reactions which had been interpreted as negative.

Heavy suspensions of formalin-killed *Brucella melitensis* (N. I. H. strains 428 and 2705 [2]) in saline were centrifuged and the packed cells resuspended in normal saline and in rabbit serum to make 10 to 20-percent suspensions of *Brucella* organisms. After thorough mixing the antigen was placed on a clear glass plate. An equal amount of undiluted serum was placed on the plate, mixed with the antigen, and spread over an area about 25 to 30 mm. in diameter. The glass plate was held in a viewing box having a dark background and a light source which also heated the plate to approximately 50° C. The box was tilted back and forth to agitate the mixtures.

Clear-cut agglutination reactions resulted in 5 to 15 seconds with serums which contained agglutinins demonstrable in tubes using saline as a medium (serums MA, BP, and RC). These serums agglutinated antigen suspended in saline or serum. Serums from other cases with positive histories gave plate reactions only with organisms suspended in rabbit serum. The time of beginning agglutination with these serums was within 90 seconds (see last column of table 5).

As evaporation of liquid from the mixture proceeded, false clumping was noted in almost all serums examined on the plate. The addition of a drop or two of saline to the serum-antigen mixtures after 2 minutes caused the disappearance of clumping in serums of individuals with no histories of brucellosis but did not weaken the clumping in serums of individuals with positive histories. A time limit of 2 minutes for reading the reaction reduced the occurrence of false positive reactions.

It was noted that the reactions on the glass plate when *Brucella*

[2] N. I. H. strain 2705 was isolated recently from human blood by Doctor C. L. Larson, National Institute of Health.

TABLE 5.—*Summary of agglutination and agglutinin "blocking" reactions in serums*

Serum	Agglutinin titer			Agglutinin-"blocking" titer				Plate test	
	Saline diluent		Serum diluent	Serum before heating		Serum after heating		Clumping of antigen	
	Routine	Modified		Complete	Partial	Complete	Partial	Saline	Serum
POSITIVE HISTORY OF BRUCELLOSIS									
AE	1:20	Negative 1:2	1:32	1:8	1:16	None 1:4	1:4	None	Weak.
EF	Negative 1:10	do	1:32	1:16	1:32	do	1:4	do	Do.
BS	do	do	1:64	1:16	1:32	1:16	1:32	do	Do.
AC	do	do	1:32	1:32		1:8	1:32	do	Do.
CM	1:10	1:2	1:256	1:64	1:128	1:64	1:128	do	Strong.
CG	Negative 1:10	1:2	1:32	1:8	1:64	None 1:4	1:16	do	Moderate.
EE	do	1:2	1:8	1:4	1:32	do	1:4	do	Weak.
MA	1:40	1:64	1:128	1:32		1:16	1:32	Strong	Strong.
LG	1:20	1:2	1:32	1:16	1:64	1:4	1:16	None	Moderate.
FR	1:20	Negative 1:2	1:32	1:32	1:128	1:16	1:32	do	Strong.
WA	1:20	do	1:32	1:32	1:128	1:8	1:16	do	Moderate.
RC	1:80	1:128	1:128	1:32		1:16		Strong	Strong.
L	1:10	1:2	1:256	1:64	1:256	1:32	1:64	None	Do.
BP	1:320	1:256	1:512	1:16		Not done		Strong	Do.
NEGATIVE HISTORY OF BRUCELLOSIS									
JG	1:10	Negative 1:2	1:8	1:8	1:16	None 1:4	None 1:4	None	None.
VP	Negative 1:10	do	Negative 1:4	None 1:4	1:4	do	do	do	Do.
JS	1:20	do	do	1:4	1:8	do	do	do	Do.
KH	1:20	do	do	1:8	1:16	do	do	do	Do.
TP	1:10	do	do	None 1:4	1:4	do	do	do	Do.
CL*	1:20	do	do	do	None 1:4	do	do	do	Do.
GL*	Negative 1:10	do	do	do	do	do	do	do	Do.
JO*	do	do	do	do	do	do	do	do	Do.
MV*	do	do	do	do	do	do	do	do	Do.
RH*	1:20	do	1:8	do	do	do	do	do	Do.

Antigen for agglutinin titrations in saline and in serum = *Brucella abortus* N.I.H. strain 456. Antigen used in agglutinin-"blocking" test = *Brucella melitensis* N.I.H. strain 428. Antigen for "plate" test = *Brucella melitensis* NIH strain 2705. Values shown on routine tests are the highest dilutions of serum causing partial agglutination.

*—These serums had been stored at *minus* 18° C. for several months.

melitensis N. I. H. strain 2705 was used were more distinct than when either *Brucella melitensis* N. I. H. strain 428 or *Brucella abortus* N. I. H. strain 456 was used.

It was also found that the addition of 30 percent albumin (human or bovine) solution in equal parts with heavy saline suspensions of *Brucella* gave excellent results with serums in plate tests.

DISCUSSION

The observations presented seem to parallel those reported in tests for Rh sensitization. The finding that agglutinin-blocking substance is present in serum of certain individuals who have had brucellosis may account, in part, for the absence of agglutination in saline systems of testing. The results obtained by using heavy suspensions of *Brucella* organisms in serum or albumin on a warmed glass plate were distinct and indicate that this method may be useful as a screening test in examining serums for evidence of sensitization to *Brucella*.

CONCLUSIONS

1. Serums freshly drawn from individuals known to have been infected with *Brucella* have the property of "blocking" the agglutination of *Brucella* organisms in a saline medium. This property is present to a lesser degree in freshly drawn normal serum.
2. This agglutinin-blocking property appears to be labile, as it disappears from normal serums on heating (56° C. for 15 minutes) and is reduced in effectiveness in the serums of persons who have had brucellosis.
3. Serums shown to have agglutinin-blocking properties agglutinate *Brucella* organisms when rabbit serum is used in place of physiological saline as a diluent for titrations and as a suspending medium for *Brucella* organisms.
4. Serums from certain individuals known to have had brucellosis agglutinate heavy suspensions (10 to 20 percent by volume) of *Brucella* organisms suspended in serum or albumin solution on a warmed glass plate, though agglutination titrations in test tubes with saline may be negative.

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NOTE.—The recently reported work of Morgan and Shütze (*11*) using anti-human-globulin rabbit serum to demonstrate "nonagglutinating" antibodies in the serums of vaccinated individuals was noticed after the observations presented here were completed. No blocking properties were found in serums by their methods.

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A STUDY OF MURINE TYPHUS FEVER IN COFFEE COUNTY, ALABAMA [1]

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INTRODUCTION

Murine typhus fever has long been a problem in the southern United States. Although cases were diagnosed as early as 1913, considerable numbers were not reported until after 1926 when rodents were first implicated in the transmission of the disease to humans (*1*). In 1935 there were 1,287 cases, whereas in 1944 there were 5,337 cases (*2*) officially reported in the United States.

In November of 1943, a combined typhus control and typhus investigation program was begun in Coffee County, Alabama, with the United States Public Health Service, Alabama State Health Department, and the County Health Department cooperating. This study area was selected because of its consistently high reported incidence of typhus fever over the past several years and because the population is predominantly rural, affording an opportunity to study the feasibility of rural typhus control.

Coffee County lies between 31° and 32° north latitude, and 86° west longitude passes through its center. The terrain is hilly. The red clay and sandy soil has been subjected to considerable erosion. The

[1] From States Relations Division, Bureau of State Services.

principal crops are peanuts, corn, and cotton. There is also a minor pulpwood industry derived from the natural pine growth throughout the county. Several years ago the boll weevil caused many of the farmers to discontinue growing cotton and to embark upon peanut production. There are rather poor housing and crop storage facilities throughout the county. Most of the existing structures could not be ratproofed economically enough to warrant such a procedure. Typhus in this county is representative of the occurrence of murine typhus fever in those areas from which the large majority of cases are reported each year in the United States.

Typhus control operations included a limited amount of ratproofing in some of the towns and extensive use of various rat eradication procedures throughout the county. Trapping operations were conducted for the purposes of obtaining rat blood specimens for serological study and for securing information concerning the ectoparasites of rats. Within a 9-month period, at least two visits were made to each farm in the area.

At the same time that rat eradication and trapping activities were being carried out, a door-to-door survey was made to locate individuals with a history of having had typhus fever during 1943. Although only 61 cases of typhus fever were officially reported, 211 persons said they had had the disease. Wherever a reputed case of typhus fever was found, a follow-up visit was made by a physician or a nurse. Blood specimens were obtained on 177 of the 211 reputed cases. Two of the 34 remaining cases had died from typhus; 2 refused to give a blood specimen; 29 could not be located; and one attempt at vena puncture was unsuccessful.

HUMAN CASE STUDIES

Laboratory tests were considered confirmatory if the typhus complement-fixation test was positive in a 1:16 dilution or higher or if the proteus X–19 agglutination test yielded a titer of 2 plus in a 1:160 dilution or higher. There were two cases, considered confirmed, which gave clinical histories of typhus fever and the following serological results:

1. Specimen 160 on E. B. drawn 12 months after his illness:
   1 plus in 1:4 dilution of typhus complement-fixation test. (NIH and Alabama)
   2 plus in 1:80 dilution of proteus X–19 agglutination test. (NIH)
   1 plus in 1:80 dilution of proteus X–19 agglutination test. (Alabama)
2. Specimen 194 on S. P. drawn 15 months after his illness:
   1 plus in 1:4 dilution of typhus complement-fixation test. (NIH and Alabama)
   1 plus in 1:40 dilution of proteus X–19 agglutination test. (NIH)

Of the 177 individuals from whom blood specimens were obtained, 115 gave positive typhus complement-fixation tests; 18 gave positive proteus X–19 agglutination tests without the complement-fixation tests being done; 2 had positive proteus X–19 agglutination tests and negative complement-fixation tests. There were two additional cases which terminated fatally without laboratory confirmation, making a total of 137 cases which were considered as positive. (See table 1.) Assuming that the same ratio of positivity would exist among the 32 who were not examined, it may be estimated that 160 of the 211 individuals giving a history of typhus fever were actually ill with this disease during 1943. Consequently, the 1943 estimated morbidity rate for murine typhus fever in Coffee County was 500 per 100,000 population.

Among the 42 specimens giving negative serological findings for typhus, there were 16 with agglutinations with proteus X–19 in dilutions less than 1:80, whereas the complement-fixation tests on these specimens were negative. Of the 211 alleged cases of typhus fever, 76 percent were confirmable by laboratory tests. On the other hand, only 61 cases were actually reported, representing 44 percent of the 137 known positive cases.

TABLE 1.—*Confirmation studies on 211 reputed cases of murine typhus fever*

	Positive[1]	Negative[2]	Unknown[3]	Total
Number of cases	137	42	32	211

[1] Includes:
(1) Positive complement-fixation and Weil-Felix 100
(2) Positive Weil-Felix with no complement-fixation test done 18
(3) Positive complement-fixation with negative Weil-Felix 15
(4) Negative complement-fixation with Weil-Felix 2 : 160 or higher 2
(5) Deaths reported as due to typhus 2

[2] Includes:
(1) Negative complement-fixation and a Weil-Felix less than 1 : 80 16
(2) Negative complement-fixation and negative Weil-Felix 22
(3) Negative Weil-Felix and no complement-fixation test done 4

[3] Includes all cases on which blood specimens were not obtained, excluding the two fatalities.

(Acknowledgement: Serological tests were run by the Alabama State Health Department Laboratory and by the U. S. Public Health Service laboratories at the National Institute of Health.)

Distribution of the 137 confirmed cases into 5- or 10-year age groups results in numbers which are too small to justify comparison of such groups. This is particularly true since the 1940 census, the only available base line for these comparisons, is inaccurate in those age groups which have been affected by military service. However, the difference in morbidity rates for those under 30 years of age as compared with those 30 and over is statistically significant and can probably be explained by differences in daily activities. (See table 2.) Also, the difference in male and female morbidity rates is probably caused by the greater occupational exposure of males. Although only 8 percent of the established cases are among Negroes, 20.5 percent of the population is made up of Negroes. This apparent discrepancy is probably caused by a combination of the factors which result in the poorer reporting of all diseases among Negroes. (See table 2.)

TABLE 2.—*Incidence of confirmed typhus fever by age, sex, and race for 1943, based on the 1940 census*

	1940 census				Confirmed typhus cases—1943					Rate per 100,000
	White		Colored		White		Colored		Total	
	Male	Female	Male	Female	Male	Female	Male	Female		
Age:										
Under 30	8,177	8,128	2,193	2,263	31	18	3	0	52	250.47
30 and over	4,546	4,577	1,023	1,080	43	29	5	3	80	712.63
Unspecified					5				5	
Total	12,723	12,705	3,216	3,343	79	47	8	3	137	428.3

Based upon the 137 confirmed cases of typhus fever arranged by month of occurrence, two peaks of typhus incidence appear in 1943, one in July and the other in October. A similar tendency toward two peaks of incidence is seen when cases officially reported during the period from 1942 through 1944 are arranged by months in which the cases are reported. (See tables 3 and 4.) The numbers of cases involved are too small to establish proof of significance in themselves. However, the consistent occurrence of this phenomenon is of interest and may be related to the fact that in late summer grain crops are harvested and stored in granaries and cribs and later in the fall peanuts are thrashed. Both of these activities involve dusty occupations in places which are usually heavily infested with rats.

TABLE 3.—*Distribution of 135 confirmed cases of typhus fever by months of onset in 1943*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Typhus cases	3	3	2	4	10	10	23	9	17	23	19	12

NOTE.—Month of onset was not determined in 2 other cases.

TABLE 4.—*Consolidated monthly reporting of typus fever for 1942, 1943, and 1944 by month of reporting*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Typhus cases	5	4	2	2	5	5	23	26	13	9	28	15

The probability of acquiring typhus fever in Coffee County, Alabama, appears to be about the same for rural and urban residents. (See table 5.) No attempt was made to trace the source of each case because of the lapse of several months from the time of illness to the time of getting a history.

TABLE 5.—*Distribution of 1943 typhus cases by place of residence*

Residence	1940 census		Serological confirmation				
	Population	Percent	Confirmed		Not confirmed	Not examined	Total
			Number	Percent			
Residence in town	4,353	13.6	22	16	4	3	29
Residence on farm	27,634	86.4	115	84	38	29	182
Total	31,987	100.0	[1] 137	100	42	32	211

[1] Two of these cases terminated fatally.

RODENT RESERVOIR STUDIES

A study of rodent serology throughout the county indicates that typhus infection of rodents is quite widespread. History of human cases frequently points to exposure during grain-harvesting or peanut-threshing seasons.

Of 430 rat bloods collected on farms, 42 percent gave positive complement-fixation tests. (See table 6.) Fifty-three percent of 261 farms yielded one or more rats with a positive reaction. (See table 7.)

TABLE 6.—*Complement-fixation tests of rat blood specimens collected from rats trapped on farms, March–July, 1944*

	R. norvegicus			*R. rattus*			Total rats		
	Number negative	Number positive	Percent positive	Number negative	Number positive	Percent positive	Number negative	Number positive	Percent positive
Month:									
March	14	12	46	17	6	26	31	18	37
April	32	32	50	11	22	67	43	54	56
May	42	14	25	12	18	60	54	32	37
June	22	15	40	19	22	54	41	37	47
July	18	9	33	60	33	35	78	42	35
Total	128	82	39	119	101	46	247	183	42
							430		

TABLE 7.—*Degree of farm infection as determined by complement-fixation reaction of rat blood specimens collected*

	R. norvegicus			*R. rattus*			*R. rattus* and *R. norvegicus*			Total rats		
	Farms negative	Farms positive	Percent positive	Farms negative	Farms positive	Percent positive	Farms negative	Farms positive	Percent positive	Farms positive	Farms negative	Percent positive
Month:												
March	7	7	50	6	3	33	1	6	86	14	16	53
April	11	19	63	4	15	79	0	2	100	15	36	70
May	25	12	44	7	15	68				32	27	46
June	13	11	46	11	18	62				24	29	55
July	7	5	42	31	23	42	0	2	100	38	30	44
Total	63	54	46	59	74	56	1	10	91	123	138	53
										261		

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As indicated in table 8, the success in demonstrating infection varies directly with the number of rats tested per farm. Both species of domestic rats (*Rattus rattus* and *Rattus norvegicus*) were found in this county in about equal numbers, and, in conformity with other experience, it was uncommon to trap the two species on the same farm. (See table 7.)

TABLE 8.—*Variability of degree of farm infection when 1, 2, 3, 4, or 5 rats were tested per farm*

Number of rat blood specimens per farm	Number of farms negative	Number of farms positive	Percent of farms positive
1	88	54	38
2	24	54	69
3	11	24	69
4	0	4	100
5	0	2	100
Total	123	138	53
	261		

RODENT ECTOPARASITE STUDIES

The following species of ectoparasites were collected: *Xenopsylla cheopis, Echidnophaga gallinacea, Leptopsylla segnis, Echinolaelaps echidninus, Liponyssus bacoti, Polyplax spinulosa.* A few other species of ectoparasites were present in insignificant numbers.

The series of rats on which both serological and ectoparasite studies were made was too small to justify a break-down by combinations of ectoparasites. However, a study of the association of serological results with the presence or absence of *Xenopsylla cheopis* tends to verify the impression that conditions which result in *X. cheopis* infestation of rats predispose to typhus infection in rats in this area. (See table 9.)

TABLE 9.—*Comparison of the typhus serology of rats with their* Xenopsylla cheopis *infestation*

	Number with positive serology	Number with negative serology	Total	Percent positive
Rats infested with *X. cheopis*	126	102	228	55.3
Rats not infested with *X. cheopis*	66	137	203	32.5
Total	192	239	431	44.5
Percent of rats infested with *X. cheopis*	[1] 65.6	[1] 42.7	52.9	

[1] $x/\sigma=4.73$——[2] $P=0.0000$?

[2] The symbol P as used above expresses the probability of obtaining by chance, when the true difference is zero, a sample difference as great or greater than that obtained.

SUMMARY AND CONCLUSIONS

1. 500 typhus cases per 100,000 population can be considered the human morbidity rate of murine typhus fever for 1943 in Coffee County, Alabama.

2. Of 211 reputed typhus cases in 1943, serologic tests were done on 177, and of these 135 were positive for typhus. In addition, there were two deaths attributed to typhus (table 1).

3. A comparison of morbidity rates of the population under 30 years of age and the population 30 years and over shows a statistically significant difference probably attributable to conditions of greater exposure of those 30 years of age or older (table 2).

4. There is a significantly greater typhus morbidity rate among males than among females in Coffee County. This is consistent with the theory of greater exposure of the male population (table 2).

5. There were two deaths attributed to typhus fever out of 160 estimated cases—a case fatality rate of 1.25 percent.

6. When the 1943 cases are arranged by date of onset, there are two peaks of incidence, one in July and the other in October. When cases which were reported to the health department during the period 1942 through 1944 are arranged by date of reporting, there are similar summer and fall peaks which exhibit a lag of one month behind the curve based on date of onset (tables 3 and 4).

7. Of the 137 confirmed typhus cases, 115 (84 percent) were among rural residents, and 22 (16 percent) were among urban residents. The difference in rural and urban typhus rates in Coffee County is both practically and statistically insignificant. The probability of acquiring typhus fever in this county is about the same for rural and urban residents (table 5).

8. That there is widespread typhus infection among rats in the rural portion of the county is indicated by the fact that of blood specimens from 430 rats trapped on farms, 42 percent were positive for typhus complement-fixing antibodies (table 6).

9. Of 261 farms, 138 (53 percent) yielded one or more rats with positive serologic reactions for typhus. This percentage probably would have been much larger if three or more rats had been trapped on each farm (tables 7 and 8).

10. In this experience, infection of rats with typhus (as indicated by the complement-fixation test) is directly proportional to infestation with *Xenopsylla cheopis* (table 9).

REFERENCES

(*1*) Maxcy, Kenneth F.: An epidemiological study of endemic typhus (Brill's disease) in the southeastern United States. Pub. Health Rep., **41:** 2967–2995 (Dec. 24, 1926).

(*2*) Public Health Reports: Prevalence of disease, United States, weekly State reports, **60:** 76 (Jan. 19, 1945).

INCIDENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

April 20–May 17, 1947

The accompanying table summarizes the incidence of nine important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State for each week are published in PUBLIC HEALTH REPORTS under the section "Incidence of Disease." The table gives the number of cases of these diseases for the 4 weeks ended May 17, 1947, the number reported for the corresponding period in 1946, and the median number for the years 1942–46.

DISEASES ABOVE MEDIAN INCIDENCE

Diphtheria.—For the 4 weeks ended May 17 there were 785 cases of diphtheria reported. The number of cases was less than 80 percent of the incidence during the corresponding period in 1946, but it was slightly higher than the 1942–46 median. The greatest increases over the normal seasonal expectancy were reported from the New England and Middle Atlantic sections. In other sections the incidence either closely approximated the preceding 5-year median or fell below it.

Influenza.—The number of reported cases of influenza dropped from approximately 121,000 during the preceding 4 weeks to 15,461 during the 4 weeks ended May 17. The incidence was 4 times that recorded for the corresponding period in 1946 and 3 times the 1942–46 median. The recent influenza epidemic reached its peak about the middle of March, but the number of cases was still considerably above the normal seasonal expectancy in all sections except the Middle Atlantic and Pacific sections. Due, no doubt, to the rather late appearance of the rise in this disease the current incidence was the highest recorded for this period in the 19 years for which data are available in this form; the excesses ranged from 1.4 times the median in the East North Central section to almost 7 times the median in the New England section. For several weeks at the beginning of the recent epidemic the incidence was confined to a few States in the Southern and Western sections, but it eventually spread into all regions, reaching the North Atlantic sections last, and, while the numbers of cases were not large in those sections, they have represented considerable increases over the normal seasonal expectancy.

Poliomyelitis.—The number of cases (126) of poliomyelitis was only 60 percent of the cases reported during the corresponding period in 1946, but it was 10 percent above the 1942–46 median. The excess over the seasonal median was largely due to an increase in the number of cases in the Middle Atlantic, West North Central, and Pacific sections. New York reported 13 of the cases that occurred in the

Middle Atlantic section; in the West North Central section each State except South Dakota reported some cases, while in the Pacific section the cases (43) were all reported from California. In other sections the incidence was about the same as the median or fell below it.

Whooping cough.—For the 4 weeks ended May 17 there were 14,589 cases of whooping cough reported, as compared with 8,037 for the corresponding period in 1946, and a 5-year (1942–46) median of 10,548 cases. The New England section reported a decrease from the preceding 5-year median; in the Middle Atlantic and Pacific sections the incidence was about normal, but all other sections reported a relatively high incidence. The most significant increase was reported from the West South Central section where the number of cases (3,432) was 3 times the seasonal median.

DISEASES BELOW MEDIAN INCIDENCE

Measles.—The incidence of measles continued at a relatively low level. For the 4 weeks ended May 17 there were 34,109 cases reported, as compared with 147,499 for the corresponding period in 1946 and a 1942–46 median of 104,755 cases. Each section of the country has shared in the favorable situation of this disease that has existed since the latter part of 1946. With the exception of the year 1945, which was a very low measles year (19,000 cases for these 4 weeks), the current incidence was the lowest since 1940.

Meningococcus meningitis.—The number of cases (331) of meningococcus meningitis reported for the current 4 weeks was about 80 percent of the number reported for the corresponding period in 1946 and less than 50 percent of the 1942–46 median. The number of cases in each section was below the seasonal median and for the country as a whole the incidence was the lowest since 1941 when 181 cases were reported for the same 4-week period.

Scarlet fever.—This disease also continued at a relatively low level, the 7,989 cases reported for the current 4 weeks being less than 60 percent of the number reported for these same weeks in 1946 and about 50 percent of the 1942–46 median. The number of cases reported from each section was below the seasonal median expectancy. This disease has been on the decline since the latter part of 1945, each 4-week period being lower than its corresponding period in the preceding year.

Smallpox.—For the 4 weeks ended May 17 there were 39 cases of smallpox reported. In 1946 there were 41 cases reported during the corresponding 4 weeks and the 1942–46 median was 48 cases. Of the total cases, New Mexico reported 7, Indiana, Wisconsin, and Missouri, 5 each, Kentucky 3, and no more than 2 cases were reported from any other State. In New York City where an outbreak received widespread attention the last 2 cases were reported during the week ended May 3, making a total of 14 cases around New York City and its environs. Cases of smallpox have occurred from time to time in practically all other sections of the country, but this is the first occurrence of smallpox in New York since 1939.

Typhoid and paratyphoid fever.—Although the number of cases (255) of these diseases was slightly above that reported for the corresponding weeks in 1946, the incidence was still at a relatively low level, being 10 percent below the 1942–46 median. With the exception of 1946 (249 cases) the current incidence was the lowest since 1943 when 244 cases were reported for the corresponding 4 weeks.

Number of reported cases of 9 communicable diseases in the United States during the 4-week period April 20–May 17, 1947, the number for the corresponding period in 1946, and the median number of cases reported for the corresponding period, 1942–46

Division	Current period	1946	5-year median	Current period	1946	5-year median	Current period	1946	5-year median
	Diphtheria			Influenza [1]			Measles [2]		
United States	785	1,068	780	15,461	3,873	5,210	34,109	147,499	104,755
New England	52	48	27	62	9	9	7,818	13,252	9,578
Middle Atlantic	177	173	112	33	44	41	5,454	49,905	14,927
East North Central	100	148	117	277	170	200	6,942	28,564	19,422
West North Central	74	137	73	857	23	93	3,967	5,337	7,512
South Atlantic	114	187	142	7,254	1,232	1,399	3,771	12,944	7,852
East South Central	51	52	57	1,371	117	374	1,552	2,796	2,269
West South Central	96	148	148	4,484	1,983	2,156	2,066	9,766	6,894
Mountain	57	68	58	893	212	461	1,457	8,030	5,039
Pacific	64	107	99	230	83	244	1,082	16,905	16,905
	Meningococcus meningitis			Poliomyelitis			Scarlet fever		
United States	331	428	712	126	210	118	7,989	13,617	15,612
New England	20	25	48	3	5	5	692	1,271	2,023
Middle Atlantic	53	104	156	14	18	9	2,490	4,577	4,577
East North Central	73	87	133	9	8	8	2,303	3,681	4,013
West North Central	34	34	49	17	13	6	681	914	1,153
South Atlantic	50	54	93	15	66	20	503	1,276	1,276
East South Central	28	35	71	5	5	12	237	263	372
West South Central	35	38	68	15	42	26	142	277	319
Mountain	3	4	15	5	24	3	319	470	765
Pacific	35	47	93	43	29	12	622	888	888
	Smallpox			Typhoid and paratyphoid fever			Whooping cough [2]		
United States	39	41	48	255	249	286	14,589	8,037	10,548
New England	0	0	0	23	7	14	842	965	1,110
Middle Atlantic	2	0	0	27	31	38	2,198	1,703	2,193
East North Central	11	16	16	58	26	39	2,588	1,683	1,683
West North Central	10	6	8	10	16	15	590	324	343
South Atlantic	2	2	3	31	48	51	2,066	1,143	1,596
East South Central	3	0	7	19	16	39	659	216	468
West South Central	2	3	5	49	64	68	3,432	911	1,172
Mountain	9	3	3	6	17	16	597	479	523
Pacific	0	11	3	32	24	19	1,617	613	1,633

[1] Mississippi, New York, and North Carolina excluded; New York City included.
[2] Mississippi excluded.

MORTALITY, ALL CAUSES

For the 4 weeks ended May 17 there were 36,937 deaths from all causes reported to the National Office of Vital Statistics by 93 large cities. The median number reported for the corresponding period in 1944–46 was 36,294. Each week of the period showed some increase over the preceding 3-year median, but the largest increase occurred during the last week when the number of deaths represented an increase of 4.8 percent over the median.

DEATHS DURING WEEK ENDED MAY 17, 1947

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

	Week ended May 17, 1947	Corresponding week, 1946
Data for 93 large cities of the United States:		
Total deaths	9,331	8,901
Median for 3 prior years	8,906	
Total deaths, first 20 weeks of year	198,445	196,267
Deaths under 1 year of age	777	613
Median for 3 prior years	613	
Deaths under 1 year of age, first 20 weeks of year	15,841	12,218
Data from industrial insurance companies:		
Policies in force	67,292,728	67,171,251
Number of death claims	11,647	11,951
Death claims per 1,000 policies in force, annual rate	9.0	9.3
Death claims per 1,000 policies, first 20 weeks of year, annual rate	10.0	10.7

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 MAY 24, 1947

Summary

A total of 33 cases of poliomyelitis was reported for the week, as compared with 39 last week, 77 for the same week last year, and a 5-year (1942–46) median of 39. Of the current total, California reported 10 (last week 15), Texas 5, Florida 3, and 11 other States 1 or 2 cases each. Since the week ended March 15 (the approximate average date of seasonal low incidence), 300 cases have been reported (same period last year, 421), of which 220 occurred in the 10 States reporting 8 or more cases each for the period, as follows (last year's corresponding figures in parentheses): New York 30 (35), Illinois 12 (13), Michigan 9 (4), Missouri 8 (4), North Dakota 9 (1), Nebraska 9 (0), Florida 17 (89), Louisiana 10 (17), Texas 23 (68), California 93 (52).

Only 4 cases of smallpox were reported for the week—1 case each in Ohio, Georgia, Louisiana, and Texas. The total for the year to date is 131, as compared with 216 for the corresponding period last year, 241 for the 5-year median, and 211, the lowest number reported for a corresponding period in the past 5 years (in 1945).

A total of 555 cases of dysentery (amebic, bacillary, and undefined), was reported for the week, as compared with 666 for the corresponding week last year. The combined total to date is 11,323, as compared with 9,790 for the period last year, and 7,621 for the combined medians of the past 5 years.

Of 88 cases of typhoid and paratyphoid fever reported (last week 47, 5-year median 68), 14 occurred in Texas (last week 8), 12 in Illinois (last week 1), 8 in Ohio (last week 3), and 7 in Tennessee (last week 2). The cumulative total is 1,024, slightly below the 5-year median.

A total of 3,995 cases of whooping cough was reported for the week, as compared with 3,801 last week, 1,914 for the corresponding week last year, and a 5-year median of 2,540. The cumulative figure is 59,710, as compared with 38,940 for the period last year and a 5-year median of 52,392.

Deaths recorded during the week in 93 large cities of the United States totaled 8,923, as compared with 9,331 last week, 8,878 and 9,033, respectively, for the corresponding weeks of 1946 and 1945, and a 3-year (1944–46) median of 8,878. The cumulative total is 207,368, as compared with 205,145 for the corresponding period last year.

Telegraphic morbidity reports from State health officers for the week ended May 24, 1947, and comparison with corresponding week of 1946 and 5-year median

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

Division and State	Diphtheria: Week ended— May 24, 1947	Diphtheria: Week ended— May 25, 1946	Diphtheria: Median 1942-46	Influenza: Week ended— May 24, 1947	Influenza: Week ended— May 25, 1946	Influenza: Median 1942-46	Measles: Week ended— May 24, 1947	Measles: Week ended— May 25, 1946	Measles: Median 1942-46	Meningitis, meningococcus: Week ended— May 24, 1947	Meningitis, meningococcus: Week ended— May 25, 1946	Meningitis, meningococcus: Median 1942-46
NEW ENGLAND												
Maine	1	3	0	------	------	------	104	354	81	0	0	1
New Hampshire	0	0	0	------	------	------	2	37	27	0	0	0
Vermont	0	0	0	------	------	------	114	62	62	0	0	0
Massachusetts	3	4	4	------	------	------	405	2,738	982	2	2	6
Rhode Island	2	0	0	------	------	------	123	106	60	0	0	0
Connecticut	1	1	0	1	------	2	952	593	437	0	2	4
MIDDLE ATLANTIC												
New York	16	23	13	[1] 14	[1] 2	[1] 3	616	3,323	776	7	12	26
New Jersey	7	6	2	------	5	5	447	3,455	925	3	6	11
Pennsylvania	13	16	11	([2])	[2] 2	[2] 1	323	3,184	1,143	6	9	9
EAST NORTH CENTRAL												
Ohio	9	12	7	6	3	9	825	745	412	3	8	8
Indiana	1	14	7	4	------	4	117	373	162	0	3	3
Illinois	3	4	13	71	1	4	331	625	419	5	9	16
Michigan [3]	5	5	4	1	1	1	173	926	886	5	4	4
Wisconsin	0	4	2	16	16	24	988	2,471	2,122	0	3	2
WEST NORTH CENTRAL												
Minnesota	3	8	3	------	------	------	839	71	476	3	3	3
Iowa	4	1	2	------	------	------	119	231	231	0	0	1
Missouri	4	3	2	1	5	1	43	113	159	2	3	12
North Dakota	1	1	0	------	5	5	125	13	13	1	0	0
South Dakota	1	1	1	1	------	------	136	44	44	0	1	0
Nebraska	1	1	1	------	------	1	6	489	63	0	0	0
Kansas	1	8	5	2	------	1	17	201	220	1	1	1
SOUTH ATLANTIC												
Delaware	0	1	0	------	------	------	1	24	20	0	0	0
Maryland [3]	5	18	8	2	3	3	65	819	290	3	3	5
District of Columbia	0	0	0	1	------	------	9	219	92	0	1	1
Virginia	3	5	4	324	133	75	262	687	186	2	4	9
West Virginia	0	5	3	18	------	4	63	83	51	0	0	0
North Carolina	3	6	3	------	------	2	157	293	310	0	2	4
South Carolina	2	9	8	243	138	155	107	456	141	0	0	2
Georgia	2	5	3	3	5	6	75	172	14[illegible]	0	0	1
Florida	5	6	1	7	3	1	35	202	168	0	2	3
EAST SOUTH CENTRAL												
Kentucky	8	6	2	------	------	1	22	111	74	2	6	3
Tennessee	5	1	2	79	5	8	44	148	69	7	3	3
Alabama	4	6	5	86	37	17	264	300	105	1	10	7
Mississippi [3]	6	7	5	24	------	------	19	------	------	3	1	3
WEST SOUTH CENTRAL												
Arkansas	4	3	3	24	8	10	52	175	75	0	6	3
Louisiana	9	0	1	2	1	2	19	64	64	1	0	1
Oklahoma	2	3	3	72	19	19	3	158	98	0	0	0
Texas	13	35	30	428	261	398	406	1,194	641	4	5	9
MOUNTAIN												
Montana	0	0	0	2	------	------	92	93	93	0	0	0
Idaho	0	0	0	27	11	------	9	70	50	0	0	0
Wyoming	1	0	0	11	------	------	4	56	56	0	0	0
Colorado	3	7	7	41	8	17	64	730	203	0	1	1
New Mexico	3	4	1	1	2	2	89	65	23	0	0	0
Arizona	1	15	4	46	24	33	69	161	67	0	0	0
Utah [3]	0	0	0	2	------	4	12	303	226	0	0	0
Nevada	0	0	0	------	------	------	------	1	5	0	0	0
PACIFIC												
Washington	4	3	4	16	------	------	23	278	285	0	2	2
Oregon	1	1	1	10	3	5	20	321	135	0	1	1
California	15	16	15	24	18	18	166	2,107	2,107	6	8	13
Total	175	[illegible]77	189	1,610	719	884	8,956	29,444	19,11[illegible]	67	[illegible]	182
21 weeks	5,392	7,206	5,590	95,843	185,[illegible]4	75,305	134,454	516,099	[illegible]	1,8[illegible]7	3,500	4,704
Seasonal low week [4]	(27th) July 5-11			(30th) July 26-Aug 1			(35th) Aug. 30-Sept. 5			(37th) Sept. 13-19		
Total since low	12,9[illegible]8	18,850	14,369	328,818	547,47[illegible]	111,167	157,34[illegible]	542,22[illegible]	460,99[illegible]	2,799	5,004	7,156

[1] New York City only. [2] Philadelphia only. [3] Period ended earlier than Saturday.
[4] Dates between which the approximate low week ends. The specific date will vary from year to year.

Telegraphic morbidity reports from State health officers for the week ended May 24, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Poliomyelitis: Week ended— May 24, 1947	Poliomyelitis: Week ended— May 25, 1946	Poliomyelitis: Median 1942–46	Scarlet fever: Week ended— May 24, 1947	Scarlet fever: Week ended— May 25, 1946	Scarlet fever: Median 1942–46	Smallpox: Week ended— May 24, 1947	Smallpox: Week ended— May 25, 1946	Smallpox: Median 1942–46	Typhoid and paratyphoid fever: Week ended— May 24, 1947[5]	Typhoid and paratyphoid fever: Week ended— May 25, 1946	Typhoid and paratyphoid fever: Median 1942–46
NEW ENGLAND												
Maine	0	0	0	8	23	23	0	0	0	0	1	0
New Hampshire	0	0	0	4	24	11	0	0	0	0	0	0
Vermont	0	0	0	12	7	7	0	0	0	0	0	0
Massachusetts	0	0	0	98	174	286	0	0	0	1	2	2
Rhode Island	0	0	0	7	12	12	0	0	0	0	0	0
Connecticut	0	0	0	34	37	57	0	0	0	0	2	1
MIDDLE ATLANTIC												
New York	1	0	3	289	494	448	0	0	0	4	2	2
New Jersey	1	1	0	132	142	116	0	0	0	1	0	1
Pennsylvania	0	1	1	223	395	395	0	0	0	2	2	8
EAST NORTH CENTRAL												
Ohio	1	1	1	192	301	301	1	0	0	8	1	1
Indiana	0	0	0	39	52	39	0	5	2	1	1	2
Illinois	0	2	0	72	179	194	0	0	0	12	1	2
Michigan[3]	0	0	0	135	135	192	0	0	0	1	0	0
Wisconsin	0	0	0	56	98	244	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota	0	2	0	39	56	56	0	1	0	0	0	0
Iowa	0	1	0	18	63	42	0	0	0	0	2	1
Missouri	0	0	0	27	23	49	0	0	0	0	3	3
North Dakota	1	0	0	2	3	5	0	0	0	0	0	0
South Dakota	0	0	0	4	9	9	0	0	0	0	0	0
Nebraska	0	0	0	11	24	13	0	0	0	2	0	0
Kansas	0	1	1	20	45	51	0	1	0	0	1	1
SOUTH ATLANTIC												
Delaware	0	0	0	8	2	4	0	0	0	0	0	0
Maryland[3]	2	0	0	37	98	98	0	0	0	3	0	2
District of Columbia	0	0	0	7	12	12	0	0	0	0	0	0
Virginia	0	0	1	25	37	37	0	0	0	3	1	1
West Virginia	0	0	0	10	17	24	0	0	0	1	0	1
North Carolina	1	1	0	20	28	20	0	0	0	1	0	1
South Carolina	0	1	1	4	9	5	0	0	0	1	2	2
Georgia	0	1	1	1	1	8	1	0	0	4	4	5
Florida	3	22	1	2	1	3	0	0	0	0	2	3
EAST SOUTH CENTRAL												
Kentucky	0	0		10	33	36	0	0	0	5	0	1
Tennessee	0	0	0	14	25	25	0	0	0	7	3	3
Alabama	1	0	1	5	7	8	0	0	0	2	6	3
Mississippi[3]	2	0	0	0	9	4	0	0	1	1	3	2
WEST SOUTH CENTRAL												
Arkansas	0	1	1	5	1	4	0	0	0	2	3	3
Louisiana	0	5	1	4	0	1	1	0	0	2	3	3
Oklahoma	0	1	0	3	1	12	0	0	0	3	0	1
Texas	5	23	6	23	33	43	1	0	0	14	7	7
MOUNTAIN												
Montana	0	0	0	4	3	14	0	0	0	1	0	0
Idaho	0	0	0	5	7	18	0	0	0	0	1	1
Wyoming	0	0	0	7	2	6	0	0	0	0	0	0
Colorado	0	2	0	28	34	34	0	3	0	0	0	0
New Mexico	0	0	0	3	7	7	0	0	0	1	2	0
Arizona	2	0	0	4	8	15	0	0	0	1	1	0
Utah[3]	0	0	0	7	19	20	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	2	2	1	24	18	43	0	0	0	0	1	0
Oregon	1	0	0	16	39	26	0	0	0	0	3	1
California	10	9	4	113	145	145	0	0	0	4	5	5
Total	33	77	39	1,811	2,892	3,088	4	10	10	88	65	68
21 weeks	927	889	547	52,672	72,816	82,498	131	216	241	1,024	1,094	1,242
Seasonal low week[4]	(11th) Mar. 15–21			(32nd) Aug. 9–15			(35th) Aug. 30–Sept. 5			(11th) Mar. 15–21		
Total since low	300	421	245	79,358	111,387	120,819	185	292	358	539	619	651

[3] Period ended earlier than Saturday.
[4] Dates between which the approximate low week ends. The specific date will vary from year to year.
[5] Including paratyphoid fever reported separately, as follows: Massachusetts 1 (salmonella infection); Ohio 1; Indiana 1; Illinois 1; Virginia 1; Georgia 1; Texas 1; California 2.

Telegraphic morbidity reports from State health officers for the week ended May 24, 1947, and comparison with corresponding week of 1946 and 5-year median—Con.

Division and State	Whooping cough: Week ended— May 24, 1947	Whooping cough: Week ended— May 25, 1946	Whooping cough: Median 1942–46	Week ended May 24, 1947: Dysentery: Amebic	Dysentery: Bacillary	Dysentery: Unspecified	Encephalitis, infectious	Rocky Mt. spotted fever	Tularemia	Typhus fever, endemic	Undulant fever
NEW ENGLAND											
Maine	6	3	24	-	-	-	-	-	-	-	-
New Hampshire	-	3	3	-	-	-	-	-	-	-	-
Vermont	9	14	14	-	-	-	-	-	-	-	2
Massachusetts	127	108	118	-	-	-	-	-	-	-	3
Rhode Island	21	25	20	-	-	-	-	-	-	-	-
Connecticut	53	53	53	-	-	-	-	-	-	-	9
MIDDLE ATLANTIC											
New York	199	172	210	7	28	-	-	-	-	-	2
New Jersey	235	112	117	2	-	1	-	-	-	-	1
Pennsylvania	159	100	184	-	-	-	1	1	-	-	1
EAST NORTH CENTRAL											
Ohio	174	57	94	1	-	-	-	-	-	-	-
Indiana	62	15	30	-	1	-	-	1	-	-	-
Illinois	85	94	94	5	2	-	-	2	-	-	12
Michigan [3]	274	108	108	-	1	-	-	-	-	-	6
Wisconsin	136	98	98	-	-	-	-	-	-	-	15
WEST NORTH CENTRAL											
Minnesota	50	5	20	3	-	-	-	-	-	-	4
Iowa	11	27	18	1	-	-	-	-	-	-	-
Missouri	35	18	16	-	-	-	-	-	1	-	-
North Dakota	4	2	2	-	-	-	-	-	-	-	-
South Dakota	2	-	-	-	-	2	-	-	-	-	-
Nebraska	11	5	4	1	-	-	-	-	-	-	3
Kansas	37	15	34	-	-	-	-	-	-	-	2
SOUTH ATLANTIC											
Delaware	2	-	1	-	-	-	-	-	-	-	-
Maryland [3]	88	17	54	-	-	-	-	1	-	-	2
District of Columbia	1	8	14	-	-	-	-	1	-	-	-
Virginia	61	80	89	1	-	75	-	1	-	-	4
West Virginia	38	18	18	-	-	-	1	-	-	-	-
North Carolina	94	72	165	1	1	-	-	-	1	-	-
South Carolina	142	64	74	4	19	-	-	-	-	2	1
Georgia	82	13	13	1	2	-	-	-	4	4	-
Florida	47	21	22	2	-	-	-	-	-	2	-
EAST SOUTH CENTRAL											
Kentucky	50	24	58	-	-	-	-	-	-	-	-
Tennessee	58	61	61	2	-	5	1	1	5	-	2
Alabama	37	12	35	-	-	-	-	-	-	7	1
Mississippi [3]	25	-	-	6	2	-	-	-	3	-	6
WEST SOUTH CENTRAL											
Arkansas	26	18	18	3	-	1	-	-	4	1	-
Louisiana	21	9	7	9	-	-	-	-	1	-	2
Oklahoma	15	24	13	-	-	-	-	2	3	-	2
Texas	983	170	250	11	290	34	-	2	-	9	7
MOUNTAIN											
Montana	10	6	6	-	-	-	-	-	-	-	1
Idaho	31	21	3	-	-	-	-	-	-	-	-
Wyoming	3	-	1	-	-	-	-	3	-	-	-
Colorado	33	23	21	-	-	-	-	1	-	-	1
New Mexico	15	18	10	-	-	-	-	-	-	-	-
Arizona	51	41	18	-	-	22	-	-	-	-	1
Utah [3]	7	8	43	-	-	-	-	-	1	-	1
Nevada	-	-	-	-	-	-	-	-	-	-	-
PACIFIC											
Washington	22	35	35	-	4	-	-	-	-	-	2
Oregon	16	46	27	1	-	-	1	1	-	-	-
California	347	71	333	3	1	-	1	-	-	-	8
Total	3,995	1,914	2,540	64	351	140	5	17	23	25	101
Same week, 1946	1,914	-	-	58	460	148	11	9	20	54	85
Median, 1942–46	2,540	-	-	29	375	117	11	9	14	54	[6] 96
21 weeks: 1947	59,710	-	-	1,016	6,212	4,095	140	63	644	774	2,203
1946	38,940	-	-	821	6,714	2,255	177	65	376	963	1,769
Median, 1942–46	52,392	-	-	626	5,446	1,549	177	65	364	963	[6] 1,818

[3] Period ended earlier than Saturday.
[6] 2-year average, 1945–46.

Anthrax: New York 2 cases
Leprosy: Texas 1 case.

NOTIFIABLE DISEASES, FIRST QUARTER, 1947

The figures in the following table are the totals of the monthly morbidity reports received from the State health authorities for January, February, and March 1947. These reports are preliminary and the figures are therefore more or less incomplete and subject to correction by final reports. In most instances they include cases reported in both civilian and military populations. 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 lists of diseases required to be reported are 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 known deficiencies, however, 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 prevalence 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 January, February, and March 1947

Division and State	Anthrax	Chickenpox	Conjunctivitis [1]	Diphtheria*	Dysentery, amebic	Dysentery, bacillary	Dysentery, undefined	Encephalitis, infectious	German measles	Hookworm disease	Influenza	Malaria [2]	Measles*	Meningitis, meningococcus*	Mumps	Ophthalmia	Pellagra	Pneumonia, all forms
NEW ENGLAND																		
Maine	1	951	....	35	1	....	....	1	57	....	21	6	3,053	7	1,082	....	....	235
New Hampshire	....	349	....	1	1	....	....	1	29	....	24	....	271	7	51	....	....	59
Vermont	....	753	....	3	....	....	....	....	60	....	251	....	2,592	2	199	....	....	47
Massachusetts	1	8,000	85	207	5	32	....	3	320	....	....	40	5,697	20	2,511	[3] 48	....	[4] 442
Rhode Island	....	388	....	11	....	....	....	1	19	....	10	12	2,189	1	120	....	....	100
Connecticut	....	3,758	21	4	2	....	....	2	133	....	16	30	5,284	11	1,864	....	....	576
MIDDLE ATLANTIC																		
New York	3	10,588	2	227	78	35	....	12	[5] 229	[5] 32	[5] 114	154	3,122	96	[5] 1,538	[3] 18	....	4,267
New Jersey	3	15,103	....	72	15	....	1	2	458	....	116	49	2,968	35	3,719	[3] 1	....	1,307
Pennsylvania	8	15,503	....	175	6	....	....	2	....	....	46	....	7,535	82	7,888	[3] 6	4	1,674
EAST NORTH CENTRAL																		
Ohio	....	7,365	6	159	3	1	....	....	115	....	371	7	6,932	35	3,985	[3] 144	....	998
Indiana	....	1,578	6	160	....	1	1	21	9	....	1,481	20	487	11	504	....	....	204
Illinois	....	6,501	82	55	45	4	....	10	123	1	789	[6] 74	587	56	1,526	....	....	1,578
Michigan	....	7,108	45	85	9	11	....	....	202	....	139	59	960	33	2,481	[3] 5	....	864
Wisconsin	....	9,517	....	23	4	....	....	3	65	....	2,815	....	2,311	18	3,263	....	....	[4] 234

WEST NORTH CENTRAL																		
Minnesota		2,355		156	[7] 20	3	2			1	33	138	625	29				38
Iowa		1,255		23	15			2	15		16,865	11	443	27	388			86
Missouri		1,058		61			3		3		1,186	43	90	40	176			526
North Dakota		111	4	15							504		74	4				199
South Dakota		236		19			17				35	1	132	5	61			82
Nebraska		780		19	5		2				465	7	105	5	119			109
Kansas		1,735	46	68				1	29		15,513	3	98	12	583			430
SOUTH ATLANTIC																		
Delaware		165		3									20	2	17			11
Maryland		1,435	1	90	2		4		32		127	1	353	26	363	[3] 5		523
District of Columbia		649		3							22		247	4	247		1	330
Virginia		1,988		89	7		1,013				11,600	29	3,371	33	1,018		7	1,090
West Virginia		513		46	1			1			8,036	1	1,023	14	268			226
North Carolina				108		1						25	3,177	18				
South Carolina		1,445		53	22	104		8	76	228	11,333	467	867	15	205	[3] 7	133	1,327
Georgia		881	11	58	7	24	2			1,326	3,714	58	2,055	14	81		4	339
Florida		1,065	12	78	13	1	4	1	30	1,138	418	35	134	24	321	[3] 4	5	253
EAST SOUTH CENTRAL																		H
Kentucky		754		127				3			[8] 87,520	55	339	33	797			310
Tennessee		1,010	4	104	11	1	1	4	34	2	2,365	24	869	28	512	[3] 1	9	933
Alabama		825		102	8				30		4,357	69	675	34	289		4	841
Mississippi		360		72	44	59				744	1,897	152	203	15	140	[3] 11	8	553
WEST SOUTH CENTRAL																		
Arkansas		513		63	7	11	61		26	1	18,825	70	1,402	19	330		5	1,011
Louisiana		352		83	112	7		1	6	90	662	35	390	29	570	[3] 2	1	502
Oklahoma		504		57	10	2	1	1	29	21	16,795	125	58	16	305	[3] 2	6	649
Texas		9,114		334	159	3,992	1,370				81,860	856	2,060	81	8,116	[3] 25	168	4,868
MOUNTAIN																		
Montana		413		9	1				20		1,975		2,486	4	366			140
Idaho		447	35	7			2	1	35		816	8	80	3	531			207
Wyoming		344	11	10					60		221	9	126	4	98			48
Colorado		1,459		79	1	1			180		7,430		510	9	923			655
New Mexico		478	8	25	3	7	2	2	10		63	12	578		319		3	458
Arizona		1,107		47	2		315	1	50		2,068	13	663	4	426	[3] 3	1	696
Utah		1,697		2	1				65	1	630	17	109	2	1,338			160
Nevada		298	9					2			9	2	17	3	344			76
PACIFIC																		
Washington		3,465	178	78	21	4	16	6	301		1,062	5	453	18	1,358			298
Oregon		1,029	8	38	9		1	2			707	10	387	9	736			337
California		15,748	4	313	31	35		12	708		410	45	2,499	94	5,415			[4] 537
Total	16	143,050	578	3,656	681	4,336	2,818	106	3,558	3,585	[8] 305,716	[6] 2,777	70,706	1,091	57,491	[3] 282	359	31,433
First quarter 1946	10	74,308	388	4,995	887	5,418	1,271	113	19,675	3,327	213,750	10,930	229,417	2,512	56,852	330	955	44,095
Median 1942-46	14	128,054		3,981	630	3,946	1,100	113	19,675	4,142	86,624	6,378	222,463	3,231	76,829	387	907	52,346
Alaska		93		1	1		4		7		192		4		3			3
Hawaii Territory		890	5	1	12	26			47	3	5	[9] 11	17	7	135			[4] 25
Panama Canal Zone [10]		91		224	6	16		1				133	49	5	9			[11] 48

See footnote on page 894.

Consolidated monthly State morbidity reports for January, February, and March 1947—Continued

Division and State	Polio-myelitis*	Rabies in man	Rheumatic fever	Rocky Mountain spotted fever	Scarlet fever*	Septic sore throat	Smallpox*	Tetanus	Trachoma	Trichinosis	Tuberculosis, all forms*	Tuberculosis, respiratory	Tularemia	Typhoid fever*	Paratyphoid fever	Typhus fever, endemic	Undulant fever*	Vincent's infection	Whooping cough*
NEW ENGLAND																			
Maine	3				365	11					143	136		3	1		8	5	219
New Hampshire	3				184	32					34	11		1			16	20	101
Vermont	8				87						51	51		1	1		30		202
Massachusetts	7				1,849	49		2	4	16	682	640	1	4	33		14		2,160
Rhode Island	1		10		213	6					137	134			1		6	1	248
Connecticut	3				560	57		2		2	341	324		2		1	34		616
MIDDLE ATLANTIC																			
New York	31				[13] 4,509	([13])	7	10		35	3,237	3,079	2	20	8	1	66		2,391
New Jersey	5			1	1,707	70				11	828			8	3		11		1,712
Pennsylvania	16		393		2,701			2		5	1,018		4	37	[14] 6		30		2,592
EAST NORTH CENTRAL																			
Ohio	9		18		4,896	30	6	1	3	6	1,579		3	8	1	1	31	8	1,654
Indiana	17			1	1,496	73	15	1		2	620	588	33	26	[14] 1		43		440
Illinois	24		46		1,868	57	2	1	5	3	1,532	1,424	63	21		1	118	51	1,134
Michigan	27		72		1,959	114				2	1,494		4	8	[14] 20		44		2,805
Wisconsin	11				1,019	72					508		3	7			71		1,823
WEST NORTH CENTRAL																			
Minnesota	15		37		701	82				36	[7] 329		1	4	[14] 2		81	26	125
Iowa	8		1		566	26	1				168			4			234		213
Missouri	11		37		503	19	2				637		25	11			37	4	295
North Dakota	9		1		132	3			19		59	59		4				14	5
South Dakota	2				134	6	1		2		73			1	2		9	1	24
Nebraska	12				437		4				119			3			2		192
Kansas	9		4		687	4	5		4		170	163	6	2			38	73	177
SOUTH ATLANTIC																			
Delaware					170	1			1		49	49		1			2		88
Maryland	5		41		416	45		2		2	638	623	2		1	5	10		866
District of Columbia	2				150						447	435	4	2					63
Virginia	12			1	538	480		1			942		26	16	1	3	3		1,031
West Virginia	4				279	4					710		2	11			2		259
North Carolina	12			1	430	6					1,072	1,038	32	8		20			593
South Carolina	1		107		143	1,213		14		1	85		18	11		17	4		485
Georgia	6		10		232	63	2	3			475	473	52	5	8	132	21	24	192
Florida	23				157	42		7			1,025	1,025	3	16	[14] 3	63	10	51	420

EAST SOUTH CENTRAL																			
Kentucky	1				614	25	1		6		500	496	12	15	3	4	3		455
Tennessee	10		20		559	59	5	8	2	1	1, 278		45	15		17	14	68	358
Alabama	15	1			224		1	9			713		9	8		56	32		531
Mississippi	15				128		2				455	437	24	7		19	22		182
WEST SOUTH CENTRAL																			
Arkansas	11				59	178	3	3	87	1	426	416	31	7	2	10	4		221
Louisiana	17		13		77	46	1	5			515	492	13	29	7	46	9		94
Oklahoma	10			6	117	54			39		363		27	11		1	12	4	140
Texas	28				573	[15] 405	10		11		1, 567		7	33	5	142	142		4, 906
MOUNTAIN																			
Montana	1		5		85	17			10		135	83	2	3			3		76
Idaho	10		9	1	140	101			1	2	43			2	3		6	8	45
Wyoming	3				107	23					11		1		[14] 2			5	26
Colorado	4		100		699	316	1				451			5	2		20	3	167
New Mexico	3		5		112	6	2	1	34		351	333					1		172
Arizona	3				98				40		507			15	1		2		263
Utah	5		13		243	19					24	22	2				15		64
Nevada					56	27			4	3	58			1				15	8
PACIFIC																			
Washington	9		96		566	78		1			593			7	[14] 6		25	224	434
Oregon	5		12		352	17				1	225	220		9	2		7		146
California	177	1	238		1, 905	185	2	16	4	3	2, 309	2, 163	1	18	26	10	56		1, 755
Total	623	2	1, 288	11	35, 802	4, 121	73	89	276	132	29, 726	14, 914	458	430	[14] 151	549	1, 348	605	33, 168
First quarter 1946	491	2	1, 243	6	44, 899	2, 152	130	66	526	49	27, 536	14, 524	250	466	[14] 110	600	1, 000	508	25, 146
Median 1942-46	338	4		5	51, 491	2, 152	159	62	611	101	27, 536	15, 065	237	723		600	684	508	34, 023
Alaska					4	39					187						1		
Hawaii Territory	9				2	18		3			348	342				8			69
Panama Canal Zone [16]	1										[11] 6			2	1	2			[11] 5

See footnotes on p. 894.

FOOTNOTES FOR TABLE ON PAGES 890 TO 893

*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 (Pub. Health Rep., 59:317-340 (Mar. 10, 1944). Reprint No. 2544).

1 Includes cases of kerato- and suppurative conjunctivitis and of pink eye.
2 In a few States practically all cases contracted outside continental United States.
3 Ophthalmia neonatorum.
4 Lobar pneumonia only.
5 New York city only.
6 Exclusive of 40 cases of artificially induced malaria.
7 Includes nonresidents.
8 Includes estimated number of cases.
9 Off-shipping.
10 Includes the cities of Colon and Panama.
11 In the Canal Zone only.
12 Includes septic sore throat.
13 Included in scarlet fever.
14 Includes cases reported as "salmonella infection."
15 The number of cases of septic sore throat reported in Texas for the 4th quarter of 1946 should be 376 and for the United States should be 3,634 instead of the figures as published on p. 363 of the PUBLIC HEALTH REPORTS for Mar. 7, 1947; for the year 1946, the total number of reported cases of septic sore throat in Texas should be 865 and for the United States should be 9,525 instead of the figures as published on p. 407 of the PUBLIC HEALTH REPORTS for Mar. 14, 1947.

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):

Actinomycosis: Minnesota 3(4).
Botulism: Connecticut 2, New York 1, New Jersey 1, Maryland 4, New Mexico 4, Washington 5.
Coccidioidomycosis: California 10(14).
Dengue: South Carolina 2 (2), Mississippi 1, Texas 3(3).
Dermatitis: New Hampshire 5, Missouri 53.
Diarrhea: New York 80, New Jersey 11, Pennsylvania 17(3), Ohio 68 (63) includes enteritis, Illinois 9(3), North Dakota 2, Maryland 41(26), South Carolina 3,477(2,300), Florida 8(6), Colorado 2(3) includes enteritis, Washington 76 (56), Oregon 29, California 77(18).
Dog bite: New Hampshire 2, Illinois 1,840 (2140) all animal bites, Michigan 999 (1,232), Arkansas 128 (206) all animal bites.
Food poisoning: New Jersey 4, Ohio 2, Indiana 1(6), Illinois 17(3), Louisiana 4(1), Idaho 1 (1), Colorado 1, Oregon 1, California 116 (104).
Granuloma inguinale: Florida 81 (43), Tennessee 24 (17), Mississippi 145 (204), Louisiana 38 (93), Arizona 1 (1), Washington 378, California 4.
Impetigo contagiosa: New York 41, Ohio 4 (5), Indiana 7 (26), Illinois 5 (10), Michigan 350 (23), Missouri 3 (3), North Dakota 1 (8), Kansas 12 (4), Montana 15 (2), Idaho 13 (16), Wyoming 12 (3), Colorado 2 (24), Nevada 48 (44), Washington 334 (258), Alaska 2, Hawaii Territory 7 (5).
Jaundice (including hepatitis and Weil's disease); Maine 14, New Hampshire 4, New York 236, Ohio 4 (4), Indiana 6 (33), Illinois 9 (19), Michigan 5 (15), Minnesota 8 (9), North Dakota 12 (2), Maryland 4 (5), Florida 13 (4), Tennessee 3 (2), Idaho 4 (1), Wyoming 5, Washington 4 (29), Oregon 20 (18), California 41 (104), Hawaii Territory 4 (5).
Leprosy: Louisiana 2, Texas 3, California 7 (2), Panama Canal Zone 1, Hawaii Territory 4 (8).
Lymphocytic choriomeningitis: Massachusetts 3, Minnesota 2, Tennessee 6 (4).
Lymphogranuloma venereum: Missouri 12 (12), Florida 108 (24), Tennessee 28 (41), Louisiana 26 (42).
Psittacosis: New York 1, Ohio 1, Michigan 5, California 2.
Puerperal septicemia: Florida 1, Mississippi 7 (70), Louisiana 8, New Mexico 1.
Rabies in animals: New York 147 (224), Ohio 190 (228), Illinois 88 (101), Michigan 70 (2), Kansas 11 (14), Maryland 7 (8), South Carolina 54 (44), Florida 64 (4), Alabama 155 (233), Arkansas 26 (42), Louisiana 4 (20) Texas 323 (218), Colorado 8, New Mexico 2 (7), Utah 6 (1), California 78 (102), Alaska 2.
Rat bite fever: Louisiana 1.
Relapsing fever: Texas 10 (10), Nevada 1.
Ringworm disease: Pennsylvania 273 (147), Ohio 22 (20), Illinois 1,366 (1,025), Michigan 492 (228), Minnesota 9 (87), Iowa 363 (10), Kansas 8 (3), Maryland 1, Montana 1 (4), Idaho 13 (14), Wyoming 1 (1), Utah 75, Washington 253 (232).
Scabies: Rhode Island 8, Pennsylvania 186 (84), Ohio 25, Michigan 382 (408), Missouri 39 (6), North Dakota 2 (10), Kansas 49 (52), Montana 70 (22), Idaho 78 (64), Wyoming 5 (1), Nevada 21 (24), Alaska 2.
Silicosis: New Hampshire 1 (1), Kansas 2, New Mexico 4 (3), Idaho 1, Washington 2.

WEEKLY REPORTS FROM CITIES [1]

City reports for week ended May 17, 1947

This table lists the reports from 90 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland	0	0	------	0	60	0	3	0	0	0	0	6
New Hampshire:												
Concord	0	0	------	0	------	0	1	0	0	0	0	------
Vermont:												
Barre	0	0	------	0	1	0	0	0	0	0	0	1
Massachusetts:												
Boston	3	0	------	0	107	1	14	0	13	0	0	32
Fall River	0	0	------	0	30	0	0	0	3	0	0	9
Springfield	0	0	------	0	30	0	0	0	3	0	0	4
Worcester	0	0	------	0	10	0	3	0	0	0	1	13
Rhode Island:												
Providence	0	0	------	0	199	0	1	0	0	0	0	44
Connecticut:												
Bridgeport	0	0	------	0	24	0	1	0	3	0	0	1
Hartford	0	0	------	0	106	0	0	1	2	0	0	------
New Haven	0	0	------	0	104	1	0	0	6	0	2	15
MIDDLE ATLANTIC												
New York:												
Buffalo	1	0	------	0	1	1	4	0	6	0	0	3
New York	12	0	2	0	434	6	50	2	104	0	3	71
Rochester	0	0	------	0	2	0	3	1	13	0	1	12
Syracuse	0	0	------	0	------	1	2	0	12	0	0	12
New Jersey:												
Camden	1	0	------	0	1	0	1	0	4	0	0	3
Newark	0	0	------	0	16	0	1	0	10	0	0	42
Trenton	1	0	------	0	5	0	0	0	3	0	0	1
Pennsylvania:												
Philadelphia	3	0	1	0	15	1	27	0	55	0	1	57
Pittsburgh	1	0	1	1	15	0	9	0	23	0	0	16
Reading	0	0	------	0	2	0	0	0	4	0	0	1
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	0	0	------	0	------	0	2	0	7	0	0	13
Cleveland	3	0	1	0	165	1	8	0	40	0	0	49
Columbus	0	0	1	1	180	0	2	0	5	0	0	26
Indiana:												
Fort Wayne	0	0	------	0	13	0	1	0	1	0	0	3
Indianapolis	1	0	------	0	4	2	1	0	16	0	0	24
South Bend	0	0	------	0	34	0	0	0	0	0	0	2
Terre Haute	0	0	------	0	------	0	2	0	0	0	0	2
Illinois:												
Chicago	1	0	------	0	26	2	35	0	31	0	0	29
Springfield	------	------	------	------	------	------	------	------	------	------	------	------
Michigan:												
Detroit	5	0	------	0	2	1	13	0	50	0	0	90
Flint	1	0	------	0	1	0	0	0	0	0	0	1
Grand Rapids	0	0	------	0	7	0	1	0	7	0	0	8
Wisconsin:												
Kenosha	0	0	------	0	1	0	0	0	1	0	0	3
Milwaukee	0	0	2	2	49	0	2	0	18	0	0	15
Racine	0	0	------	0	------	0	0	0	14	0	0	8
Superior	0	0	------	0	------	0	0	0	0	0	0	------
WEST NORTH CENTRAL												
Minnesota:												
Duluth	0	0	------	0	------	0	1	0	4	0	0	8
Minneapolis	2	0	------	0	21	0	3	0	36	0	0	6
St. Paul	4	0	------	0	573	0	3	0	5	0	0	20
Missouri:												
Kansas City	0	0	------	0	------	0	5	0	14	0	0	3
St. Joseph	0	0	------	0	1	0	0	0	1	0	0	------
St. Louis	3	0	------	0	25	2	10	0	16	0	0	19

[1] In some instances the figures include nonresident cases.

City reports for week ended May 17, 1947—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
WEST NORTH CENTRAL—continued												
North Dakota:												
Fargo	0	0	------	0	17	0	0	0	1	0	0	------
Nebraska:												
Omaha	0	0	------	0	5	0	2	2	0	0	0	------
Kansas:												
Topeka	0	0	------	0	1	0	2	0	8	0	0	1
Wichita	0	0	------	0	------	0	1	0	1	0	0	7
SOUTH ATLANTIC												
Delaware:												
Wilmington	1	0	------	0	------	0	0	0	2	0	0	1
Maryland:												
Baltimore	3	0	1	0	15	0	7	0	10	0	0	84
Cumberland	0	0	------	0	------	0	0	0	0	0	0	------
Frederick	0	0	------	0	------	0	0	0	0	0	0	------
District of Columbia:												
Washington	0	0	------	0	11	1	4	0	6	0	0	5
Virginia:												
Lynchburg	1	0	------	0	1	0	0	0	0	0	0	------
Richmond	0	0	------	0	52	0	1	0	3	0	0	7
Roanoke	0	0	------	0	16	0	0	0	1	0	0	------
West Virginia:												
Charleston	0	0	------	0	------	0	0	0	1	0	0	------
Wheeling	0	0	------	0	------	0	1	0	0	0	0	------
North Carolina:												
Raleigh	0	0	------	0	9	0	0	0	0	0	0	12
Wilmington	0	0	------	0	5	0	0	0	0	0	0	------
Winston Salem	0	0	------	0	23	0	1	0	0	0	0	2
South Carolina:												
Charleston	0	0	7	0	21	0	1	0	1	0	0	14
Georgia:												
Atlanta	0	0	1	1	11	0	1	0	0	0	0	------
Brunswick	0	0	------	0	1	0	0	0	0	0	0	------
Savannah	0	0	1	1	1	0	0	0	0	0	0	------
Florida:												
Tampa	0	0	------	0	4	0	3	1	1	0	0	2
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	0	0	1	0	1	0	5	0	2	0	0	18
Nashville	0	0	------	0	------	0	1	0	3	0	0	6
Alabama:												
Birmingham	0	0	5	0	29	0	0	0	0	0	0	2
Mobile	0	0	1	0	5	0	0	0	0	0	0	------
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	------	2	------	0	1	0	0	0	0	------
Louisiana:												
New Orleans	2	0	5	0	30	5	9	0	2	0	2	9
Shreveport	0	0	------	0	------	0	4	0	0	0	0	------
Oklahoma:												
Oklahoma City	0	0	2	1	1	0	4	0	0	0	0	------
Texas:												
Dallas	0	0	1	1	220	0	3	0	4	0	0	18
Galveston	0	0	------	0	------	0	1	0	0	0	0	------
Houston	1	0	------	0	3	0	3	0	2	0	0	7
San Antonio	0	0	------	1	------	0	2	1	0	0	0	1
MOUNTAIN												
Montana:												
Billings	0	0	------	0	2	0	0	0	1	0	0	------
Great Falls	0	0	------	0	7	0	0	0	2	0	0	------
Helena	0	0	------	0	------	0	0	0	0	0	0	------
Missoula	0	0	------	0	5	0	0	0	0	0	0	------
Idaho:												
Boise	0	0	------	0	------	0	3	0	3	0	0	2
Colorado:												
Denver	4	0	1	0	35	0	9	0	17	0	0	9
Pueblo	0	0	------	0	1	0	0	0	5	0	0	------
Utah:												
Salt Lake City	0	0	------	0	3	0	0	0	3	0	0	1

City reports for week ended May 17, 1947—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
PACIFIC												
Washington:												
Seattle	0	0	------	0	4	1	0	0	3	0	0	9
Spokane	0	0	------	0	------	0	1	0	1	0	0	3
Tacoma	0	0	------	0	1	0	0	0	1	0	0	1
California:												
Los Angeles	7	0	10	1	14	1	4	0	34	0	1	57
Sacramento	2	0	------	0	------	0	1	0	1	0	0	3
San Francisco	0	0	------	0	6	1	2	0	7	0	1	5
Total	63	0	44	12	2,824	28	286	8	656	0	12	958
Corresponding week, 1946*	71	------	35	9	8,150	------	271	------	1,113	1	16	538
Average 1942-46*	62	------	45	[2] 13	[3] 5,594	------	[2] 305	------	1,331	1	15	770

[2] 3-year average, 1944-46. [3] 5-year median, 1942-46.
*Exclusive of Oklahoma City.

Dysentery, amebic.—Cases: New Haven 1; New York 3; St. Louis 1; Memphis 1; New Orleans 8; Los Angeles 4.
Dysentery, bacillary.—Cases: Worcester 2; Chicago 1; Los Angeles 2.
Dysentery, unspecified.—Cases: Cincinnati 7; Baltimore 1; San Antonio 2.
Leprosy.—Cases: Philadelphia 1.
Rocky Mt. spotted fever.—Cases: Lynchburg 1.
Tularemia.—Cases: St. Louis 1; New Orleans 1.
Typhus fever, endemic.—Cases: New York 1; San Antonio 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 90 cities in the preceding table (latest available estimated population, 34,558,600)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England	7.8	0.0	0.0	0.0	1,754	5.2	60.1	2.6	78	0.0	7.8	327
Middle Atlantic	8.8	0.0	1.9	0.5	227	4.2	44.9	1.4	108	0.0	2.3	101
East North Central	6.7	0.0	2.5	1.8	296	3.7	41.1	0.0	117	0.0	0.0	167
West North Central	17.9	0.0	0.0	0.0	1,279	4.0	53.7	4.0	171	0.0	0.0	127
South Atlantic	8.2	0.0	16.3	3.3	278	1.6	31.1	1.6	41	0.0	0.0	208
East South Central	0.0	0.0	41.3	0.0	207	0.0	35.4	0.0	30	0.0	0.0	153
West South Central	7.6	0.0	20.3	12.7	645	12.7	68.6	2.5	20	0.0	5.1	89
Mountain	31.8	0.0	7.9	0.0	421	0.0	95.3	0.0	246	0.0	0.0	95
Pacific	14.2	0.0	15.8	1.6	40	4.7	12.7	0.0	74	0.0	3.2	123
Total	9.5	0.0	6.7	1.8	427	4.2	43.3	1.2	99	0.0	1.8	145

TERRITORIES AND POSSESSIONS

Puerto Rico

Notifiable diseases—5 weeks ended March 29, 1947.—During the 5 weeks ended March 29, 1947, cases of certain notifiable diseases were reported in Puerto Rico as follows:

Disease	Cases	Disease	Cases
Chickenpox	65	Poliomyelitis	7
Diphtheria	37	Syphilis	187
Dysentery, unspecified	16	Tetanus	3
Gonorrhea	182	Tetanus, infantile	1
Influenza	115	Tuberculosis (all forms)	888
Malaria	322	Typhoid and paratyphoid fever	23
Measles	2	Whooping cough	42

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended May 3, 1947.—During the week ended May 3, 1947, 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	30		164	234	10	21	54	73	591
Diphtheria	2	1		8	1	2			1	15
Dysentery:										
Amebic					3					3
Bacillary				4						4
Encephalitis, infectious								1		1
German measles				40	43	2	19	1	3	108
Influenza		11			1	8			185	205
Measles		23	12	61	208	216	57	99	166	842
Meningitis, meningococcus					3				1	4
Mumps		15		32	349	33	62	13	118	622
Poliomyelitis					1				1	2
Scarlet fever		3	1	63	51	5	1	4	11	139
Tuberculosis (all forms)		11	15	111	22	24	7		36	226
Typhoid and paratyphoid fever		1	2	5	1				6	15
Undulant fever				2	3			1	1	7
Venereal diseases:										
Gonorrhea	4	9	26	124	100	(1)	15	43	75	396
Syphilis	1	14	5	70	78	(1)	6	9	27	210
Other forms						(1)	2			2
Whooping cough		3		32	100	42		24	39	240

[1] Report from Manitoba for the above period not received.

CHILE

Santiago—Typhoid fever.—An outbreak of typhoid fever has been reported in Santiago, Chile, as follows: November 3–30, 1946, 100 cases, 6 deaths; December 1–28, 1946, 206 cases, 20 deaths; December 29, 1946, to January 25, 1947, 124 cases, 11 deaths; January 26 to February 22, 1947, 147 cases, 5 deaths, making a total of 577 cases, 42 deaths during the period November 3, 1946, to February 22, 1947.

FINLAND

Typhoid fever epidemic.—Under date of May 14, 1947, typhoid fever was reported to have reached epidemic proportions in several districts of the western coast during recent weeks. The worst outbreak was stated to have occurred in Kalajoki, where between 170 and 180 cases, with 17 deaths, were reported. Numerous cases also occurred in Pori and vicinity. The health authorities state that the outbreak was caused by the contamination of wells resulting from the spring overflow of streams.

JAMAICA

Notifiable diseases—4 weeks ended May 3, 1947.—For the 4 weeks ended May 3, 1947, cases of certain notifiable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis	1		Poliomyelitis		1
Chickenpox	5	8	Puerperal sepsis		1
Diphtheria	2	1	Tuberculosis (all forms)	52	61
Dysentery, unspecified	1	5	Typhoid fever	10	111
Erysipelas	1	1	Typhus fever (murine)	1	
Leprosy		2			

JAPAN

Notifiable diseases—4 weeks ended April 26, 1947, and accumulated totals for the year to date.—For the 4 weeks ended April 26, 1947, and for the year to date, certain notifiable diseases have been reported in Japan as follows:

Disease	4 weeks ended Apr. 26, 1947		Total reported for the year to date	
	Cases	Deaths	Cases	Deaths
Diphtheria	2,800	266	11,923	1,176
Dysentery, unspecified	352	71	1,167	252
Encephalitis, Japanese "B"			1	2
Gonorrhea	15,006		60,048	
Malaria	682	1	2,925	10
Meningitis, epidemic	613	179	1,690	466
Paratyphoid fever	240	11	883	53
Scarlet fever	210	6	794	21
Smallpox	61	9	244	29
Syphilis	10,803		40,738	
Typhoid fever	733	106	3,478	463
Typhus fever	138	16	638	51

NEW ZEALAND

Notifiable diseases—4 weeks ended February 22, 1947.—During the 4 weeks ended February 22, 1947, certain notifiable diseases were reported in New Zealand as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	6		Puerperal fever	5	
Diphtheria	45	3	Scarlet fever	51	
Dysentery, bacillary	10		Trachoma	1	
Erysipelas	10		Tuberculosis (all forms)	192	57
Food poisoning	2		Typhoid fever	5	
Malaria	4		Undulant fever	5	
Poliomyelitis	4				

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

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

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

Cholera

Indochina (French)—Cochinchina.—For the period April 21–30, 1947, 35 cases of cholera, with 28 deaths, were reported in Cochinchina, French Indochina.

Smallpox

China—Formosa (Island of)—Kaohsiung.—For the month of March 1947, 41 cases of smallpox, with 9 deaths, were reported in Kaohsiung, Island of Formosa, China.

Luxemburg—Luxemburg.—On May 10, 1947, 1 case of smallpox (alastrim) was reported in the city of Luxemburg.

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