

# PUBLIC HEALTH REPORTS.

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## UNITED STATES.

[Reports to the Surgeon-General, Public Health and Marine-Hospital Service.]

### AN EXPERIMENTAL INVESTIGATION OF THE BITING OF MAN BY FLEAS TAKEN FROM RATS AND SQUIRRELS.

By Passed Asst. Surg. GEORGE W. MCCOY, U. S. Public Health and Marine-Hospital Service, and MAURICE B. MITZMAIN, Technical Assistant Plague Laboratory, San Francisco, Cal.

The work of the Indian Plague Commission (Journal of Hygiene, Vol. VI, No. 4; Vol. VII, No. 3; Vol. VII, No. 6; Vol. VIII, No. 2) seems to have established beyond question that plague may be, and generally is, conveyed from rat to rat, and from rat to man, by fleas. The commission especially implicates the *Loemopsylla cheopis* (Roth.), the common rat flea of India, though it has shown that *Ceratophyllus fasciatus* (Bosc.) also is capable of conveying the infection.

The important rôle assigned to fleas in the spread of the disease makes it desirable to have accurate information as to whether certain species of fleas will bite man under experimental conditions.

This investigation of the subject was undertaken at the suggestion of Passed Asst. Surg. Rupert Blue, in charge of antiplague operations in San Francisco and vicinity, to whom we are indebted for facilities for carrying out the experiments.

The following brief review of the subject is taken almost entirely from papers in the Journal of Hygiene (Vol. VI, No. 4; Vol. VII, No. 3; Vol. VIII, No. 2):

In 1900 Galli Valerio (Centralbl. f. Bakt. Pt. 1, Vol. XXVII, p. 1) criticised the views of Simond, and Gauthier and Raybaud concerning the importance of fleas in the epidemic spread of plague purely on the ground that the rat fleas, *Ceratophyllus fasciatus*, Bosc., and *Ctenopsyllus musculi*, Duges, commonly found on rats in Europe, do not bite man. Gauthier and Raybaud (1902, Compt. Rend. Heb. de la Soc. de Bioll., IV, p. 1497; 1903, Révue d'Hygiene, XXV, p. 426) assert that 14 out of 16 fleas—identified by Rothschild as *L. (Pulex) cheopis*—taken from rats, bite men; and that furthermore some lived for several weeks feeding upon man's blood alone. Tidswell (1903, Report on the Second Outbreak of Plague in Sydney, p. 71) states that *P. pallidus* readily bites men when hungry and *C. fasciatus* occasionally. Tiraboschi (1903, Arch. f. Hygiene, Vol. XLVI, p. 251; 1904, Arch. d. Parasitol., Vol. VIII, p. 161) found the common flea upon rats in Italy to be *P. murinus*. He satisfied himself by numerous trials that this species, synonymous with *P. cheopis*, readily bites man. Verjbitski

(1904, Doctorate Thesis to the University of St. Petersburg, Journal of Hygiene, Vol. VIII, No. 2), in a highly important and brilliant contribution, concludes from a series of 40 experiments that rat fleas will not bite man. Doctor Verjbitski starved the fleas from 10 to 40 hours. The species used in his experiments was *C. musculi*, the common rat flea of central Russia. Liston (1905, Journ. Bombay Nat. Hist. Soc., Vol. XVI, p. 253) records that out of a collection of 30 fleas caught biting the occupants of a native "chawl" in Bombay, 14 were rat fleas, identified by Rothschild as *L. cheopis*.

The British Indian Plague Commission (Journ. of Hyg., 1907, Vol. VII, No. 3, p. 473) states in a special article on the biting of man by rat fleas that it has observed that if the fleas in the cage are abundant and if the natural food supply is limited, *L. cheopis* will feed on a man's hand even in the presence of a rat. In a series of 5 experiments the British Indian investigators were able to keep *L. cheopis* alive for nearly 4 weeks on a diet of human blood exclusively. The fleas kept under similar conditions, but without food, never survived longer than one week. The commission concludes that the rat flea *P. cheopis* is attracted by man under certain circumstances, readily biting and feeding on him.

Baker states (1904, Proc. U. S. Nat. Mus., Vol. XXVII, p. 368) that the mouse, rat, squirrel, mole, and shrew fleas have never been known to bite the human being, and he knows of no record of capture of such specimens on human hosts. Baker (ibid.) relates, however, that he has personally experienced the bites of rabbit fleas. Wherry (Journal of Infectious Diseases, Vol. V, No. 5, Dec. 18, 1908) states that hunters are frequently bitten by squirrel fleas, and in the Public Health Reports (Vol. XXIII, No. 48, Nov. 27, 1908) is reported an experiment demonstrating that squirrel fleas (*Ceratophyllus acutus* and *Hoplopsyllus anomalus*) will bite man under certain conditions.

This discordance of opinion concerning the biting of man by fleas from rodents is probably due to the use of various species of insects by different observers and by the use of dissimilar technique. The faunal conditions on the Pacific coast as regards the prevalence of fleas found on rats contrast notably with those of Europe, India, or Australia. The rat fleas predominating in Europe appear to be *C. fasciatus* and *Ct. musculi*, *L. cheopis* being relatively scarce. In India, *L. cheopis* is the common rat flea, *C. fasciatus* being rather rare. Reports from Australia indicate the great predominance of *L. cheopis*. So far as the region about San Francisco Bay is concerned, *C. fasciatus* predominates at all seasons of the year. *L. cheopis* is the next important rat flea in numbers; indeed, at certain seasons this species is found to outnumber *C. fasciatus* in some parts of San Francisco. The experiments with *C. fasciatus* (Journal of Hygiene, July, 1907, p. 414) showed conclusively that this species can convey plague from infected to healthy animals. This fact made our work with this insect especially interesting and, we believe, important.

*Technique.*—Fleas were collected from rats that were anesthetized with ether. A provisional identification of the species and sex of the fleas was made with a hand lens while they were under the influence of the ether. Each flea was then placed in a separate test tube, where it was kept until the termination of the experiment. A final identification of each insect was made with the low power of the microscope. It may be of interest to state that in every case the provisional identification was verified by the microscopical examination. This is in accord with our experience in general, which has shown that any of the

common rat fleas may be readily identified with a hand lens or even by the naked eye. The fleas in the test tubes were applied to the hand or forearm of a healthy man from time to time as is shown in the following tables. The light was sometimes partially excluded by surrounding the test tube with the hand, but this was found to make no material difference in the results. In the interval between feedings the insects were kept at ordinary room temperature. Other methods of conducting the experiments, such as thrusting the hand into a jar containing a large number of fleas, would have allowed the use of a much larger number of insects, but would not have permitted the accuracy of observation we have attempted to attain in the present work.

We think it is a matter of sufficient importance to deserve mention that in not one instance was a flea observed to eject blood or feces per anum during the act of feeding, even when the meal was prolonged to nearly an hour; rarely, however, a flea would deposit feces on the skin, but never while actually feeding. This appears to be contrary to the observations of the Indian Plague Commission (Journal of Hygiene, Vol. VII, No. 3) and other investigators. The Indian Commission states that Simond (1898 Ann. de l'Inst. Pasteur, Vol. XII, p. 625) records the fact that while sucking, fleas were in the habit of discharging the contents of their intestine upon the skin in the neighborhood of the puncture. Zirolia (1902), in an article entitled "Der Pestbacillus im Organismus der Flohe" (Centralbl. f. Bakteriol. Orig., Vol. XXXI, p. 686), confirms Simond's statement that fleas while sucking frequently discharge the contents of their intestine. Concerning this matter we again take the liberty of citing Journal of Hygiene, July, 1907, Volume VII, No. 3, page 398: "We have already drawn attention to the habit which the flea possesses of squirting bright-red blood from the anus during the operation of sucking." And again in the same number (p. 418): "The flea while sucking has a habit of squirting blood per anum."

As is well known, the mechanism of biting by a flea consists essentially of two distinct operations; first, the insertion of the pricker and the mandibles and the injection of salivary secretion; and second, the drawing of blood from the host. It is quite conceivable that the first part of the procedure may occur without the second, but in these experiments we have often observed the abdomen of the insect to become distended and red, proving conclusively that blood was being withdrawn from the host. We noted that a flea would feed more regularly when the host was quiet than when he moved about.

The well known fact that flea bites are much more irritant to some persons than to others was well demonstrated in these experiments. In one of the subjects only a very small reddish macule resulted, even after prolonged feeding; in another an elevated red macule about 1 cm. in diameter appeared within a few hours after the biting, and the next day a distinct reddish papule was present which persisted for a week or longer and gave rise to marked itching.

Another interesting point was that sometimes a flea would refuse to feed on one observer, but would feed at once when transferred to the other.

We have found by actual trial that a considerable percentage of both *L. cheopis* and *C. fasciatus*, with or without previous starvation, will attack man when given an opportunity to choose between man and a rat.

Legend.—F, female; M, male; O indicates that the flea was not applied; +, fed less than 5 minutes; ++, fed vigorously more than 5 minutes; —, did not feed after 5 minutes' application; S, fed slightly; E, escaped; D, dead.

*Rat fleas (ceratophyllus fasciatus).*

[Fleas collected from *M. norvegicus*, November 16, 1908.]

Number of specimen.....	1.	2.	3.	4.
Sex.....	M.	F.	F.	F.
1908				
November 16.....	O.	O.	O.	O.
November 17 (2d day).....	—	++	O.	++
November 18 (3d day).....	—	++	+	+
November 19 (4th day).....	D.	—	—	D.
November 21 (6th day).....	—	—	D.	—
November 24 (9th day).....	—	D.	—	—

[Removed from host *M. norvegicus*, January 8, 1909.]

Number of specimen.....	1.	2.	3.
Sex.....	F.	M.	M.
Three hours after removal from host.....	S.	S.	S.
January 9.....	++	+	S.
January 13.....	D.	D.	D.

[Fleas removed from host *M. norvegicus* January 9, 1909.]

Number of specimen.....										Controls.			
	1.	2.	3.	4.	5.	6.	7.	8.	A.	B.	C.	D.	
Sex.....	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	
4 hours after collecting.....	S.	—	—	S.	O.	O.	O.	O.	O.	O.	O.	O.	
Jan. 10 (2d day).....	—	—	—	—	O.	O.	O.	O.	O.	O.	O.	O.	
Jan. 11 (3d day).....	+	—	—	—	+	+	+	+	D.	O.	O.	O.	
Jan. 12 (4th day).....	—	S.	++	++	+	+	+	+	D.	O.	O.	O.	
Jan. 13 (5th day).....	+	S.	+	+	O.	O.	O.	O.	+	O.	O.	O.	
Jan. 14 (6th day).....	S.	S.	+	+	+	+	+	+	+	+	+	+	
Jan. 15 (7th day).....	+	—	+	+	+	+	+	+	+	+	+	+	
Jan. 17 (9th day).....	+	++	++	++	++	++	++	++	+	+	+	+	
Jan. 19 (11th day).....	+	++	++	++	++	++	++	++	+	+	+	+	
Jan. 20 (12th day).....	D.	—	E.	++	O.	O.	O.	O.	+	+	+	+	
Jan. 21 (13th day).....	—	++	++	++	O.	O.	O.	+	+	+	+	+	
Jan. 23 (15th day).....	—	++	++	++	++	++	++	++	+	+	+	+	
Jan. 24 (16th day).....	—	—	++	++	+	+	+	+	+	+	+	+	
Jan. 25 (17th day).....	—	D.	—	—	—	D.	—	—	—	—	—	—	

[Fleas removed from host *M. norvegicus* December 22, 1908.]

Number of specimen.....	1.	2.	3.	4.	5.	6.	7.	8.	9.
Sex.....	F.	F.	M.	F.	F.	F.	M.	M.	M.
1 hour after removal from host.....	O.	O.	O.	—	—	+	+	+	—
1908.									
Dec. 23 (2d day).....	O.	O.	O.	—	S.	S.	S.	+	+
Dec. 25 (4th day).....	+	S.	S.	+	+	+	+	S.	—
Dec. 26 (5th day).....	—	S.	+	+	S.	+	+	D.	—
Dec. 27 (6th day).....	S.	—	S.	+	+	+	S.	—	+
Dec. 28 (7th day).....	S.	++	S.	S.	+	++	++	+	++
Dec. 29 (8th day).....	++	++	+	++	+	++	++	+	++
Dec. 31 (10th day).....	S.	+	S.	++	+	++	++	+	+
1909.									
Jan. 2 (12th day).....	+	+	+	+	E.	+	+	—	S.
Jan. 5 (15th day).....	S.	+	E.	+	—	+	+	—	D.
Jan. 7 (17th day).....	+	+	—	—	—	D.	D.	—	—
Jan. 9 (19th day).....	+	+	—	—	—	—	—	—	—
Jan. 13 (23d day).....	++	++	—	++	—	—	—	—	—
Jan. 14 (24th day).....	S.	++	—	++	—	—	—	—	—
Jan. 15 (25th day).....	S.	++	—	++	—	—	—	—	—
Jan. 17 (27th day).....	+	+	—	++	—	—	—	—	—
Jan. 18 (28th day).....	+	+	—	+	—	—	—	—	—
Jan. 19 (29th day).....	+	+	—	++	—	—	—	—	—
Jan. 20 (30th day).....	+	S.	—	+	—	—	—	—	—
Jan. 21 (31st day).....	S.	+	—	+	—	—	—	—	—
Jan. 23 (33d day).....	++	++	—	++	—	—	—	—	—
Jan. 24 (34th day).....	+	++	—	+	—	—	—	—	—
Jan. 25 (35th day).....	++	+	—	++	—	—	—	—	—

Four controls unfed (1 F., 3 M.) were found dead on December 27.

On account of the prevalence of *C. fasciatus* on rats in this vicinity we attach special importance to the experiments conducted with this species. The table demonstrates that this flea, which is taxonomically not at all closely related to the ordinary flea found on man (*Pulex irritans*), will feed readily on man and may be kept alive for as many as 35 days on man's blood alone; controls (unfed) all dying within 5 days. In one experiment 3 out of 6 fed on man when applied one hour after removal from the rat.

*Loemopsylla cheopis.*

[Fleas collected from *M. norvegicus* on November 16, 1908.]

Number of specimen.....	1.	2.	3.	4.
Sex.....	M.	M.	M.	F.
Nov. 17 (2d day).....	-	-	O.	S.
Nov. 18 (3d day).....	+	++	O.	S.
Nov. 19 (4th day).....	-	++	+	-
Nov. 21 (6th day).....	-	-	D.	D.
Nov. 24 (9th day).....	D.	D.	-	-

[Removed from *M. norvegicus* December 31, 1908.]

Number of specimens ..									Controls.						
	1.	2.	3.	4.	5.	6.	7.	8.	A.	B.	C.	D.	E.	F.	G.
Sex.....	M.	F.	M.	M.	M.	M.	M.	F.	M.	F.	F.	M.	F.	M.	F.
1909.															
Jan. 1 (2d day).....	-	-	+	-	-	S.	S.	S.	O.	O.	O.	O.	O.	O.	O.
Jan. 2 (3d day).....	+	-	++	-	-	S.	S.	-	D.	O.	O.	D.	O.	O.	O.
Jan. 4 (5th day).....	++	-	+	+	S.	+	D.	-	D.	D.	D.	D.	O.	O.	D.
Jan. 6 (7th day).....	+	++	+	++	++	+	+	+	-	-	-	-	-	-	D.
Jan. 7 (8th day).....	-	-	+	S.	+	+	+	+	-	-	-	-	-	-	-
Jan. 8 (9th day).....	-	-	+	S.	S.	+	-	-	-	-	-	-	-	-	-
Jan. 9 (10th day).....	+	S.	S.	+	+	+	+	S.	-	-	-	-	-	-	-
Jan. 11 (12th day).....	+	++	D.	-	S.	+	+	+	+	+	+	+	+	+	+
Jan. 14 (15th day).....	S.	S.	E.	-	D.	+	+	+	+	+	+	+	+	+	+
Jan. 15 (16th day).....	E.	++	-	-	-	-	-	-	+	+	+	+	+	+	+
Jan. 17 (18th day).....	-	++	-	-	-	-	-	-	-	-	-	-	-	-	-
Jan. 19 (20th day).....	-	S.	-	-	-	-	-	-	+	+	+	+	+	+	+
Jan. 20 (21st day).....	-	++	-	-	-	-	-	-	S.	S.	S.	S.	S.	S.	S.
Jan. 21 (22d day).....	-	S.	-	-	-	-	-	-	-	-	-	-	-	-	-
Jan. 23 (24th day).....	-	S.	-	-	-	-	-	-	+	+	+	+	+	+	+
Jan. 24 (25th day).....	-	S.	-	-	-	-	-	-	+	+	+	+	+	+	+

Our experiments confirm the experience of the Indian plague commission that *L. cheopis* feeds readily on man and that it may be kept alive for many days on human blood alone.

*Ctenopsyllus musculi.*

[Removed from host *M. rattus* January 14, 1909.]

Number of specimen.....	1.	2.	3.	4.	5.
Sex.....	F.	F.	F.	M.	F.
1 hour after removal from host.....	-	-	S.	D.	S.
Jan. 15 (2d day).....	+	D.	D.	-	S.
Jan. 16 (3d day).....	S.	-	-	-	D.
Jan. 17 (4th day).....	D.	-	-	-	-

[Removed from host *M. norvegicus*, January 19, 1909.]

Number of specimen.....	1.	2.
Sex.....	F.	M.
6 hours after removal from host.....	+	+
Jan. 20 (2d day).....	D.	D.

*Ctenopsyllus musculi*—Continued.

[Removed from host *M. norvegicus*, January 18, 1909.]

									Controls.		
Number of specimen	1.	2.	3.	4.	5.	6.	7.	8.	A.	B.	C.
Sex	F.	F.	M.	M.	M.	F.	M.	M.	F.	F.	F.
5 hours after removal from host	—	—	—	—	—	—	—	—	—	—	—
Jan. 19 (2d day)	+	+	+	+	+	+	+	+	+	+	+
Jan. 20 (3d day)	+	+	D.	...	...	...	...	...	...	...	...
Jan. 21 (4th day)	+	+	D.	...	...	...	...	...	...	...	...
Jan. 22 (5th day)	D.	...	...	...	...	...	...	...	...	...	...

The experiments with *Ct. musculi* have not been as extensive as we wished to make them, because we have found it difficult to procure this species of flea alive, as they are relatively scarce in San Francisco. The table demonstrates that some of these fleas will bite man soon after taken from their normal host, and a considerable percentage of those that survived fed readily on man on the second and third days after their removal from the rat.

*Squirrel fleas (Hoplopsyllus anomalus, Ceratophyllus acutus).*

[Removed from host *Citellus beecheyi*, December 28, 1908.—1, 2, 3, A, *H. anomalus*; 4, 5, 6, 7, 8, B, C, *C. acutus*.]

									Controls.		
Number of specimen	1.	2.	3.	4.	5.	6.	7.	8.	A.	B.	C.
Sex	F.	F.	M.	F.	F.	M.	M.	F.	M.	F.	M.
Dec. 28 (1st day)	S.	—	+	S.	S.	+	—	+	+	+	+
Dec. 29 (2d day)	+	—	+	+	+	+	S.	+	+	O.	O.
Dec. 31 (4th day)	+	S.	+	+	D.	+	+	+	+	O.	O.
Jan. 1 (5th day)	+	S.	+	D.	...	+	+	+	+	D.	...
Jan. 2 (6th day)	+	+	+	...	...	+	+	+	+	...	...
Jan. 4 (8th day)	D.	+	+	...	...	D.	+	+	+	...	...
Jan. 7 (11th day)	...	D.	D.	...	...	D.	D.	+	+	...	...
Jan. 10 (14th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 13 (17th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 14 (18th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 16 (20th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 17 (21st day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 18 (22d day)	...	...	...	...	...	...	...	S.	...	...	...
Jan. 20 (24th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 21 (25th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 22 (26th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 23 (27th day)	...	...	...	...	...	...	...	+	+	...	...
Jan. 24 (28th day)	...	...	...	...	...	...	...	+	+	...	...

The one experiment with the common ground squirrel fleas of California shows that these insects bite man readily, and that they may be kept alive on man's blood for at least 28 days.

*Summary.*—A large majority of the two common species of fleas found on rats in San Francisco, *Loemopsylla cheopis* (Roth) and *Ceratophyllus fasciatus* (Bosc), will bite man under the conditions of these experiments. *Ceratophyllus fasciatus* usually feeds very vigorously on man's blood, and it was kept alive on this diet for 35 days.

Most of the *Ctenopsyllus musculi* died early in captivity, but it is shown that they will at times bite man.

Squirrel fleas, *H. anomalus* and *C. acutus*, feed readily on man's blood.

Starvation does not appear to play any very important rôle in determining whether a flea will bite or not. Some of these tables give the impression that the fleas become accustomed to the blood of a new host.

*Reports from San Francisco, Cal.—Plague-prevention work at San Francisco, Oakland, and Point Richmond, and in Alameda and Contra Costa counties, Cal.*

Passed Assistant Surgeon Blue reports:

SAN FRANCISCO, CAL.

Date of last case of human plague: Sickened, January 30, 1908.

Date of last case of rodent plague: October 23, 1908.

*Week ended February 6, 1909.*

Sick inspected .....	1
Plague .....	0
Dead inspected .....	108
Plague .....	0
Necropsy held .....	1
Premises inspected .....	7,242
Houses disinfected .....	11
Buildings condemned .....	7
Nuisances abated .....	510
<hr/>	<hr/>
Rats found dead .....	38
Rats trapped .....	1,627
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Total rats taken .....	1,665
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Rats identified:	
Mus norvegicus .....	1,106
Mus rattus .....	40
Mus musculus .....	495
<hr/>	<hr/>
Total .....	1,641
<hr/>	<hr/>
Rats identified as to sex .....	1,114
Male .....	518
Female .....	596
Rats examined bacteriologically .....	946
Plague rats .....	0
Squirrels caught .....	1
Squirrels examined bacteriologically .....	1
Plague squirrels .....	0
Poisons placed .....	63,913

OAKLAND, CAL.

Date of last case of human plague: Sickened, July 17, 1908.

Date of last case of rodent plague: Trapped, December 1, 1908.

*Week ended February 6, 1909.*

Dead inspected .....	18
Plague .....	0
Necropsy held .....	1
Premises cleaned .....	159
Garbage cans installed .....	241
Places made rat proof .....	3
<hr/>	<hr/>
Rats found dead .....	24
Rats trapped .....	510
<hr/>	<hr/>
Total rats taken .....	534

<b>Rats identified :</b>	
Mus alexandrinus .....	2
Mus rattus .....	8
Mus norvegicus .....	524
Mus musculus .....	48
<b>Total</b> .....	<b>582</b>
<hr/>	
Mice trapped .....	48
Rats examined bacteriologically .....	534
Plague rats .....	0
Mice examined bacteriologically .....	48
Plague mice .....	0
Poisons placed .....	10, 919

## POINT RICHMOND, CAL.

*Week ended February 6.*

Sick inspected .....	2
Plague .....	0
Premises inspected .....	490
Nuisances abated .....	25
Rats found dead .....	14
Rats trapped .....	26
Total rats taken .....	40
Rats examined bacteriologically .....	28
Plague rats .....	0
Poisons placed .....	14, 000

## ALAMEDA COUNTY, CAL.

*Week ended February 6.*

Sick inspected .....	8
Plague .....	0
Dead inspected .....	49
Plague .....	0
Necropsy held .....	1

## CONTRA COSTA COUNTY, CAL.

*Week ended February 6.*

Dead inspected .....	1
Plague .....	0
Necropsy held .....	1
<hr/>	
Squirrels shot and found dead .....	11
Squirrels trapped .....	10
<b>Total squirrels taken</b> .....	<b>21</b>
<hr/>	
Squirrels examined bacteriologically .....	21
Plague squirrels .....	0
Ranches inspected .....	47
Ranches found free of squirrels .....	5
Ranches poisoning squirrels .....	2



*Report from Los Angeles, Cal.—Examination of animals for plague infection.*

Passed Assistant Surgeon Stimson, plague laboratory, reports, February 6:

*Animals examined in the laboratory in this city from January 25 to 31, 1909, inclusive.*

Ground squirrels .....	117
Gray rats .....	200
Black rats .....	14
Gambel pocket mice.....	5
White rat.....	1
Rabbit.....	1

None of these animals was found to be infected with plague.

*Reports from Seattle, Wash.—Plague-prevention work*

Passed Assistant Surgeon Glover reports, February 1:

SEATTLE, WASH.

Date of finding of last plague rat..... September 26, 1908.  
Plague-infected rats to date .....

21

*Week ended January 30.*

Rats received .....	1,073
Rats necropsied .....	1,114
Plague rats .....	0
Vessels inspected.....	16
Vessels fumigated.....	3

*Summary of inspection and fumigation of vessels, month of January, 1909.*

During the month of January there were inspected 57 vessels. Ten vessels were fumigated.

*Report of plague laboratory work at Seattle, month of January, 1909.*

Assistant Surgeon Chapin reports, February 3, through Passed Assistant Surgeon Glover:

During the month 3,248 rats were delivered at the laboratory and 3,244 were necropsied. No plague rats were found. One hundred and twenty-one fleas were found upon 42 rats examined.

The last plague rat was found September 26, 1908.

*Report from Cairo, Ill.—Smallpox—Quarantine of nonvaccinated persons.*

Passed Assistant Surgeon Wilson reports, February 9:

During the week ended February 6, 57 new cases of smallpox were reported at Cairo.

The town of Paducah, Ky., has imposed a quarantine against non-vaccinated persons and persons exposed to the disease coming from Cairo.

STATISTICAL REPORTS OF MORBIDITY AND MORTALITY, STATES AND CITIES  
OF THE UNITED STATES—UNTABULATED.

CALIFORNIA—*City and County of San Francisco*.—Month of December, 1908. Estimated population, 425,000. Total number of deaths, 528, including enteric fever 4, scarlet fever 5, whooping cough 2, diphtheria 5, measles 1, and 72 from tuberculosis.

COLORADO—*Colorado Springs*.—Month of December, 1908. Estimated population, 32,000. Total number of deaths, 27, including 13 from tuberculosis. Cases: Scarlet fever 16, measles 1, and enteric fever 1.

FLORIDA—*Pensacola*.—Month of January, 1909. Estimated population, 30,000. Total number of deaths, 38, including enteric fever 1, and 2 from tuberculosis.

GEORGIA—*Macon*.—Month of January, 1909. Estimated population, 39,000. Total number of deaths, 26, including 8 from tuberculosis. Cases: Whooping cough 9, enteric fever 1, and measles 1.

ILLINOIS—*Alton*.—Month of January, 1909. Estimated population, 22,000. Total number of deaths, 16, including 4 from tuberculosis. Cases: Diphtheria 1.

*Quincy*.—Month of January, 1909. Estimated population, 43,000. Total number of deaths, 47, including diphtheria 1, and 4 from tuberculosis. Cases: Diphtheria 23, and scarlet fever 5.

INDIANA—*Jeffersonville*.—Month of January, 1909. Estimated population, 12,000. Total number of deaths 16, including diphtheria 2, and 4 from tuberculosis. Cases: Diphtheria 4, tuberculosis 4, enteric fever 2, and measles 2.

*Muncie*.—Month of January, 1909. Estimated population, 34,036. Total number of deaths 23, including enteric fever 1, diphtheria 1, and 2 from tuberculosis. Cases: Measles 1, scarlet fever 2, and diphtheria 6.

IOWA—*Burlington*.—Month of December, 1908. Estimated population, 30,000. Total number of deaths, 15, including 2 from tuberculosis. Cases: Enteric fever 2, scarlet fever 3, diphtheria 3, measles 2, and tuberculosis 1.

Month of January, 1909. Total number of deaths, 17. Cause of death not reported. Cases: Smallpox 1, enteric fever 1, diphtheria 3.

*Cedar Rapids*.—Month of January, 1909. Estimated population, 35,000. Total number of deaths, 35, including enteric fever 1, and 5 from tuberculosis. Cases: Scarlet fever 8, and diphtheria 1.

MARYLAND—*Hagerstown*.—Month of January, 1909. Estimated population, 13,591. Total number of deaths 66, including enteric fever 1, diphtheria 1, and 5 from tuberculosis. Cases: Enteric fever 5, scarlet fever 1, diphtheria 5, and measles 22.

**MASSACHUSETTS.**—Reports from the state board of health for the month of December, 1908. Fifty-two cities and towns reporting, having an aggregate estimated population of 2,333,259, report 2,756 deaths, including diphtheria 65, enteric fever 18, measles 18, and 221 from phthisis pulmonalis. Cases: Diphtheria 1,025, enteric fever 200, measles 720, scarlet fever 723, whooping cough 259, and phthisis pulmonalis 452.

*Lawrence.*—Six months ended December 31, 1908. Estimated population 78,000. Total number of deaths 661, including diphtheria 18, enteric fever 10, smallpox 1, measles 3, and 16 from tuberculosis. Cases: Diphtheria 134, scarlet fever 25, measles 214, enteric fever 78, smallpox 1, whooping cough 14, and tuberculosis 22.

*Newton.*—Month of January, 1909. Estimated population, 38,919. Total number of deaths, 31, including diphtheria 2 and 1 from tuberculosis. Cases of contagious diseases reported: Diphtheria 10, enteric fever 1, scarlet fever 14, and tuberculosis 3.

**MINNESOTA**—*St. Paul.*—Month of December, 1908. Estimated population, 220,000. Total number of deaths reported to the department of health, 294, including diphtheria 12, enteric fever 8, scarlet fever 5, and 21 from tuberculosis. Cases: Diphtheria 183, scarlet fever 62, measles 2, and smallpox 54.

**NEW HAMPSHIRE**—*Concord.*—Month of January, 1909. Estimated population, 20,000. Total number of deaths, 41, including 3 from tuberculosis. Cases: Diphtheria 5, enteric fever 2, measles 1, and tuberculosis 3.

**NEW JERSEY**—*Perth Amboy.*—Period from June 6 to July 25, 1908. Estimated population, 28,000. Total number of deaths, 74, including whooping cough 2, and 2 from tuberculosis. Cases: Diphtheria 6, scarlet fever 8, and measles 27.

**NEW YORK**—*Rome.*—Month of January, 1909. Estimated population, 18,500. Total number of deaths, 40, including 1 from tuberculosis. Cases: Smallpox 1, enteric fever 1, scarlet fever 1, diphtheria 2, and tuberculosis 5.

**OHIO.**—Reports to the state board of health for the 29 weeks ended January 2, 1909, show 1,495 cases of diphtheria with 132 deaths; 1,110 cases of enteric fever with 167 deaths; 588 cases of measles with 17 deaths; 1,176 cases of scarlet fever with 48 deaths; 391 cases of whooping cough with 16 deaths; and 525 cases of smallpox with 1 death. Population, 1,443,791. Number of localities reporting, 108.

*Ashtabula.*—Month of January, 1909. Estimated population, 18,000. Total number of deaths, 21. Cause of deaths not reported. Cases: Diphtheria 14 and scarlet fever 5.

*Zanesville.*—Month of January, 1909. Estimated population, 30,000. Total number of deaths, 40, including 2 from tuberculosis. Cases: Scarlet fever 4 and diphtheria 6.

**PENNSYLVANIA—Altoona.**—Month of January, 1909. Estimated population, 60,000. Total number of deaths, 77, including 3 from tuberculosis.

**South Bethlehem.**—Month of January, 1909. Estimated population, 15,000. Total number of deaths, 23, including 1 from diphtheria. Cases: Enteric fever 3, scarlet fever 5, diphtheria 4, measles 2, and whooping cough 7.

*Smallpox in the United States as reported to the Surgeon-General, Public Health and Marine-Hospital Service, December 26, 1908, to February 19, 1909.*

For reports received from June 26, 1908, to December 25, 1908, see PUBLIC HEALTH REPORTS for December 25, 1908.

[NOTE.—In accordance with custom, the tables of epidemic diseases are terminated semiannually and new tables begun.]

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Alabama:</b>				
Mobile .....	Jan. 12-Feb. 6 .....	7 .....	.....	Year 1908.
Tuscaloosa County .....	Feb. 6-Dec. 31 .....	86 .....	.....	
Total for State .....	.....	93 .....	.....	
<b>Arkansas:</b>				
Little Rock .....	Dec. 15-Jan. 2 .....	23 .....	.....	
Texarkana .....	Nov. 26-Jan. 11 .....	10 .....	.....	
Total for State .....	.....	33 .....	.....	
<b>California, general</b>				
Los Angeles .....	Nov. 1-Dec. 31 .....	.....	3 .....	
Oakland .....	Dec. 6-Feb. 6 .....	11 .....	.....	
Sacramento .....	Nov. 1-Dec. 31 .....	6 .....	.....	
San Francisco .....	Nov. 1-Dec. 31 .....	24 .....	.....	
Stockton .....	Dec. 13-Jan. 30 .....	17 .....	.....	
.....	Nov. 1-30 .....	12 .....	.....	
Total for State .....	.....	70 .....	3 .....	
<b>District of Columbia:</b>				
Washington .....	Dec. 28-Jan. 30 .....	2 .....	.....	
Total for District .....	.....	2 .....	.....	
<b>Illinois:</b>				
Belleville .....	Dec. 4-20 .....	3 .....	.....	
Browning .....	Oct. 25-Jan. 20 .....	75 .....	.....	
Cairo .....	Jan. 7-Feb. 6 .....	157 .....	.....	
Centralia .....	July 1-Jan. 20 .....	53 .....	.....	
Chicago .....	Jan. 3-Feb. 6 .....	5 .....	.....	
Danville .....	Jan. 11-24 .....	2 .....	.....	
Ladd .....	Nov. 1-30 .....	4 .....	.....	
Palmyra .....	Dec. 25-Jan. 20 .....	4 .....	.....	
Peoria .....	Dec. 20-Feb. 23 .....	5 .....	.....	
Scottsville .....	Dec. 25-Jan. 20 .....	12 .....	.....	
Taylorville .....	Aug. 1-Jan. 20 .....	40 .....	.....	
West Frankfort .....	Dec. 12-Feb. 13 .....	15 .....	.....	
Total for State .....	.....	375 .....	.....	
<b>Indiana:</b>				
Allen County—				
Fort Wayne .....	Jan. 10-Feb. 6 .....	4 .....	.....	
Benton County .....				
.....	Nov. 1-30 .....	1 .....	.....	
Boone County .....				
.....	Nov. 1-30 .....	1 .....	.....	
Carroll County .....				
.....	Oct. 1-31 .....	26 .....	.....	
Clay County .....				
.....	Oct. 1-31 .....	8 .....	.....	
Dearborn County .....				
.....	Oct. 1-31 .....	1 .....	.....	
Elkhart County .....				
.....	Oct. 1-Nov. 30 .....	7 .....	.....	
Elkhart .....				
.....	Jan. 17-Feb. 6 .....	4 .....	.....	
Grant County—				
Union .....	Feb. 6 .....	5 .....	.....	
Hendricks County .....				
.....	Nov. 1-30 .....	2 .....	.....	
Madison County .....				
.....	Oct. 1-31 .....	1 .....	.....	
Anderson .....				
.....	Dec. 1-31 .....	1 .....	.....	

## Smallpox in the United States, etc.—Continued.

Place.	Date.	Cases.	Deaths.	Remarks
<b>Indiana—Continued.</b>				
<b>Marion County—</b>				
Indianapolis .....	Jan. 18—Feb. 7. ....	4		
<b>Sullivan County</b> .....	Oct. 1—31 .....	2		
<b>Tippecanoe County</b> .....	Oct. 1—Nov. 30 .....	18		
Lafayette .....	Dec. 15—Feb. 8 .....	50	1	
<b>Tipton County</b> .....	Nov. 1—30 .....	1		
<b>Vanderburg County</b> .....				
Evansville .....	Jan. 10—Feb. 6 .....	6		
<b>Vigo County</b> .....	Oct. 1—Nov. 30 .....	6		
<b>Wabash County</b> .....	Nov. 1—30 .....	3		
<b>Wayne County</b> .....	Nov. 1—30 .....	8		
<b>Total for State</b> .....		159	1	
<b>Iowa, general</b> .....				
Burlington .....	July 1—Sept. 30 .....		2	
Council Bluffs .....	Jan. 1—31 .....	1		
Dubuque .....	July 1—Dec. 31 .....	19	2	
.....	Oct. 1—Jan. 31 .....	87	1	
<b>Total for State</b> .....		107	5	
<b>Kansas:</b>				
<b>Atchison County—</b>				
Atchison .....	Dec. 20—Jan. 16. ....	2		
<b>Barton County</b> .....	Nov. 1—30 .....	7		
<b>Bourbon County</b> .....	Nov. 1—30 .....	1		
<b>Brown County</b> .....	Nov. 1—Dec. 31 .....	45		
<b>Crawford County—</b>				
Pittsburg .....	Nov. 1—Dec. 31 .....	107		
<b>Franklin County</b> .....	Dec. 1—31 .....	1		
<b>Harvey County</b> .....	Nov. 1—Dec. 31 .....	4		
<b>Jackson County</b> .....	Nov. 1—Dec. 31 .....	95		
<b>Jefferson County</b> .....	Dec. 1—31 .....	2		
<b>Jewell County</b> .....	Dec. 1—31 .....	2		
<b>Montgomery County</b> .....	Nov. 1—Dec. 31 .....	18		
<b>Nemaha County</b> .....	Dec. 1—31 .....	2		
<b>Phillips County</b> .....	Dec. 1—31 .....	2		
<b>Pottawatomie County</b> .....	Nov. 1—Dec. 31 .....	36		
<b>Pratt County</b> .....	Dec. 1—31 .....	20		
<b>Reno County</b> .....	Nov. 1—Dec. 31 .....	3		
<b>Riley County</b> .....	Nov. 1—30 .....	2		
<b>Saline County</b> .....	Nov. 1—Dec. 31 .....	31		
<b>Shawnee County</b> .....	Nov. 1—Dec. 31 .....	6		
Topeka .....	June 7—Jan. 30 .....	50		
<b>Sheridan County</b> .....	Dec. 1—31 .....	9		
<b>Stafford County</b> .....	Dec. 1—31 .....	1		
<b>Sumner County</b> .....	Nov. 1—Dec. 31 .....	7		
<b>Wilson County</b> .....	Nov. 1—30 .....	5		
<b>Wyandotte County—</b>				
Kansas City .....	Jan. 3—23 .....	3		
<b>Total for State</b> .....		461		
<b>Kentucky:</b>				
Anderson County .....	Oct. 1—Jan. 20 .....	200	1	Including Lawrenceburg.
Covington .....	Dec. 29—Feb. 13 .....	11		Jan. 1—June 30, 1908.
Henderson .....		7		
Lexington .....	Dec. 28—Feb. 6 .....	25		
Newport .....	July 1—Jan. 31 .....	20	1	Jan. 1—June 30, 1908, 16 cases, 1 death.
Paducah .....	Jan. 24—Feb. 6 .....	17		
<b>Total for State</b> .....		280	2	
<b>Louisiana:</b>				
Arcadia Parish .....	Dec. 20—Jan. 11 .....	30		Including Bienville, Liberty Hill, and Mount Lebanon.
New Orleans .....	Dec. 20—Feb. 6 .....	17		
Shreveport .....	Jan. 1—20 .....	32	1	
<b>Total for State</b> .....		79	1	
<b>Maine:</b>				
Cyr plantation .....	Oct. 16—24 .....	11		
Frenchville .....	Nov. 11—Dec. 5 .....	2		
Grand Isle (Grant Isle) .....	Oct. 16—Dec. 12 .....	26		
St. Agatha .....	Oct. 24—Dec. 26 .....	9		
St. David .....	Dec. 13—19 .....	1		
Upper Frenchville .....	Oct. 25—Nov. 11 .....	2		
Van Buren .....	Oct. 18—Feb. 6 .....	94		
<b>Total for State</b> .....		145		

*Smallpox in the United States, etc.—Continued.*

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Maryland:</b>				
Baltimore .....	Jan. 30-Feb. 6.....	1		
Total for State.....		1		
<b>Massachusetts:</b>				
New Bedford.....	Jan. 30-Feb. 6.....	1		
Taunton.....	Jan. 3-9.....	1		
Total for State.....		2		
<b>Michigan:</b>				
Barry County.....	Nov. 1-Dec. 31.....	5		
Cheboygan County.....	Dec. 1-31.....	4		
Delta County.....	Nov. 1-30.....	1		
Eaton County.....	Dec. 1-31.....	1		
Ingham County—				
Lansing.....	Nov. 1-Dec. 31.....	11		
Ionia County.....	Dec. 1-31.....	2		
Kalamazoo County.....	Dec. 1-31.....	3		
Kent County—				
Grand Rapids.....	Jan. 24-30.....	1		
Lapeer County.....	Dec. 1-31.....	2		
Macomb County.....	Nov. 1-30.....	1		
Manistee County.....	Nov. 1-30.....	2		
Menominee County.....	Dec. 1-31.....	1		
Muskegon County.....	Nov. 1-Dec. 31.....	19		
Saginaw County—				
Saginaw.....	Jan. 16-23.....	1		
St. Clair County.....	Nov. 1-Dec. 31.....	2		
Port Huron.....	Nov. 1-30-Dec. 5..	3		
Wayne County—				
Detroit.....	Jan. 10-30.....	4		
Wexford County.....	Dec. 1-31.....	2		
		65		
<b>Minnesota:</b>				
Becker County.....	Dec. 7-13.....	1		
Benton County.....	Oct. 26-Nov. 2.....	1		
Brown County.....	Oct. 20-Nov. 23.....	11		
Carver County.....	Dec. 7-13.....	6		
Cass County.....	Oct. 12-Dec. 7.....	1		
Chippewa County.....	Nov. 3-9.....	1		
Cottonwood County.....	Oct. 20-26.....	1		
Dodge County.....	Nov. 24-Dec. 7.....	2		
Faribault County.....	Dec. 7-13.....	1		
Hennepin County.....	Oct. 6-12.....	1		
Minneapolis.....	Nov. 1-Dec. 31.....	21		
Hubbard County.....	Oct. 19-Dec. 7.....	11		
Jackson County.....	Dec. 7-13.....	1		
Lac qui Parle County.....	Nov. 2-Dec. 13.....	3		
Lyon County.....	Nov. 16-Dec. 13.....	2		
Morrison County.....	Nov. 20-Dec. 13.....	20		
Nicolett County.....	Nov. 16-Dec. 13.....	3		
Norman County.....	Dec. 7-13.....	5		
Pipestone County.....	Dec. 7-13.....	6		
Ramsey County.....	Nov. 16-Dec. 7.....	2		
St. Paul.....	Oct. 6-Dec. 13.....	57		
Renville County.....	Dec. 1-7.....	1		
St. Louis County.....				
Duluth.....	Nov. 9-Jan. 22.....	3		
Sibley County.....	Dec. 7-13.....	9		
Stearns County.....	Nov. 9-Dec. 7.....	4		
Steele County.....	Oct. 20-Dec. 7.....	4		
Stevens County.....	Nov. 9-Dec. 13.....	12		
Todd County.....	Nov. 9-Dec. 13.....	3		
Wabasha County.....	Nov. 2-Dec. 7.....	10		
Wadena County.....	Nov. 2-Dec. 13.....	15		
Saseka County.....	Oct. 26-Dec. 7.....	9		
Washington County.....	Nov. 24-30.....	1		
Stillwater.....	Dec. 1-31.....	3		
Winona County.....	Dec. 1-7.....	1		
Winona.....	Dec. 1-7.....	4		
Yellow Medicine County.....	Oct. 20-26.....	1		
Total for State.....		237		
<b>Mississippi:</b>				
De Soto County.....	Nov. 1-Dec. 22.....	135		
Total for State.....		135		

## Smallpox in the United States, etc.—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Missouri:</b>				
Kansas City .....	Jan. 24-Feb. 6 .....	3		
St. Joseph .....	Dec. 1-31 .....	1		
St. Louis .....	Dec. 20-Feb. 6 .....	9		
Springfield .....	Nov. 1-Dec. 31 .....	2		
Total for State .....		15		
<b>Montana:</b>				
Cascade County .....	Nov. 1-30 .....	4		
Flathead County .....	Nov. 1-30 .....	1		
Gallatin County .....	Nov. 1-30 .....	13		
Bozeman .....	Nov. 1-30 .....	15		
Jefferson County .....	Nov. 1-30 .....	4		
Ravalli County .....	Nov. 1-30 .....	4		
Silverbow County .....	Nov. 1-30 .....	5		
Butte .....	Dec. 2-Jan. 29 .....	18		
Yellowstone County .....	Nov. 1-30 .....	1		
Total for State .....		65		
<b>Nebraska:</b>				
Lincoln .....	Nov. 1-Dec. 31 .....	5		
South Omaha .....	Dec. 20-Jan. 16 .....	3		
Total for State .....		8		
<b>New Hampshire:</b>				
Hinsdale .....	Nov. 1-Dec. 15 .....	6		
West Chesterfield .....	Nov. 1-Dec. 15 .....	1		
Westmoreland .....	Nov. 1-Dec. 15 .....	1		
Total for State .....		8		
<b>New York, general:</b>				
Rome .....	Nov. 1-30 .....	55		
Syracuse .....	Jan. 1-31 .....	1		
Syracuse .....	Jan. 9-31 .....	3		
Total for State .....		59		
<b>North Carolina:</b>				
Bertie County .....	Nov. 1-30 .....	1		
Catawba County .....	Nov. 1-Dec. 31 .....	4		
Currituck County .....	Nov. 1-30 .....	3		Present to Dec. 31.
Duplin County .....	Dec. 1-31 .....	10		
Edgecombe County .....	Dec. 1-31 .....	1		
Johnston County .....	Nov. 1-30 .....	1		
Lenoir County .....	Dec. 1-31 .....	20		
Lincoln County .....	Dec. 1-31 .....	1		
Fasquotank County .....	Nov. 1-Dec. 31 .....	29		
Wilmington .....	Jan. 22 .....	1		Imported.
Total for State .....		71		
<b>Ohio, general:</b>				
Cincinnati .....	June 14-Jan. 2 .....	337		
Dayton .....	Dec. 12-Feb. 5 .....	114	1	
Newark .....	Jan. 24-Feb. 6 .....	3		Year 1908.
Tiffin .....	Jan. 3-23 .....	3		
Tiffin .....		2		
Total for State .....		459	1	
<b>Oregon:</b>				
Clackamas County .....	Sept. 1-30 .....	1		
Harney County .....	Sept. 1-30 .....	1		
Jackson County .....	Oct. 1-31 .....	1		
Linn County .....	Sept. 1-Oct. 31 .....	5		
Marion County .....	Sept. 1-Oct. 31 .....	3		
Multnomah County— Portland .....	Nov. 1-Dec. 31 .....	50		
Polk County .....	Sept. 1-Oct. 31 .....	8		
Tillamook County .....	Oct. 1-31 .....	1		
Umatilla County .....	Sept. 1-30 .....	1		
Wallowa County .....	Oct. 1-31 .....	1		
Washington County .....	Oct. 1-31 .....	17		
Yamhill County .....	Sept. 1-30 .....	7		
Total for State .....		96		
<b>Pennsylvania:</b>				
Gracedale .....	Oct. 24 .....	1		
Harrisburg .....	Dec. 18-Jan. 20 .....	3		
New Kingstown .....	Dec. 29 .....			Present.

## Smallpox in the United States, etc.—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Pennsylvania—Continued.</b>				
Philadelphia .....	Dec. 19-25 .....	1		
Pittsburg .....	Dec. 13-19 .....	1		Imported.
Total for State .....		6		
<b>Tennessee:</b>				
Green County .....	Jan. 2 .....	103		Including Greenville.
Knoxville .....	Dec. 28-Feb. 6 .....	9		
Memphis .....	Jan. 18 .....	1		Imported.
Nashville .....	Dec. 20-Feb. 13 .....	18		
Polk County .....	Jan. 22 .....	30		
Total for State .....		161		
<b>Texas:</b>				
Cost .....	Oct. 1-Dec. 19 .....			Present.
Cotulla .....	Jan. 25 .....			Do.
Falfurrias .....	Dec. 26 .....	12		
Fort Worth .....		256		Year 1908.
Goliad County .....	Dec. 1-Jan. 20 .....	25		
Laredo .....	Dec. 26-Feb. 3 .....	3		
Monthalia .....	Oct. 1-Dec. 19 .....			Present.
Oak Forest .....	Oct. 1-Dec. 19 .....			Do.
San Antonio .....	Dec. 13-Feb. 6 .....	44		
San Augustine County .....	Jan. 5 .....			Do.
Total for State .....		340		
<b>Utah:</b>				
Davis County .....	Nov. 1-Dec. 31 .....	20		
Garfield County .....	Dec. 1-31 .....	9		
Salt Lake County .....	Dec. 1-Jan. 31 .....	136		
Salt Lake City .....	Dec. 1-31 .....	77		
Sanpete County .....	Dec. 1-31 .....	1		
Summit County .....	Dec. 1-31 .....	7		
Utah County .....	Dec. 1-31 .....	1		
Weber County .....	Nov. 1-Dec. 31 .....	2		
Total for State .....		253		
<b>Vermont:</b>				
Newfane .....	Jan. 11 .....	8		And vicinity.
West Windsor, township .....	Jan. 23 .....	2		
White River Junction .....	Jan. 4-Feb. 9 .....	3		
Total for State .....		13		
<b>Virginia:</b>				
Lynchburg .....	Jan. 10-30 .....	3		Imported.
Norfolk .....	Feb. 5 .....	2		On tug E. W. Marts.
Total for State .....		5		
<b>Washington:</b>				
Seattle .....	Oct. 1-Jan. 31 .....	15		
Spokane .....	Dec. 6-Jan. 30 .....	7	1	
Tacoma .....	Dec. 14-Jan. 17 .....	31		
Total for State .....		53	1	
<b>West Virginia:</b>				
Charleston .....	Jan. 1-31 .....	1		
Weston .....	Jan. 15-Feb. 13 .....	1		
Total for State .....		2		
<b>Wisconsin:</b>				
La Crosse .....	Dec. 13-Feb. 6 .....	28		
Manitowoc .....	Dec. 13-Jan. 23 .....	5		
Milwaukee .....	Dec. 6-Feb. 6 .....	83		
Total for State .....		116		
Grand total for the United States .....		3,974	13	



## Weekly morbidity and mortality table, cities of the United States.

[For smallpox and plague, see special tables.]

Cities.	Week ended—	Popula- tion, United States census, 1900.	Total deaths from all causes.	Tuber- culosis.		Enteric fever.		Scarlet fever.		Diph- theria.		Measles.		Whoop- ing cough.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Altoona, Pa. ....	Feb. 6	38,973	14					3		2		1			
Baltimore, Md. ....	do	508,967	213	18	27	10	1	9	29	3	84	1	5		
Bayonne, N. J. ....	do	32,722						1				26			
Beaver Falls, Pa. ....	do	13,000						1							
Berkeley, Cal. ....	Jan. 30	13,214	10	1				2		1		2			
Biddeford, Me. ....	Feb. 6	16,145	9												
Binghamton, N.Y. ....	do	38,647	15		2										2
Boston, Mass. ....	do	560,892	207	29	27	3	2	51	2	52	5	35		20	3
Bradford, Pa. ....	do	15,654	8					1						1	
Bradford, Pa. ....	do	15,029	7							1					
Brockton, Mass. ....	do	40,063	16	3	1	1		2				69		23	1
Butler, Pa. ....	Jan. 7	10,853	4					2							
Do	Jan. 14	10,853	2							2					
Cambridge, Mass. ....	Feb. 6	91,886	24	8	1			10		3		12		2	
Camden, N. J. ....	do	75,935	33					6		5	2	8	1		
Camden, S. C. ....	do	2,441								3					
Carbondale, Pa. ....	do	13,536	3							1					
Charlotte, N. C. ....	Feb. 5	18,091	4	1		1		2							
Chelsea, Mass. ....	Feb. 6	34,072	8	1	1			3							
Chicago, Ill. ....	do	1,698,577	592	139	78	35	6	175	12	154	10	136	2	12	1
Chicopee, Mass. ....	do	19,167	6	1	1			1		2		2			
Cincinnati, Ohio ....	Feb. 5	325,902	127	9	15	3	3	9		4	1	14	1	5	
Cleveland, Ohio ....	do	381,768	128	28	14	3	1	21		23	2			39	1
Clinton, Mass. ....	Feb. 6	13,667	2												
Columbus, Ga. ....	do	17,614	5												
Covington, Ky. ....	do	42,938	21		4			6		2	1	3			
Danville, Ill. ....	Feb. 7	16,534	6		1			1							
Dayton, Ohio. ....	Feb. 6	85,333	31	3	5	1				19		3			
Detroit, Mich. ....	do	285,704	129					5		12	2				
Duluth, Minn. ....	Feb. 4	80,000	16	2	1			1							
Dunkirk, N. Y. ....	Feb. 6	11,616	7												
East Liverpool, O. ....	Jan. 30	16,485	7	3	3										
Do	Feb. 6	16,485	4												
Elkhart, Ind. ....	do	15,184	3	1	1					1		8			
Elmira, N. Y. ....	do	35,672	9			1			3		1	4	1		
El Paso, Tex. ....	Feb. 9	15,905	25		6			1			1			2	
Erie, Pa. ....	Feb. 6	52,733	23	1	1	2	1	13		2					
Evansville, Ind. ....	do	59,007	14	4								3		1	1
Everett, Mass. ....	do	24,336	5	2								22			
Fall River, Mass. ....	do	104,863	45	3	3	1		6		1					
Findlay, Ohio. ....	do	17,613	4					2							
Fort Wayne, Ind. ....	Jan. 30	45,115	9		2					1					
Do	Feb. 6	45,115	13		2	2				1					
Galesburg, Ill. ....	do	18,607	8					2		2					
Galveston, Tex. ....	Feb. 5	37,789	9	2	2	1	1	2							
Glens Falls, N. Y. ....	Feb. 6	13,543	4					1							
Gloucester, Mass. ....	do	26,121	5								1				
G'd Rapids, Mich. ....	do	87,565	24	6	1	2		22		2		7		14	2
Greenville, S. C. ....	do	11,860	5					3		1		1			
Hammond, Ind. ....	do	12,376	5		1		1					2			
Harrison, N. J. ....	do	10,596	3		1			2							
Haverhill, Mass. ....	do	37,175	19	3	3	1		1		11				1	
Homestead, Pa. <sup>b</sup> ....	Jan. 31	12,554	8		1			1				1			
Do	Feb. 7	12,554	10					1				7			
Indianapolis, Ind. ....	do	169,164	42		6	1		2	1	5		9			
Jacksonville, Fla. ....	Feb. 6	28,429	28		2	3									
Jersey City, N. J. ....	Feb. 7	206,433	85		5			33	4	20	1	119		1	1
Johnstown, Pa. ....	Feb. 6	35,936	20		1	5	2	10		3		3		1	
Kansas City, Kans. ....	do	51,418	23					2		3					
Kansas City, Mo. ....	do	163,752	57		3	1	2	2		11		2		3	
Kearny, N. J. ....	do	10,896	3	1	1			3		3				1	
Kingston, N. Y. ....	Jan. 23	24,535			2										
Do	Feb. 6	24,535	9									6			
Knoxville, Tenn. ....	do	32,637	5	1	1	1	1			1					
La Crosse, Wis. ....	do	28,895	7		1									1	
Lancaster, Pa. ....	do	41,459	12		1			2				1		1	
Lawrence, Mass. ....	do	62,559	30	2	2	3				1		1			
Lebanon, Pa. ....	do	17,028	7	1	1	1				1		5			
Lexington, Ky. ....	do	26,369	14		4									2	
Los Angeles, Cal. ....	Jan. 30	102,479	76	8	17	22		13		7	1	6			

<sup>a</sup> One death from whooping cough occurred in the State Hospital.<sup>b</sup> Period covers ten days.

Weekly morbidity and mortality table, cities of the United States—Continued.

Cities.	Week ended—	Population, United States census, 1900.	Total deaths from all causes.	Tuberculosis.		Enteric fever.		Scarlet fever.		Diphtheria.		Measles.		Whooping cough.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Lowell, Mass.	Feb. 6	94,969	44	3	4			1		4	3	6			
Lynn, Mass.	do	68,513	26		2	4	1			12	2				
Malden, Mass.	do	38,664	10	2		1		2		1	1	8			
Manchester, N. H.	do	56,987	18					2		7					
Manitowoc, Wis.	do	11,786	1												
Mansfield, Ohio	do	17,650						1							
Marquette, Wis.	do	16,195	4			2				4					
Marion, Ind.	do	17,837	6	2	2			11		4					
Marlboro, Mass.	Jan. 30	13,609	5		1							2			
Do	Feb. 6	13,609	6												1
Massillon, Ohio	do	11,944	4		1										
Medford, Mass.	do	18,244	1							2		1			
Melrose, Mass.	do	12,962	3					3						24	5
Milwaukee, Wis.	do	285,315	86	18	18	12	3	29	2	20	1	46			
Mobile, Ala. c.	Dec. 31	38,469	21		4										
Do	Jan. 30	38,469	18	3	3	1				1					
Montclair, N. J.	Feb. 6	13,962	2					2		1			8		
Montgomery, Ala.	Feb. 5	30,346	8		1					1					
Moline, Ill.	Feb. 7	17,248	7	1				2				6			
Morristown, N. J.	Feb. 6	13,000	4	1											
Mount Vernon, N. Y.	do	21,228	10	1	1	1	1					21			
Muncie, Ind.	Jan. 31	20,942	10		2			2		1	1				
Do	Feb. 7	20,942	1					1				2			
Nanticoke, Pa.	do	12,616	8	1						4					
Nashville, Tenn.	Feb. 6	80,865	42	3	6	2		4							
Newark, N. J.	do	246,070	100		21	2	1	43		38	5				1
New Bedford, Mass.	do	63,442	23	5	2	1	1	3		1	1			1	
New Brunswick, N. J.	do	20,006								2	1				
Newburyport, Mass.	do	14,478	5	1											
New Orleans, La.	do	278,104	146	32	19	8	2	30	1	8					
Newton, Mass.	do	33,587	8			2		4		1		2			
New York, N. Y.	do	3,437,202	487	180	26	7	370	21	422	42	521	28	58	3	
Niagara Falls, N. Y.	do	19,457	15	1	2	6	2	2		1	1				
Norristown, Pa.	do	22,265	9	5	1		1	1							
North Adams, Mass.	do	24,200	12		2					1					
Northampton, Mass.	do	18,643	5									21			
Oklahoma City, Okla.	Jan. 30	43,500	16	1							1				
Do	Feb. 6	43,500	10		1										
Orange, N. J.	do	24,141	9	2				3		4		2			
Ottumwa, Iowa	do	18,197	12		2	2				1				3	
Paducah, Ky.	Jan. 30	19,446	6	2											
Do	Feb. 6	19,446	8	4											
Palmer, Mass.	do	7,801	1												
Pittsburg, Pa.	do	321,616	158	48	16	24	1	22	2	11	2	34		12	
Pittsfield, Mass.	do	21,766	6	2				2		2	1	2	1		
Plainfield, N. J.	do	15,369	6	1	1										
Plymouth Pa.	do	13,649								1		2			
Port Huron, Mich.	Jan. 16	19,158	6												
Do	Jan. 23	19,158	6	1	1										
Do	Jan. 30	19,158	5												
Do	Feb. 6	19,158	2	1	1										
Portland, Me.	Jan. 30	50,145	26	2	4			3						3	
Do	Feb. 6	50,145	22	2	1	4				1					
Portsmouth, N. H.	do	10,637	2												
Portsmouth, Va.	Feb. 9	17,427	4					1							
Providence, R. I.	Feb. 6	175,597	52	6	8			14		10		2			
Racine, Wis.	do	29,102	7												
Reading, Pa.	Feb. 8	78,961	32		4	5		4		2	1	1			
Richmond, Va.	Feb. 6	85,050	37	17	8	2		2		3				3	
Rock Island, Ill.	do	19,498	5												
Saginaw, Mich.	Jan. 30	42,345	13	1	1							6			
St. Louis, Mo.	Feb. 6	575,238	217	59	36	2	1	24	1	45	2	264	3	5	
San Antonio, Tex.	do	53,321	2					1		1	2				
San Francisco, Cal.	Jan. 30	342,782	140	36	23	2		11		8	2	58		4	1
Scranton, Pa.	Jan. 16	102,026	50	1				12	1	8	1	4			
Do	Jan. 23	102,026	40	1	1	2		18	1	7	1	9			
Do	Jan. 30	102,026	32	1		3		11	1	8	1	19			
Shamokin, Pa.	Feb. 6	18,202	7					1							
Somerville, Mass.	do	61,645	22	2	5			13		7	1	2			
South Bend, Ind.	do	35,999	21	1	1			3	1			30			

\* Reported out of date.

## Weekly morbidity and mortality table, cities of the United States—Continued.

Cities.	Week ended—	Popula- tion, United States census, 1900.	Total deaths from all causes.	Tuber- culosis.		Enteric fever.		Scarlet fever.		Diph- theria.		Measles.		Whoop- ing cough.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Spokane, Wash...	Jan. 23	38,848	16	.....	1	.....	1	.....	9	1	14	.....	25	.....	.....
Do.....	Jan. 30	38,848	30	.....	.....	1	.....	4	.....	6	1	.....	12	.....	.....
Springfield, Ill....	Feb. 5	34,159	14	.....	.....	.....	.....	2	.....	1	.....	.....	.....	.....	.....
Springfield, Mass.	Feb. 6	62,059	18	3	2	1	.....	1	.....	8	1	.....	6	.....	2
Springfield, Ohio...	do	38,258	12	4	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Staelton, Pa.....	do	12,068	5	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Taunton, Mass.....	do	31,036	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Terre Haute, Ind....	do	36,673	9	.....	2	.....	.....	2	.....	.....	.....	1	.....	.....	.....
Tiffin, Ohio.....	do	10,898	1	.....	.....	.....	.....	5	1	.....	.....	.....	.....	.....	.....
Titusville, Pa.....	do	8,244	4	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
Trenton, N. J.....	do	73,307	.....	14	3	5	1	1	.....	1	.....	.....	.....	.....	.....
Waltham, Mass.....	do	23,481	3	.....	.....	.....	.....	6	.....	8	.....	17	.....	.....	.....
Washington, D. C....	do	278,718	120	13	15	12	2	14	2	16	.....	488	3	10	.....
Wichita, Kans. <sup>a</sup> ...	Jan. 16	24,671	.....	.....	.....	.....	.....	2	.....	3	.....	.....	.....	.....	.....
Do.....	Feb. 6	24,671	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....
Wilksburg, Pa.....	Feb. 7	13,000	9	6	.....	1	.....	2	.....	.....	.....	3	.....	.....	.....
Williamsport, Pa....	Jan. 30	28,757	5	1	.....	.....	.....	.....	.....	2	.....	1	.....	.....	1
Do.....	Feb. 6	28,757	12	2	2	.....	.....	3	.....	1	1	.....	.....	.....	.....
Wilmington, Del....	do	76,508	28	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Winona, Minn.....	Feb. 9	19,714	7	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woburn, Mass.....	Feb. 6	14,254	4	1	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
York, Pa.....	do	33,708	.....	.....	.....	.....	.....	1	.....	3	.....	1	.....	.....	2

<sup>a</sup> Reported out of date.

## FOREIGN AND INSULAR.

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*Service representative detailed for duty at Barbados.*

Owing to the prevalence of yellow fever at Barbados, Acting Assistant Surgeon R. H. Urquhart was detailed, February 8, to duty in the office of the consul at Bridgetown, Barbados. His duty will be to sign bills of health in conjunction with the consul, and to enforce the quarantine regulations of the United States with regard to yellow fever.

### ALGERIA.

*Deratization at Algiers—Rat fleas.*

The following is taken from the *Bulletin Bimensuelle*, Algiers, January 16:

January 1-15: Rodents taken by the maritime sanitary service, 435; examined by the laboratory of health, 68; result, negative. Classification of rats: *Mus norvegicus*, 348; *Mus rattus*, 8; *Mus musculus*, 79. Rat fleas determined—*Pulex cheopis*, on *Mus norvegicus*, 13; *Cteno-pysylla musculi*, on *Mus norvegicus*, 4.

*Examination of rats at other localities in Algeria.*

#### MONTH OF DECEMBER, 1908.

BONE.—Rats taken, 13; examined, 13; plague rats, 0. Classified: *Mus norvegicus*, 9; *Mus rattus*, 3; *Mus alexandrinus*, 1.

BOUGIE.—Rats taken, 58; examined, 41; plague rats, 0.

ORAN.—Rats taken, 794; examined, 212; plague rats, 0. Classified: *Mus norvegicus*, 179; *Mus rattus*, 33.

PHILIPPEVILLE.—Rats taken, 22; examined, 13; plague rats, 0.

### CHINA.

*Reports from Hongkong—Quarantine restrictions—Examination of emigrants—Inspection of vessels.*

Acting Assistant Surgeon Hough reports, January 8:  
Weeks ended December 12, 19, and 26, 1908: Restrictions enforced by Hongkong remain as reported on December 5, 1908.

*Vessels inspected and granted bills of health.*

Week ended December 12.....	9
Week ended December 19.....	8
Week ended December 26.....	8

*Examination of aliens for Honolulu and Pacific coast ports.*

Week ended December 12:	
Examined .....	138
Rejected .....	24
Week ended December 19:	
Examined .....	0
Week ended December 26:	
Examined .....	242
Rejected .....	42

*Examination of aliens for Philippine Islands.*

Week ended December 12:	
Examined .....	46
Rejected .....	10
Week ended December 19:	
Examined .....	34
Rejected .....	9
Week ended December 26:	
Examined .....	40
Rejected .....	6

No quarantinable diseases.

*Report from Shanghai—Plague among rats.*

Consul Denby reports, January 12:  
Plague is present among rats along the water front. No cases of human plague are officially reported.

## CUBA.

*Reports from Cienfuegos—Inspection of vessels.*

Acting Assistant Surgeon Suarez reports, February 3 and 8:

*Week ended January 30.*

Vessels inspected.....	7
Bills of health issued .....	7
Members of crews inspected.....	181
Passengers inspected (officers and men detached from the army of Cuban pacification) .....	92

No quarantinable diseases were reported in the city or province.

*Week ended February 6.*

Vessels inspected.....	9
Bills of health issued .....	9
Members of crews inspected .....	359
Passengers inspected (69 officers and their families and 511 men detached from the army of Cuban pacification) .....	580

During the week no quarantinable disease was reported.

*Report from Habana—Inspection of vessels.*

Passed Assistant Surgeon Amesse reports, February 8:

*Week ended February 6.*

Vessels inspected.....	27
Bills of health issued.....	29
Members of crews of outgoing vessels inspected.....	1,370
Passengers of outgoing vessels inspected.....	1,055

*Report from Matanzas—Inspection of vessels.*

Acting Assistant Surgeon Nuñez reports, February 9:

Week ended February 6. Bills of health issued to 4 vessels clearing for United States ports in good sanitary condition. No quarantinable diseases were reported within this district during the past week.

*Report from Santiago—Inspection of vessels.*

Acting Assistant Surgeon Wilson reports, February 2:

Week ended January 30. Bills of health issued to 5 vessels bound for the United States and its dependencies.

No quarantinable disease was reported during the week.

## GERMAN EAST AFRICA.

*Examination of rats at Dar-es-Salaam for plague infection.*

The following information is taken from the Veröffentlichungen des kaiserlichen Gesundheitsamtes, Berlin, January 27:

To December 3, 1908, 358 rats were examined for plague infection. Of this number 17 were found to be plague infected.

## GERMANY.

*Reports from Berlin—Status of cholera in Russia.*

The following information is received from Consul-General Thackara, under dates of January 27 and February 1:

During the week ended January 7 there were registered in the city of St. Petersburg 96 fresh cases of cholera and 40 deaths; in the government district of Tomsk 12 cases (6 deaths); and in the Don region 3 cases (1 death); making a total of 111 cases and 47 deaths, compared with 218 cases (94 deaths) in the previous week.

According to an official report dated January 10, a native of a little village near Helsingfors, who had been in St. Petersburg for a few days, has been found to be suffering with cholera.

## HAWAII.

*Reports from Honolulu—Examination of rats for plague infection.*

Passed Assistant Surgeon Currie, plague laboratory, reports, January 25, through Temporary Chief Quarantine Officer Moore:

## HONOLULU.

*Week ended January 23.*

Total rats taken .....	493
Rats trapped .....	492
Rats found dead .....	1
Rats examined bacteriologically .....	287
Plague rats .....	0
Classification of rats trapped:	
<i>Mus alexandrinus</i> .....	49
<i>Mus musculus</i> .....	336
<i>Mus norvegicus</i> .....	28
<i>Mus rattus</i> .....	79
Average number of traps set daily .....	1, 338
Rats from Hilo referred to this laboratory for bacteriological diagnosis .....	4
Rats from Hilo still under investigation .....	4
Rats from Hilo proven to be plague infected during week .....	0

## HILO.

*Week ended January 16.*

Total rats taken .....	284
Rats trapped .....	279
Rats found dead .....	5
Rats examined by agent of board of health .....	282
Classification of rats:	
<i>Mus rattus</i> .....	56
<i>Mus norvegicus</i> .....	203
<i>Mus alexandrinus</i> .....	12
<i>Mus musculus</i> .....	13

## INDIA.

*Report from Calcutta—Transactions of Service—Cholera, plague, and smallpox—Plague in India and Bengal.*

Acting Assistant Surgeon Eakins reports, January 14:

Week ended January 9. Bill of health issued to the steamship *Langdale*, bound for Boston and New York with a total crew of 49. The usual precautions were taken, the holds fumigated, rat guards placed on the wharf lines, and the Asiatics' effects disinfected.

Week ended December 26. Twelve deaths from cholera, 8 from plague, and 33 from smallpox in Calcutta. In Bengal 131 cases of plague with 109 deaths. In India during the same period, 2,075 cases of plague with 1,683 deaths.

Week ended January 2. Eight deaths from cholera, 5 from plague, and 28 from smallpox in Calcutta. In Bengal, 154 cases of plague with 134 deaths. In India, 1,793 cases of plague with 1,431 deaths.

*Report from Rangoon, Burma—Plague in Burma during the month of December, 1908.*

Consul Wakefield reports, January 11:

There was a marked increase in plague during the month of December, 1908, in the districts of Pegu, Bassein, Henzada, Mandalay, and Yamethin. In Mandalay the number of deaths rose from 64 in November to 336 in December. In Yamethin the number of deaths increased from 15 in November to 101 in December.

The only satisfactory sanitary features of the month are the freedom of Thaton from plague and the continued improvement in Rangoon, where only 7 deaths occurred.

The total number of deaths in the province from plague was 601, as compared with 163 in November of last year and 396 in December, 1907. Excluding Rangoon and the northern Shan States, plague occurred in 15 districts during the month.

ITALY.

*Report from Naples—Inspection of vessels—Examination of emigrants—Smallpox in Naples and Calabria—Status of smallpox in Italy.*

Assistant Surgeon Wollenberg reports, January 25:

*Vessels inspected at Naples and Palermo, week ended January 23.*

NAPLES.

Date.	Name of ship.	Destination.	Steerage passengers inspected and passed.	Pieces of baggage inspected and passed.	Pieces of baggage disinfected.
Jan. 18	Europa .....	New York .....	1,265	50	1,680
22	San Giorgio .....	do .....	262	10	550
23	Manuel Calvo .....	do .....	243	15	380
	Total .....		1,770	75	2,610

PALERMO.

Jan. 23	San Giorgio .....	New York .....	682	747	214
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*Rejections recommended.*

NAPLES.

Date.	Name of ship.	Trachoma.	Favus.	Suspected trachoma.	Suspected favus.	Smallpox.	Other causes.	Total.
Jan. 18	Europa .....	40		19		1	5	65
22	San Giorgio .....	21	1	1				23
23	Manuel Calvo .....	6		4				10
	Total .....	67	1	24		1	5	98

PALERMO.

Jan. 23	San Giorgio .....	24		28			3	55
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*Smallpox in Naples.*—During the week ended January 24 there were 20 cases of smallpox reported at the health office of the city of Naples.

A case of varioloid was discovered on examination of steerage passengers for the steamship *Europa* on January 18 and was sent to the Cotugno Hospital for contagious diseases. The patient had come directly to Naples on the above date from Sarno, a town about 20 miles distant from Naples.

*Smallpox in Calabria.*—Thirteen cases of smallpox at Cinquefrondi and two cases at Iatrinoli were reported from the earthquake zone, January 21. A hospital has been established at Cinquefrondi by the Italian Red Cross Society, the patients have been isolated, and vaccination is being carried out as far as possible.

*Status of smallpox in Italy.*—Week ended January 24. Province of Lucca (Viareggio), 1 case; Potenza, (Castelmezzano), 3 cases; Benevento, (San Giorgio la Molara), 4 cases; Rovigo (Bosaro), 6 cases; Aquila (Erasacco), 1 case; Foggia (Foggia), 22 cases; Lecce (Ericase), 10 cases.

#### JAPAN.

*Reports from Yokohama—Summary of plague rats at Yokohama, year ended December 31, 1908—Epidemic diseases at Tokyo, years 1907 and 1908—Vaccination—Measures for rat destruction.*

Passed Assistant Surgeon Cumming reports, January 20:

The bulletin of the Sanitary Institute reports that during the twelve months ended December, 1908, plague-infected rats were found throughout this Empire as follows: Osaka, 4,168; Hyogo (Kobe) ken, 2,047; Nagasaki ken, 121; Kanagawa (Yokohama) ken, 73; Nara ken, 56. In Tokyo, during the period January to November 30, 1,567,656 rats were examined for plague and none found infected.

In Yokohama there were caught and examined during the year ended December 31, 1908, 443,912 rats, of which 70 were found infected by plague.

Smallpox prevailed from January to May, during which time there were 1,246,400 vaccinations reported by the sanitary authorities in Tokyo.

The following were among the epidemic diseases reported in Tokyo:

Year.	Cholera.	Small-pox.	Dysentery.	Diphtheria.	Enteric fever.	Scarlet fever.	Plague.
1907.....	169	5	575	1,425	1,849	237	1
1908.....	18	1,678	462	1,482	1,661	209	0

Periodical cleaning of houses, together with poisoning by phosphorus and arsenic and the setting of traps, are measures used in the fight against rats.

#### *Examination of emigrants.*

Number of emigrants per steamship *Mongolia* January 20: For San Francisco, passed 4; for Honolulu, rejected 1; held for observation 1.

Per steamship *Shinano Maru* January 20: For Seattle, passed 12; held for observation 4.

Per steamship *Minnesota* January 23: For Seattle, passed 1.  
 Per steamship *Nippon Maru* January 23: For Manila, passed 2.  
 Rejections and detentions were for trachoma.

*Reports from Kobe—Inspection of vessels—Examination of emigrants.*

Acting Assistant Surgeon Knight reports, January 12 and 21:

During the week ended January 9, 1 original and 4 supplemental bills of health were issued.

There were inspected 88 members of crews and 134 steerage passengers. Thirty-four members of crews and 36 steerage passengers were bathed and disinfected. Their effects were disinfected by steam. The number of pieces of baggage steamed was 174 and of bedding 70. Manifests were viséed for 30,133 pieces of freight, amounting to 2,859 tons.

Emigrants were examined as follows: Steamship *Tosa Maru* for Seattle, passed 14, recommended for rejection none; steamship *Asia* for Honolulu, passed 16, recommended for rejection 3, and steamship *Asia* for San Francisco 1, recommended for rejection none. The emigrants passed, together with 5 intending passengers to Victoria by the steamship *Tosa Maru*, were inspected, bathed, and disinfected. Their effects were disinfected.

During the week ended January 16, 1909, supplemental bills of health were granted to 5 steamships.

There were inspected 99 members of crews and 173 steerage passengers. Fourteen steerage passengers were bathed and disinfected. Their effects were disinfected by steam. The number of pieces of baggage steamed was 36 and of bedding 26. Manifests were viséed for 73,089 pieces of freight, amounting to 5,115 tons.

Emigrants were examined as follows: Steamship *Shinano Maru* for Seattle, passed 4, recommended for rejection 6; and steamship *Mongolia* for Honolulu, passed 9, recommended for rejection 3.

The emigrants passed, together with 1 intending passenger to Victoria by the steamship *Shinano Maru*, were inspected, bathed, and disinfected, and their effects were disinfected before embarkation.

MEXICO\*

*Report from Mexico City—Yellow fever at Veracruz, Merida, and in vicinity of Maxcanu.*

The following is received from Dr. Eduardo Liceaga, president of the superior board of health of Mexico, under date of February 4:

During the week ended January 30, 1 case and 1 death from yellow fever were reported at Veracruz; 1 case at Merida, and 1 case at San Bernardo, vicinity of Maxcanu.

*Report from Contzacoalcos—Inspection of vessels—Smallpox reported at Tehuantepec.*

Acting Assistant Surgeon Thompson reports, February 4:

Week ended February 3. Inspected, 2 vessels.

No cases of quarantinable disease were reported.

Tehuantepec, a station on the Tehuantepec Railway, is reported to be infected with smallpox.

*Report from Salina Cruz—Inspection and fumigation of vessel.*

Acting Assistant Surgeon McPherson reports, February 1:  
Period January 16 to 31, inclusive. One steamship was inspected and fumigated.

## NEWFOUNDLAND.

*Report from St. Pierre—Smallpox on south coast.*

The following information is received from the Department of State, under date of February 9:

The following telegram of February 6 has been received from the consul at St. Pierre, St. Pierre Island:

Epidemic smallpox reported south coast Newfoundland. St. Pierre quarantines against vessels from that section.

## PERSIA.

*Report from Teheran—Cholera at Tabriz declared extinct.*

The following is received from the Department of State, under date of February 6:

The minister at Teheran states that the epidemic of cholera at Tabriz is considered to be at an end.

## PERU.

*Report from Callao—Inspection and fumigation of vessels—Status of plague in Peru—Smallpox at Lima—Plague at Callao—Plague in Chile.*

Acting Assistant Surgeon Gutierrez reports, January 15:

Week ended January 9. Two steamships for Ancon, Canal Zone, were fumigated. They carried an aggregate personnel of 229 members of crew, 159 cabin, and 71 steerage passengers. The U. S. S. *Solace*, for New York, was granted a bill of health on statement of medical officer.

The following is the latest report on plague in Peru received from the Director de Salubridad Pública:

Locality.	Cases Dec. 25.	New.	Recov- ered.	Died.	Remain- ing Dec. 31.
Lima .....	9	2	2		9
Callao .....		1		1	
Trujillo (city) .....	46	4	10	7	43
Trujillo (country) .....		10			
Chepen .....	4			1	3
San Pedro .....	10	2		1	11
Chiclayo .....	2	1	1	1	1
Ferrefiafe .....	3		2		1
Eten .....		2		2	
Mollendo .....	3	1	2		2
Paita .....	1				1
Motupe .....	3	1	3		1
Monsefu .....	1		1		
Piura .....	2				2
Catacaos .....	3				3

December 31, 6 cases of smallpox were in the lazaretto at Lima. Since my last report 4 cases of plague, with one death, have been reported at Callao. There have been 6 cases in 2 weeks. Bills of health report plague in Chile as follows: Iquique, January 3, 5 cases in the lazaretto; 4 cases and 1 death in 2 weeks.

PHILIPPINE ISLANDS.

*Reports from Manila—Cholera and smallpox—Status of cholera in the provinces—Outbreaks of cholera at Cebu and on island of Bohol—Inspection of vessels.*

Chief Quarantine Officer McClintic reports, December 29 and January 5 and 12:

Week ended December 26.

Three new cases of cholera, with 3 deaths, were reported for the city of Manila.

For the week, the following cases and deaths from cholera were reported from the provinces of the Philippines:

Province.	Cases.	Deaths.	Province.	Cases.	Deaths.
Rizal .....	18	19	Bohol .....	26	18
Ilocos Sur .....	4	2	Negros Occidental .....	27	16
Capiz .....	76	41	Cebu .....	4	2
Cavite .....	5	6	Leyte .....	31	29
Antique .....	14	9	Samar .....	24	15
Laguna .....	2	1	Iloilo .....	4	2
Ilocos Norte .....	59	33			
Cagayan .....	20	8	Total .....	314	201

During the week consular bills of health were issued at the port of Manila as follows: December 23, the British steamship *Cyclops*, with 90 in the crew, en route from Liverpool to Seattle and Tacoma, was granted a supplemental bill of health after the usual inspection and certification of the cargo and personnel. December 26, the British steamship *Hudson*, with 46 in the crew, en route from Foochow to Boston and New York, was granted a supplemental bill of health after inspection of the personnel and cargo. December 26, the British steamship *Taiyuan*, with 71 in the crew and with 49 passengers, was granted a supplemental bill of health for the Port of Zamboanga.

Week ended January 2.

One case of cholera, with no deaths, and 3 cases of smallpox, with 1 death, were reported for the city of Manila.

For the week the following cases and deaths from cholera were reported from the provinces of the Philippines:

Province.	Cases.	Deaths.	Province.	Cases.	Deaths.
Rizal .....	56	47	Cavite .....	4	3
Bohol .....	17	13	Antique .....	21	16
Cebu .....	4	4	Leyte .....	7	.....
Ilocos Sur .....	2	1	Ilocos Norte .....	30	22
Iloilo .....	47	27	Cagayan .....	11	4
Capiz .....	162	87			
Negros Occidental .....	46	22	Total .....	407	246

The total number of cases of cholera reported from the provinces for the week just past is about double the number reported for the preceding week, the increase coming principally from the province of Capiz. The province of Rizal, in which is the city of Manila, reports 47 cases with 27 deaths. These cases came mostly from the small pueblos in the Mariquina Valley, in the vicinity from which Manila formerly received its water supply. This, however, causes no special apprehension, now that the new water system has been installed, the intake of which is at quite a distance beyond this infected territory. There is small probability of the water supply becoming infected.

On the island of Bohol, the disease has appeared, 17 cases with 13 deaths having been reported for the past week.

Thus far, only 4 cases have been reported from Cebu, the histories of which are rather interesting. Two women left Hilongus, Leyte, on December 16, 1908, and after having stopped at 2 small noninfected ports en route, arrived in Cebu on the morning of December 19. They went to stay with friends in Cebu, and on the night of their arrival, 2 of the family they were visiting developed cholera, and the following day, 2 more cases developed, all 4 of which died within a few hours. Neither one of the visitors developed the disease, and it would be interesting to know whether or not they were bacillus carriers, and, therefore, more or less immune, or how the victims contracted the infection, as these are the only cases that have been reported in that city.

During the week, consular bills of health were issued at the port of Manila as follows: December 29, the British steamship *Breconshire*, with 77 in the crew, en route from Calcutta to Cebu, was granted a supplemental bill of health. January 2, the British steamship *Sung-kiang*, with 68 in the crew and 36 passengers, en route from Hong-kong and Amoy to Cebu and Iloilo, was granted a supplemental bill of health. The crew and steerage passengers were bathed and their effects were disinfected at the Mariveles Quarantine Station. January 2, the British steamship *Inveric*, with 47 in the crew and with 2 passengers, was granted a bill of health for Tacoma via China and Japan ports. The personnel and cargo were inspected prior to sailing.

Week ended January 9. Quarantinable diseases as follows: Two cases of smallpox with 2 deaths were reported for the city of Manila.

For the week the following cases and deaths from cholera were reported from the provinces of the Philippines:

Province.	Cases.	Deaths.	Province.	Cases.	Deaths.
Rizal .....	54	49	Antique .....	17	12
Bohol .....	17	6	Laguna .....	1	1
Iloilo .....	4	4	Ilocos Norte.....	9	8
Leyte .....	6	6	Cagayan .....	6	6
Capiz.....	19	11			
Cebu .....	4	2	Total.....	143	109
Surigao.....	6	4			

During the week consular bills of health were issued at the port of Manila as follows: January 5, the British steamship *Dakotah*, with 45 crew, was granted a bill of health for San Francisco, after inspection of the cargo and personnel. January 8, the British steamship *Falls of Orchy*, coal laden, with 47 in the crew and with 4 passengers, en route from Newcastle to Tacloban, was granted a supplemental bill of health.

## PORTO RICO.

*Report from Ponce—Transactions of service, month of January, 1909.*

Acting Assistant Surgeon Ferrer-Torres reports, February 1, through Chief Quarantine Officer Foster:

*Month of January, 1909.*

Vessels inspected.....	14
Vessels in quarantine.....	8
Vessels disinfected.....	2
Passengers in quarantine:	
Incoming.....	121
In transit.....	821
Immigrants inspected.....	41
Rejections.....	1
Members of crews inspected.....	811
Bills of health issued.....	30
Pieces of baggage disinfected.....	3

## RUSSIA.

*Report from Libau—Examination of emigrants—Status of cholera at St. Petersburg—Summary of cholera to date.*

Acting Assistant Surgeon De Forrest reports, January 26:

The steamship *Korea* left to-day with 452 passengers, all in good physical condition. All have been in Libau 5 days.

Reports of cholera at St. Petersburg show from January 12 to 22, 342 cases and 125 deaths, with about 283 cases present and a daily occurrence of about 25 or 30 cases. To January 19, 9,148 cases, 3,637 deaths, and 5,283 recoveries are reported.

## FOREIGN AND INSULAR STATISTICAL REPORTS OF COUNTRIES AND CITIES—UNTABULATED.

AFRICA—*Transvaal—Johannesburg.*—Two weeks ended December 26, 1908. Estimated population, 180,687. Total number of deaths, 178; including enteric fever 10, diphtheria 2, measles 1, whooping cough 1, and 16 from tuberculosis.

BRAZIL—*Pernambuco.*—Month of December, 1908. Estimated population, 210,000. Total number of deaths, 565; including whooping cough 1, smallpox 24, enteric fever 3, plague 4, and 116 from tuberculosis.

CANADA—*Nova Scotia—Yarmouth.*—Month of January, 1909. Estimated population, 6,700. Total number of deaths, 12, including 2 from diphtheria. Cases: Diphtheria 4 and smallpox 5.

CUBA.—Month of November, 1908. Estimated population, 1,572,797. Total number of deaths, 2,074, including enteric fever 15, measles 4, scarlet fever 4, diphtheria 29, whooping cough 14, and 287 from tuberculosis.

*Havana*.—Month of December, 1908. Estimated population, 300,000. Total number of deaths, 487, including enteric fever 4, measles 1, scarlet fever 1, diphtheria 2, and 107 from tuberculosis.

FRANCE—*Roubaix*.—Month of December, 1908. Estimated population, 121,115. Total number of deaths, 206, including diphtheria 2, scarlet fever 4, measles 2, and 30 from tuberculosis.

FRANCE—*St. Etienne*.—Two weeks ended January 15, 1909. Estimated population, 150,000. Total number of deaths, 170, including diphtheria 1 and 12 from tuberculosis.

GREAT BRITAIN—*England and Wales*.—The deaths registered in 76 great towns in England and Wales during the week ended January 23, 1909, correspond to an annual rate of 15.7 per 1,000 population, which is estimated at 16,234,952.

*London*.—One thousand four hundred and fourteen deaths were registered during the week, including measles 76, scarlet fever 11, diphtheria 20, enteric fever 6, whooping cough 11, tuberculosis 126, and 15 from diarrhea. The deaths from all causes correspond to an annual rate of 15.3 per 1,000. In greater London 2,010 deaths were registered. In the "outer ring" the deaths included 3 from measles, 3 from diphtheria, scarlet fever 2, and 1 from whooping cough.

*Ireland*.—The average annual death rate represented by the deaths registered during the week ended January 23, 1909, in the 21 principal town districts of Ireland was 21.6 per 1,000 of the population, which is estimated at 1,131,959. The lowest rate was recorded in Colmnel, viz, 5.1, and the highest in Tralee, viz, 37.0 per 1,000.

*Scotland*.—The deaths registered in 8 principal towns during the week ended January 23, 1909, correspond to an annual rate of 18.8 per 1,000 of the population, which is estimated at 1,839,038. The highest rate of mortality was recorded in Dundee, viz, 21.9 and the lowest in Perth, viz, 11.7 per 1,000. The aggregate number of deaths registered from all causes was 671, including diphtheria 12, scarlet fever 2, whooping cough 35.

*Ireland—Belfast*.—Quarter ended January 2, 1909. Estimated population, 380,344. Total number of deaths, 1,766, including measles 3, scarlet fever 3, whooping cough 3, diphtheria 7, enteric fever 11, and 305 from tuberculosis. Annual death rate per 1,000 of population, 17.2.

ITALY—*Genoa*.—Two weeks ended January 15, 1909. Estimated population, 279,163. Total number of deaths, 353, including enteric fever 2, measles 3, diphtheria 3, and 22 from tuberculosis.

JAPAN—*Formosa*.—Month ended January 9, 1909. Estimated population, 3,050,004. Total number of deaths not reported. Deaths from contagious diseases reported were: Enteric fever 7, diphtheria 1, and 1 from plague.

**MALTA.**—Two weeks ended January 16, 1909. Estimated population, 209,974. Total number of deaths, 116, including 7 from tuberculosis.

**MEXICO—Tampico.**—Month of January, 1909. Estimated population, 20,000. Total number of deaths, 98, including 14 from tuberculosis.

**TURKEY—Smyrna.**—Three months ended December 31, 1908. Estimated population, 400,000. Total number of deaths, 822, including smallpox 53, enteric fever 21, tuberculosis 107, scarlet fever 2, diphtheria 3, and 3 from measles.

**URUGUAY—Montevideo.**—Month of November, 1908. Estimated population, 252,000. Total number of deaths, 380, including enteric fever 1, measles 1, scarlet fever 7, and 47 from tuberculosis.

**WEST INDIES—St. Thomas.**—Period from December 25 to January 15, 1909. Estimated population, 11,012. Total number of deaths, 15, including 1 from tuberculosis.

*Cholera, yellow fever, plague, and smallpox, from December 26, 1908, to February 19, 1909.*

[Reports received by the Surgeon-General, Public Health and Marine-Hospital Service, from American consuls, through the Department of State, and from other sources.]

[For reports received from June 26, 1908, to December 25, 1908, see PUBLIC HEALTH REPORTS for December 25, 1908.]

[NOTE.—In accordance with custom, the tables of epidemic diseases are terminated semiannually and new tables begun.]

#### CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Ceylon:				
Colombo.....	Nov. 15-Dec. 5....	12	10	
China:				
Hongkong.....	Dec. 28-Jan. 2....	1	1	
India:				
Bombay.....	Dec. 9-Jan. 19....		69	
Calcutta.....	Nov. 1-Jan. 2....		85	
Madras.....	Nov. 14-Jan. 8....		50	
Negapatam.....	Oct. 31-Nov. 6....		1	
Rangoon.....	Nov. 8-Jan. 9....		11	
Indo-China—Cholen	Nov. 9-15.....	1	1	
Persia:				
Tabriz.....	Oct. 9-Dec. 28....	1,003	500	
Philippine Islands:				
Manila.....	Nov. 1-Jan. 2....	84	56	Third quarter, 1908, 673 cases and 458 deaths.
Provinces.....				Third quarter, 1908, 17,619 cases and 11,115 deaths.
Antique.....	Nov. 1-Jan. 12....	258	160	
Bataan.....	Nov. 1-7.....	1	1	
Bohol.....	Dec. 20-Jan. 12....	60	37	
Bulacan.....	Nov. 1-Dec. 19....	81	67	
Cagayan.....	Nov. 1-Jan. 12....	109	64	
Capiz.....	Nov. 1-Jan. 2....	908	495	
Cavite.....	Nov. 1-Jan. 12....	73	56	
Cebu.....	Dec. 20-Jan. 12....	12	8	
Ilocos Norte.....	Nov. 1-Jan. 12....	331	231	
Ilocos Sur.....	Nov. 1-Jan. 2....	207	140	
Iloilo.....	Nov. 1-Jan. 12....	292	153	
La Laguna.....	Nov. 1-Jan. 12....	71	46	
Leyte.....	Nov. 1-Jan. 12....	142	121	
Negros Occidental	Nov. 1-Jan. 2....	261	166	
Palawan.....	Nov. 1-Dec. 19....	10	5	
Pampanga.....	Nov. 1-28.....	3	3	
Rizal.....	Nov. 1-Jan. 12....	205	184	
Samar.....	Nov. 1-Dec. 26....	140	98	
Surigao.....	Nov. 15-Jan. 12....	7	4	
Union.....	Nov. 1-Jan. 12....	12	8	
Zambales.....	Dec. 6-12.....	3	3	



*Cholera, yellow fever, plague, and smallpox, etc.—Continued.*

## CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia, general.....	Nov. 15-Jan. 16...	3,118	1,312	Dec. 1, 3 cases are reported present at Riga. From 1 to 4 cases are reported weekly from the following places: Schuscka, Dnjeprorsk (Simferopol), Bjsk, Smejnogorsk, Barnoul, Pokrowsk Jusowska, Etschmiadsin, and Dorpat.
Amolinsk.....	Nov. 15-Dec. 19...	29	13	
Bakoo.....	Nov. 22-28.....	3	2	
Batoom.....	Nov. 15-21.....	4	2	
Cronstadt.....	Nov. 15-Jan. 16...	3	1	
Don, territory of.....	Nov. 15-Jan. 16...	164	82	
Ekaterinialav.....	Nov. 15-Dec. 26...	27	11	
Erivan.....	Dec. 1-31.....	28	21	
Helsingfors.....	Jan. 10.....	2	.....	
Kerson.....	Nov. 15-Dec. 19...	2	.....	
Kharkov.....	Dec. 6-12.....	1	.....	
Kief.....	Nov. 15-Dec. 12...	11	1	
Kooban.....	Nov. 15-Jan. 2.....	139	76	
Kostroma.....	Dec. 6-12.....	1	.....	
Livonia.....	Nov. 15-21.....	2	1	
Moscow district.....	Dec. 6-12.....	2	2	
Moscow.....	Jan. 17-23.....	1	1	
Odessa.....	Nov. 29-Dec. 12...	2	2	
Olonets.....	Nov. 21-28.....	1	1	
Poltava.....	Nov. 29-Dec. 5.....	3	.....	
Samara gov't dist.....	Nov. 29-Dec. 5.....	7	7	
Samarcand.....	Dec. 6-12.....	10	7	
Saratov.....	Nov. 15-Dec. 12...	11	6	
Semipalatinsk, territory of.....	Dec. 19-26.....	1	.....	
Stavropol.....	Nov. 15-21.....	1	.....	
St. Petersburg, government.....	Nov. 15-Dec. 12...	11	3	
St. Petersburg.....	Nov. 29-Jan. 16...	957	301	
Tambov.....	Nov. 15-Dec. 12...	16	8	
Tavride.....	Nov. 15-Dec. 19...	9	5	
Terek, territory of.....	Nov. 15-Dec. 19...	99	62	
Tiflis.....	Nov. 15-21.....	9	4	
Tomsk.....	Nov. 15-Jan. 16...	99	47	
Tver, district.....	Nov. 15-Dec. 5....	4	.....	
Volgoda.....	Dec. 6-12.....	1	.....	
Yelisavetpol.....	Nov. 26-Dec. 5....	5	10	
Siam:				Present.
Bangkok.....	Nov. 1-30.....	.....	.....	
Straits Settlements:				131
Singapore.....	Nov. 8-Jan. 2.....	.....	.....	

## YELLOW FEVER.

Barbados:				Dec. 27-Jan. 15, 9 cases and 4 deaths in parish of St. Lucy and 1 case in parish of St. Andrew.
Bridgetown.....	Dec. 12-Feb. 4....	26	5	
Brazil:				Feb. 1. Epidemic.
Bahia.....	Nov. 15-Jan. 2....	21	10	
Mamaos.....	Nov. 29-Dec. 19...	.....	3	
Para.....	Nov. 22-Jan. 16...	23	23	
Pernambuco.....	Nov. 15-30.....	.....	1	
Colombia:				
Cartagena.....	Jan. 8-14.....	1	1	
Cuba:				These cases were removed Dec. 28 and 29, respectively, to Santiago where 1 case died Dec. 31.
Oriente Province— San Luis.....	Jan. 1-2.....	2	1	
Curacao.....	Jan. 15.....	1	.....	
Dutch Guiana:				
Paramaribo.....	Dec. 1-Jan. 2.....	21	6	
Ecuador:				
Guayaquil.....	Nov. 29-Jan. 16...	.....	13	
Martinique:				
Fort de France.....	Dec. 13-Jan. 30...	3	1	
Mexico:				Aug. 22-Dec. 18, 5 cases not previously reported.
Itzincal plantation.....	Dec. 6-12.....	2	2	
Maxcanu.....	Dec. 6-Jan. 23...	5	4	
Merida.....	Dec. 6-Jan. 30....	13	6	
San Bernardo plantation.....	Dec. 27-Jan. 30....	4	2	
Sodzil plantation.....	Dec. 13-Jan. 2.....	7	5	
Veracruz.....	Dec. 6-Jan. 30....	12	5	
Trinidad:				
Port of Spain.....	Jan. 20.....	.....	1	

## Cholera, yellow fever, plague, and smallpox, etc.—Continued.

## PLAGUE.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Australia:</b>				
Brisbane.....	Nov. 1-7.....	1	1	
<b>Brazil:</b>				
Bahia.....	Nov. 15-Jan. 2....	21	11	Feb. 1. Epidemic.
Pernambuco.....	Nov. 1-30.....	.....	6	
Rio de Janeiro.....	Nov. 16-Dec. 27....	46	23	
<b>Chile:</b>				
Iquique.....	Nov. 22-Jan. 3....	7	2	
<b>China:</b>				
Hankau.....	Nov. 30-Dec. 5....	1	1	On river boat Loongwo.
Hongkong.....	Nov. 8-Jan. 2....	2	2	
Tientsin.....	Oct. 18-Nov. 21....	.....	.....	Still present.
Tongshan.....	Nov. 1-14.....	.....	.....	Present.
<b>Ecuador:</b>				
Guayaquil.....	Nov. 29-Jan. 16....	.....	13	
Milagro.....	Nov. 17-Dec. 12....	17	8	Dec. 19, still present.
<b>Egypt:</b>				
Alexandria.....	Nov. 14-Dec. 4....	3	.....	
Port Said.....	Dec. 4.....	1	.....	
<b>Provinces—</b>				
Assiout.....	Dec. 2-Jan. 1....	3	3	
Beherach.....	Nov. 24-Dec. 26....	11	6	
Galyoobeeyeh.....	Nov. 21-Jan. 6....	2	.....	
Garbieh.....	Nov. 27-Jan. 14....	4	2	
Girgeh.....	Oct. 18-Dec. 30....	4	3	
Fayoum.....	Nov. 23-Dec. 1....	1	1	
Menouf.....	Nov. 27-Jan. 17....	155	35	
Minieh.....	Nov. 25-Dec. 29....	1	.....	
<b>India:</b>				
Bombay Presidency and Sind.....	Nov. 2-Dec. 17....	7,533	5,307	
Madras Presidency.....	Nov. 2-Dec. 17....	478	354	
Bengal.....	Nov. 2-Dec. 17....	639	535	
United Provinces.....	Nov. 2-Dec. 17....	506	496	
Punjab.....	Nov. 2-Dec. 17....	2,313	2,243	
Burma.....	Nov. 2-Dec. 17....	339	333	
Central provinces, including Berar.....	Nov. 2-Dec. 17....	1,152	865	
Coorg.....	Nov. 2-Dec. 17....	5	3	
Mysore State.....	Nov. 2-Dec. 17....	1,375	937	
Hyderabad State.....	Nov. 2-Dec. 17....	256	222	
Central India.....	Nov. 2-Dec. 17....	502	395	
Rajputana.....	Nov. 2-Dec. 17....	410	413	
<b>Grand total.....</b>		<b>16,008</b>	<b>12,048</b>	
<b>Indo-China:</b>				
Cholen.....	Oct. 25-Dec. 19....	12	11	Including Chuquan.
Saigon.....	Oct. 25-Dec. 26....	8	7	
<b>Japan:</b>				
Formosa.....	Nov. 8-Dec. 9....	18	6	
<b>Mauritius.....</b>	Oct. 2-Nov. 28....	.....	64	
<b>Peru:</b>				
Callao.....	Nov. 13-Dec. 31....	5	.....	Jan. 9, still present.
Catacaos.....	Dec. 11-17.....	3	.....	
Chepen.....	Nov. 27-Dec. 31....	9	2	
Chiclayo.....	Nov. 13-Dec. 31....	9	6	
Eten.....	Nov. 13-Dec. 31....	11	10	
Ferrenafe.....	Nov. 13-Dec. 24....	9	3	
Lima.....	Nov. 13-Dec. 31....	29	8	
Mollendo.....	Nov. 13-Dec. 31....	5	2	
Monsefu.....	Nov. 13-Dec. 24....	7	2	
Motupe.....	Dec. 17-31.....	1	.....	
Oyotun, plantation.....	Nov. 20.....	4	.....	
Paíta.....	Dec. 11-17.....	3	2	
Plura.....	Dec. 11-24.....	5	3	
San Jose (Lambayeque).....	Nov. 13-Dec. 3....	2	.....	
San Pedro.....	Nov. 13-Dec. 31....	20	13	
Trujillo.....	Nov. 13-Dec. 31....	37	34	
<b>Siam:</b>				
Bangkok.....	Sept. 27-Oct. 24....	5	1	Present in November
<b>Straits Settlements:</b>				
Singapore.....	Nov. 30-Dec. 5....	1	.....	
<b>Turkey in Asia:</b>				
Bagdád.....	Nov. 6-Jan. 16....	37	12	
Beirut.....	Dec. 17-Jan. 9....	5	5	
Jiddah.....	Dec. 12-Jan. 15....	6	6	Feb. 3, still present.
Zanzibar.....	Nov. 10.....	1	1	

*Cholera, yellow fever, plague, and smallpox, etc.—Continued.*

## SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Algiers .....	Dec. 1-15 .....		29	Imported.
Arabia:				
Aden .....	Nov. 25-Jan. 18 .....		52	
Australia:				
New South Wales— Newcastle .....	Nov. 1-30 .....	1		
Austria:				
Galicia .....	Dec. 20-Jan. 23 .....	8		
Silesia .....	Jan. 3-9 .....	1		
Brazil:				
Bahia .....	Nov. 15-Jan. 2 .....	182	14	
Pernambuco .....	Nov. 1-Dec. 31 .....		62	
Rio de Janeiro .....	Nov. 16-Dec. 27 .....	971	480	
Santos .....	Nov. 1-Dec. 6 .....		9	
São Paulo .....	Nov. 1-Dec. 13 .....		24	
Canada:				
British Columbia—				
Vancouver .....	Dec. 1-31 .....	1		
Victoria .....	Dec. 12 .....	25	4	
Manitoba—				
Winnipeg .....	Dec. 20-Jan. 11 .....	5		
Ontario, province, general.	Dec. 1-31 .....	118		
Hamilton .....	Jan. 17-23 .....	1		
Toronto .....	Nov. 8-28 .....	7		
Nova Scotia—				
Halifax .....	Dec. 13-Feb. 6 .....	21		
Tusketwedge .....	Feb. 13 .....	1		
Yarmouth .....	Dec. 1-Feb. 13 .....	23		And vicinity.
Quebec—				
Montreal .....	Dec. 26-Jan. 2 .....	1		
Ceylon:				
Colombo .....	Nov. 1-21 .....	62	13	
Chile:				
Talcahuana .....	Nov. 20-Jan. 2 .....			Present in vicinity.
Valparaiso .....	Dec. 6-12 .....	1		
China:				
Amoy .....	Oct. 11-Nov. 8 .....		2	Dec. 19, still present.
Shanghai .....	Nov. 11-Jan. 10 .....	4	1	3 cases Nov. 11-Dec. 28 from U. S. transport Seward.
Cuba:				
Habana .....	Dec. 26-Jan. 19 .....	3		Case Dec. 26 on s. s. Floride; case Jan. 19 on s. s. Alfonso XIII.
Egypt, general	Nov. 12-Dec. 31 .....	349	81	
Alexandria .....	Nov. 26-Dec. 31 .....	2	3	
Cairo .....	Nov. 19-Jan. 14 .....	95	51	
France:				
Marseille .....	Dec. 1-31 .....		1	
Paris .....	Nov. 22-Jan. 16 .....	22	1	
Germany, general	Nov. 19-Jan. 30 .....	16		
Bremen .....	Jan. 16-23 .....	2		
Breslau .....	Dec. 20-26 .....	1		
Königsberg .....	Jan. 9 .....	1		
Greece:				
Athens .....	Nov. 22-Jan. 2 .....		4	
Patras .....	Dec. 16-31 .....	1	1	
Great Britain:				
Bristol .....	Dec. 13-Jan. 23 .....	4	2	
Guatemala:				
Guatemala City .....	Dec. 21 .....	600	200	Estimated, 2,800 cases; 840 deaths.
India:				
Bombay .....	Nov. 25-Jan. 19 .....		29	
Calcutta .....	Nov. 1-Jan. 2 .....		108	
Madras .....	Nov. 28-Jan. 8 .....		2	
Rangoon .....	Nov. 22-Jan. 9 .....		7	
Indo-China:				
Cholen .....	Nov. 15-Dec. 5 .....	6	5	
Saigon .....	Nov. 1-Jan. 2 .....	8	6	
Italy, general	Nov. 30-Jan. 24 .....	131		
Cinquefrondi .....	Jan. 15-21 .....	13		
Florence .....	Nov. 24-30 .....	2		
Genoa .....	Dec. 1-Jan. 15 .....	3		
Latrinole .....	Jan. 15-21 .....	2		
Naples .....	Dec. 7-Jan. 24 .....	157	29	Jan. 18, 1 case on s. s. Europa.
Polesella .....	Dec. 1 .....			Epidemic.
Japan:				
Formosa .....	Nov. 29-Dec. 26 .....	9		
Tokyo .....	May 8-Dec. 31 .....	314		

*Cholera, yellow fever, plague, and smallpox, etc.—Continued.*

## SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Java:</b>				
Batavia .....	Nov. 1-Jan. 2 .....	26	2	
Malta .....	Nov. 22-Jan. 23 .....	2		Case Nov. 22 on vessel.
<b>Mexico:</b>				
Acapulco .....	Jan. 11-17 .....	6		
Guadalajara .....	Jan. 7-21 .....	3		
Mexico City .....	Nov. 8-Dec. 26 .....		37	
Monterey .....	Jan. 4-Feb. 7 .....	5	5	
Salina Cruz .....	Jan. 1-15 .....	5		
Tehuantepec .....	Jan. 23-Feb. 3 .....			Present.
Veracruz .....	Dec. 13-Jan. 9 .....	3	2	
Yucatan (Camp Mengel) .....	Dec. 21 .....	1		
Moluccas Islands .....	Dec. 12 .....			Do.
<b>Netherlands, The:</b>				
Rotterdam .....	Jan. 10-16 .....	1		
Newfoundland .....				Feb. 9, epidemic on south coast.
St. Johns .....	Jan. 10-Feb. 6 .....	6		From s. s. Portia.
<b>Norway:</b>				
Christiania .....	Nov. 22-23 .....	1	1	
<b>Persia:</b>				
Hamadan .....	Oct. 2-Dec. 24 .....	350	100	Estimated.
Kerman .....	Nov. 11 .....			Present.
Kermanshah .....	Oct. 1-31 .....			Do.
Sultanabad .....	Oct. 1-31 .....			Do.
Tabriz .....	Oct. 2-3 .....			Do.
Trebizond .....	Jan. 16 .....			Do.
Teheran .....	Sept. 18-Oct. 23 .....		17	
<b>Peru:</b>				
Lima .....	Nov. 22-Dec. 31 .....	11		
Salaverry .....	Nov. 19-25 .....		1	
<b>Philippine Islands:</b>				
Manila .....	Nov. 1-Jan. 12 .....	10	5	Third quarter, 1908, 84 cases, 38 deaths.
<b>Porto Rico:</b>				
Mayaguez .....	Dec. 20-Jan. 2 .....	2		
<b>Portugal:</b>				
Lisbon .....	Nov. 30-Jan. 12 .....	12		
<b>Russia:</b>				
Batoom .....	Dec. 1-31 .....	1		
Moscow .....	Nov. 29-Jan. 23 .....	155	64	
Odessa .....	Jan. 3-23 .....	16	3	
Riga .....	Nov. 29-Jan. 23 .....	6		
St. Petersburg .....	Nov. 15-Jan. 16 .....	51	18	
Warsaw .....	Nov. 1-Dec. 19 .....		35	
<b>Servia:</b>				
Belgrade .....	Dec. 6-12 .....	2		
<b>Siam:</b>				
Bangkok .....	Nov. 1-30 .....			Present.
<b>Siberia:</b>				
Vladivostok .....	Dec. 14-20 .....	1		
<b>Spain:</b>				
Barcelona .....	Dec. 6-Feb. 23 .....		14	
Cartagena .....	July 1-31 .....		15	
Madrid .....	Nov. 1-30 .....		9	
Valencia .....	Nov. 29-Jan. 23 .....	25	3	
Vigo .....	Nov. 30-Jan. 30 .....		7	
<b>Straits Settlements:</b>				
Singapore .....	Dec. 28-Jan. 2 .....		1	
<b>Turkey in Asia:</b>				
Adalia .....	Sept. 24-27 .....		2	
Smyrna .....	Oct. 7-Dec. 31 .....		53	Jan. 5, epidemic.
<b>Turkey in Europe:</b>				
Constantinople .....	Dec. 7-Jan. 24 .....		43	





## Weekly mortality table, foreign and insular cities—Continued.

Cities.	Week ended—	Estimated population.	Total deaths from all causes.	Deaths from—													
				Tuberculosis.	Plague.	Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.			
St. Petersburg	Jan. 2	1,678,000	881	161		39											
Do	Jan. 9	1,678,000	918	180		37											
San Feliu de Guixols	Jan. 23	11,094	5														
Santa Cruz de Teneriffe	Jan. 16	46,000	14	1													
Do	Jan. 22	46,000	19	3													
Shanghai	Dec. 26	544,500	90	11													
Southampton	Jan. 16	124,667	38	1													
Do	Jan. 23	124,667	36	5													
Stettin	Jan. 16	250,000	97	7													
Stockholm	Jan. 9	357,460	86	13						1	2						1
Tegucigalpa	Jan. 18	24,000	10														
Do	Jan. 25	24,000	4														
Trieste	Dec. 31	216,077	70														
Do	Jan. 9	216,077	144									2		1			
Turin	Jan. 17	381,439	149	13						1				1			
Valencia	Jan. 16	250,000	95	7						1	1			1			
Do	Jan. 23	250,000	104	10						1				1			
Venice	Nov. 28	176,815	67	4										2		1	
Do	Dec. 5	176,815	84	9						1				1		1	
Do	Dec. 12	176,815	89	9										1			1
Do	Dec. 19	176,815	78	5						1				1			
Do	Dec. 26	176,815	71	8										1			
Do	Jan. 2	176,815	63	5										1			
Vevey	Jan. 9	14,000	4														
Do	Jan. 16	14,000	3														
Victoria, B. C.	Jan. 30	30,000	1														
Vigo	Jan. 16	40,000	12	1					1					1			
Do	Jan. 23	40,000	25	6													
Vienna	Jan. 9	2,042,426	694	103						2	9			7	11		4
Do	Jan. 16	2,042,426	742	96						1	8			14	16		3
Warsaw	Dec. 12	751,595	258	51				4	1	6	4			2	11		2
Do	Dec. 19	751,595	264	44				2		4	6			3	3		1
Winnipeg	Jan. 30	118,000	41														
Yokohama	Jan. 11	378,884								2				1			
Zurich	Jan. 23	180,000	43	5										1			

By authority of the Secretary of the Treasury:

WALTER WYMAN,

Surgeon-General,

United States Public Health and Marine-Hospital Service.