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## FUMIGATION DEATHS AS COMPARED WITH DEATHS FROM OTHER POISONOUS GASES

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In view of the great stress customarily laid upon the possible hazard incident to fumigation with poisonous gases, a national news clipping survey covering a period of 6 months was carried out with a view to establishing a basis for comparison between the number of deaths due to fumigation and those caused by the inhalation of other lethal gases.

The type of fumigation referred to is not that carried out in homes after communicable disease, since the number of such fumigations has in the past several years diminished until the practice at the present time is practically of negligible moment; but it relates most particularly to the practice of fumigation of railway cars, vessels, warehouses, grain elevators, private dwellings, etc., performed for the purpose of destroying disease-carrying rodents and insect pests.

The relationship determined as a result of this study shows a markedly low percentage of deaths due to fumigant gases.

Practically all fumigation accidents are the result of negligence or ignorance; and so adequate legislation by all cities and the proper enforcement of such legislation, providing for the handling of fumigants and the performance of fumigations by none but thoroughly-trained operators, would tend to reduce the present small number of fumigation deaths. The following recent cases are cited to illustrate the causes of most fumigation accidents:

1. During the fumigation of a schooner, the man who was killed evidently broke open the sealed door on the galley and walked directly into the gas. No guard had been set to prevent persons from entering, entire reliance being placed on a warning.

2. The case of a child reported having been killed while asleep, following fumigation of the apartment, was due to insufficient airing of the quarters prior to reoccupancy. Some of the gas was, in consequence, retained in the mattresses and other bedding and subsequently released in sufficient quantity to cause the death of the most intimately exposed member of the family, that is, the child. The fumigator presumably was unaware of the dangers from gas absorbed in bedding.

3. During the fumigation of a flour mill, the employee who handled the fumigant descended into a closed bin to spread it around. This death was undoubtedly due to the victim's ignorance of the extremely rapid action of the gas employed.

4. The apparent neglect on the part of the fumigators to guard a rear entrance of the dwelling that they were fumigating brought about the death of the innocent victim involved, who, ignorant of the fumigation, unlocked the rear door with a pass-key and walked into the gas.

During the 6-month survey, the number of deaths reported in the press clippings reviewed which occurred from fumigant gases in the United States totaled 6, while deaths resulting from the inhalation of other poisonous gases numbered for the same period 382.

According to information obtained from available sources, it is estimated that the number of building, railway, and ship fumigations performed in the United States during 1933 was approximately 74,000. Of this number, about 60,000 were fumigations of domestic dwellings, 5,000 industrial fumigations, 7,000 railway cars, and 2,000 ships. In addition to these, there are performed yearly a large number of horticultural fumigations, for which it is difficult to arrive at a definite estimate owing to the fact that these fumigations are figured in "acres of glass." There are about 15,000 greenhouse companies in the United States, many of which own long ranges of greenhouses. Greenhouses fumigate at least once every month during the growing season, and mushroom houses several times during the year. The year 1933 having been a subnormal year, the estimates cited above may be considered conservative. From these figures it would appear that the deaths average about 1 to every 6,000 fumigations.

The census reports for 1932 (the latest figures presently available) list 1,988 accidental deaths from poisonous gases in the registration area, including a population of 119,658,000. Assuming that the survey ratio of deaths from fumigations to total deaths from poisonous gases obtained in this population, there would have been 31 deaths from fumigation—a much higher figure than indicated in this study. It is felt, however, that this ratio is not applicable; for, while newspapers may fail to publish accounts of many deaths certified by attending physicians as due to poisonous gases, it is believed that it is very rare that deaths of this nature due to fumigations fail to get extensive mention in the press. Nearly all of those of which clippings were received, were featured.

The accompanying table gives a summary of deaths from poisonous gases in the United States reported in the newspapers during the period from October 1, 1933, to March 31, 1934:

Type of gas	Number of deaths	Number overcome	Type of gas	Number of deaths	Number overcome
Auto exhaust.....	230	11	Illuminating gas.....	27	17
Auto exhaust while driving.....	3	2	Chemical fires.....	8	2
Coal gas.....	49	66	Miscellaneous.....	23	15
Gas and oil heaters.....	42	35	Fumigants.....	6	4

### THE DEADLY AUTO EXHAUST

It will be noted that the deaths from auto exhaust gas, carbon monoxide, average over one a day, a number far out of proportion to deaths from other accidents. Especially during the winter months is the large number of fatalities from this gas predominant; the advent of the winter season each year invariably brings in its wake, in every State in the country, a large increase in the toll of deaths from the insidious carbon monoxide gas that is generated by the exhaust of automobiles, and not enough stress can, therefore, be laid on this prevalent danger. In cold weather it is an all too common occurrence for motorists, in closed garages, to keep the engine running in order to "warm it up", or to work on the car with the engine running in a closed or improperly ventilated garage. Even some veteran motorists and mechanics have become victims. Because it overcomes its victims rapidly with sudden and unexpected weakness, leaving them at once in a state that renders them incapable of calling for aid, the gas is particularly treacherous. Automobile exhaust gas contains sufficient carbon monoxide to render the atmosphere of a small private garage deadly within a very few minutes if the garage doors are closed while the engine is running.

### CONTROL BY LAW

To legislate effectively against the automobile exhaust in situations above described is obviously absurd and manifestly impossible; the control of this hazard is eminently a field for an educational campaign. Fumigation, however, is within the proper scope of local legislative control. Notwithstanding the relatively small numbers of fatalities at present occurring from this cause, nevertheless in view of the trend toward increased use of lethal gases for domestic purposes, the adoption of reasonable legislation for the control of the practice is believed advisable; but at present it is apparently not a matter justifying emergency or ill-considered enactments.

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### LIFE SPAN OF FLEAS WITHOUT A HOST UNDER NORMAL ATMOSPHERIC CONDITIONS OCCURRING IN MANILA

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An effort was made to determine the life span of fleas without a host under the natural atmospheric temperatures and humidity obtaining in Manila.

A considerable amount of work had already been done on this subject by others, but most of it dealt with fleas living under decidedly different conditions of temperature and humidity from those obtaining

either in Manila or Calcutta or in the seas lying between, where there is only a minor temperature range, as will be seen from the accompanying tables.

The present investigation had its inception in the fact that on two different occasions the Japanese sanitary authorities had reported the occurrence of plague in or near one of their ports, Osaka, and believed that they were able to rule out the presence of infected rodent hosts. They maintained that, on both occasions, plague had been introduced through the agency of free living fleas present on bales of cotton shipped from India. While there was some doubt as to whether this was actually the case, it was considered that this method for the transmission of plague was a possibility; and as certain types of cargo of a somewhat similar nature were frequently shipped from Indian ports to the Philippines, the experiments outlined here were carried out in an effort to determine whether or not such cargo might constitute a menace to the Islands unless it was treated for the destruction of fleas prior to being discharged.

As most of the cargo of this type arrived on vessels which had been ratproofed, for practical purposes it was necessary to consider only the possible transmission of plague by free living fleas. The problem was furthermore simplified by the fact that the time consumed by the voyage from the nearest Indian port was never less than 12 days, so that the actual problem presented was to determine whether cargo shipped from one or another Indian port might harbor fleas which had been infected with plague in India and which still remained viable on arrival in a Philippine port, and whether such fleas might infect a rodent host after this period of time had elapsed. It was known that the plague bacillus would live much longer than this under certain conditions, but it was by no means certain that infected fleas could live without a host for this period of time under the comparatively high temperatures and humidity which are normal during practically the entire year for this district.

William Nicoll,<sup>1</sup> states that he and his assistants conducted certain experiments on the longevity of fleas, in which a total of 638 fleas were used. Of this number, 463 fleas were used in determining the life span at ordinary room temperatures, which during the daytime in summer varied from 15° to 23° C. and in winter from 10° to 17° C. No mention is made of the saturation deficiency of the air under which the fleas were kept, although in some of the experiments moisture was added. The effect of light, shade, and darkness on the life span was also investigated.

He concludes that—

“1. The average length of life of *Ceratophyllus fasciatus* apart from its host under general conditions is just under 7 days, but about 9

<sup>1</sup> British Medical Journal, vol. 2 (Oct. 12, 1912), pp. 926-928.

percent live for a fortnight and at least 2 percent for 3 weeks or over (of the 505 fleas 46 lived at least 14 days and 10 at least 21 days).

"2. Other things being equal, they live longer in winter than in summer; that is, longer at low temperatures than at high. Under ordinary circumstances, when the temperature is over 15° C. for any considerable part of the time, it would be exceptional for them to live, without feeding, for more than 40 days, but from experiments \* \* \* it is evident that in winter, when the temperature remains continuously under 10° C. (50° F.), they may remain alive for as long as 2 months, and if the temperature is maintained continuously at freezing point this period may be extended over 10 weeks.

"3. Above 25° C., the length of life is greatly curtailed, and at 37° C., it is always less than 24 hours, though in some cases more than 12 hours.

"4. Both excess of dryness and excess of moisture curtail the length of life.

"5. Conditions of light do not appear to have any great influence, but in these experiments the fleas exposed to bright daylight lived on an average slightly longer than those kept in darkness or in the shade; the average figures being, respectively, 6.9, 6.6, and 5.8 days."

Fox and Sullivan quote Bacot as follows: <sup>2</sup>

"Bacot further states that at 45° F. [7.2° C.] to 50° F. [10° C.], with nearly saturated air, fleas can live for many days unfed—*Pulex irritans* for 125 days, *Ceratophyllus fasciatus* for 95 days, *Xenopsylla cheopis* for 35 days, *Ctenocephalus canis* for 58 days, and *Ceratophyllus gallinae* for 127 days. \* \* \* Allowing for the longest recorded time that an unfed adult flea lives, there is no difficulty in accounting for active adult fleas being found, under favorable situations, where there have been no hosts for considerable periods—*Ceratophyllus fasciatus* for 22 months, *Pulex irritans* for 19 months, *Xenopsylla cheopis* for 10 months, *Ctenocephalus canis* for 18 months, and *Ceratophyllus gallinae* for 12 months."

Bacot and Martin, <sup>3</sup> have reported on "The respective influences of temperature and moisture upon the survival of the rat flea (*Xenopsylla cheopis*) away from its host."

(A) The following statements are taken from the section of their paper entitled "The influence of varying saturation deficiency on the longevity of fleas, temperature being constant."

A mixed population of fleas, *X. cheopis*, was used, 100 fleas for each experiment. The temperature was kept at 32° C. (89.6° F.) and air current through bottle at 100 cc per minute. From table 2 of the article referred to it is noted that—

1. At temperature 32° C., with relative humidity of 89 percent and saturation deficiency of 4 mm, out of the 100 fleas 50 were dead at the end of 6½ days, 90 were dead at the end of 8½ days. All dead at the end of 11 days.

2. At a temperature of 32° C., with relative humidity of 72 percent and saturation deficiency of 10 mm, out of the 100 fleas about 50

<sup>2</sup> Public Health Reports, Sept. 11, 1925, p. 1913.

<sup>3</sup> Journal of Hygiene, vol. 23 (1924-25), p. 102 et. seq.

were dead at the end of 3 days, and all were dead at the end of 7½ days.

3. At a temperature of 32° C., with a relative humidity of 55 per cent and saturation deficiency of 16 mm, 50 were dead at the end of 2 days, and all were dead at the end of 5 days.

4. At a temperature of 32° C., with a relative humidity of 27 per cent and saturation deficiency of 26 mm, 50 were dead in a little over 24 hours, and all were dead at the end of 3 days.

(B) In the section of the paper under the subheading "The influence of temperature on the longevity of fleas when the saturation deficiency is kept constant", the authors report that two experiments were performed in this determination, 100 fleas being used in each experiment. The statements show that—

1. In one experiment in which 100 fleas were kept at a temperature of 32° C., with a saturation deficiency of 10 mm, 50 were dead in a little over 3 days, and all were dead in 7½ days.

2. In the other experiment, in which 100 fleas were kept at a temperature of 21° C., with a saturation deficiency of 10 mm, 50 were dead in a little over 4½ days, and all were dead in 10 days.

The author concludes:

"(1) The survival of fleas (*X. cheopis*) apart from their host is approximately in inverse proportion to the saturation deficiency of the air, provided that the temperature and air movement are constant. In other words, it is proportional to the rate at which they lose water.

"(2) Under similar conditions but with constant saturation deficiency, their length of life is reduced to between one half and two thirds by 10° C. rise in temperature \* \* \*"

In the Report on Plague Investigation in India, issued by the advisory committee,<sup>4</sup> it is stated that a number of experiments were performed in order to obtain information on how long *X. cheopis* could survive without food in different circumstances. In one series of experiments, 150 fleas were added to each of the following-named materials and the time when all, or nearly all, of the fleas were dead was noted. They were kept without a host. The following table is taken from the report (table 2):

Serial number of the experiment	Material in which the fleas were placed	Number of days the fleas survived
1.....	Bran.....	All dead in 6 days.
2.....	do.....	Do.
3.....	Bran with moisture.....	All dead in 7 days.
4.....	Cotton rags.....	All dead in 6 days.
5.....	Gunny bags or sacking.....	Do.
6.....	Rice and pulse.....	Do.
7.....	Sand with moist cow dung in one portion of the box.....	15 alive on sixth day.
8.....	do.....	3 alive on eighth day.
9.....	do.....	All dead on eleventh day.
10.....	do.....	All dead on fourteenth day.
11.....	do.....	4 alive on eleventh day.
12.....	do.....	1 alive on thirteenth day.

<sup>4</sup> Journal of Hygiene, vol. 8 (May 1908), p. 237 et seq.

No mention is made of the conditions—that is, temperature and humidity—under which these experiments were performed. The report further states: <sup>5</sup>

“From what has been said above it will be apparent that merchandise and grain, which has been visited by rats, may have fleas deposited on them and these fleas may be transferred with these articles to distant places. It is necessary to qualify this statement by pointing out that adult fleas, in the absence of any host to feed on, rapidly die, generally in about 5 days. However, larvae, since they can feed upon almost any kind of organic rubbish, and pupae, which require no food, could be carried considerable distances in merchandise, i.e. for periods as long as 1 or 2 months. The larvae and pupae so carried would in course of time develop into adult insects, other circumstances being favorable, but would then require a host to feed upon. In the absence of a suitable host they would perish within a fortnight of the time of their development into the adult or imago state.’

Most of the fleas used in our experiments were obtained from wild rats, trapped and furnished by the Philippine Health Service. In all, 133 rats were used, from which 287 fleas were removed and placed under observation. Forty-three additional rat fleas were used and also 179 which were obtained from dogs.

In the beginning of the work the fleas were obtained from the rats killed by a blow on the head. The rats were first combed and then placed in a container for a period of 24 hours in order to obtain any fleas missed by combing. By this method very active fleas were obtained. The method used later was to anaesthetize both rats and fleas by the use of chloroform; then, on combing the rats, the anaesthetized fleas were more easily combed out and usually became active within a few minutes. Only those fleas which recovered within 5 minutes were used. The 179 fleas obtained from dogs were picked off by hand without the use of an anaesthetic.

Of the 520 fleas used, 486 were classified as follows: 73 *Xenopsylla cheopis*, 123 *Xenopsylla astia*, 90 *Ctenocephalus felis*, and 100 *Ctenocephalus canis*. Thirty-four fleas were not identified.

In carrying out these observations most of the fleas were kept under normal Manila atmospheric conditions, with a piece of dry gunny cloth in each container. A small number were kept in closed containers in which the humidity was raised (possibly close to 100 percent) by placing either wet gunny cloth or cotton in the bottom.

From table 10 it will be seen that the life span of fleas kept under conditions of normal atmospheric temperatures and humidity varied but little from month to month. The average varied from 2.3 days in the month of November to 1 day during April and May. The longest period of survival in this group was 5 days.

In those experiments in which the humidity in the containers was raised (performed during the months of August, September, and

October only), it will be noted (table 10) that the average period of survival was 3.7 days for the months of August and September and 4.5 days for October. The longest period of survival for this group was 12 days.

Dr. Manalang, of the Philippine Health Service, assisted in this work to the extent of observing longevity on 34 fleas during the months of August and September. His results tallied very closely with ours.

Arrangements were made with the agents of a steamship company having vessels plying between Calcutta and Manila to have the masters of these vessels furnish us a record of the maximum and minimum daily temperatures of one hold and on the bridge during several trips. We also requested that the percentage of relative humidity in the same places on shipboard be furnished. Tables 11, 12, 13, 14, and 15 give the figures for the months of December, January, February, March, and May. Although the time during the day when temperatures and humidities were taken in some cases did not give the maximum and minimum, they did give an approximation sufficient for all practical purposes in this investigation. On comparing these averages with the average monthly temperature and relative humidity in Manila, as shown in tables 1, 2, 3, 4, 5, 6, 7, 8, and 9, it will be seen that these are within the range of conditions at Manila and probably comparable in their effect on the life span of fleas. This being the case, it may, therefore, be assumed that any fleas present on cargo shipped from Calcutta to Manila would probably have about the same period of survival as those at Manila, provided that no rodent hosts were present upon which the fleas could feed.

It was concluded, therefore, that, under the usual atmospheric conditions and without a host, the life span of fleas would probably not ordinarily be more than 5 days. However, on voyages during which considerable rain was encountered, extending throughout the voyage, thereby raising the percentage of relative humidity within the holds, the life span of some fleas might be extended to longer periods (possibly 12 days). This would come within 1 day of the time that some vessels require to make the trip from the nearest of the Indian ports to Manila. Such voyages would, for the immediate present, probably be rare. It is, therefore, considered that the possibility of plague-infected fleas arriving at Manila from India is very slight, although it may exist.



The following tables present the detailed data of the observations.

TABLE 1.—Longevity of fleas, in days, August and September, 1932

Average maximum monthly temperature..... 32.5° C. (90.5° F.)  
 Average minimum monthly temperature..... 23.9° C. (75.0° F.)  
 Average relative humidity..... 84.7 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks	
			1 day	2 days	3 days	4 days	5 days	6 days	7 days		
Aug. 29	1	2		1	1						Fleas kept in large empty can.
Do.	2	4		3		1					Do.
Do.	1	0									
Sept. 1	1	0									
Do.	1	3		1		2					Do.
Sept. 3	1	0									
Do.	1	1	1								Fleas from now on kept in glass jars.
Sept. 5	1	0									
Sept. 6	1	0									
Sept. 8	1	2	1	1							Piece of gummy material in jar.
Sept. 10	2	0									
Sept. 12	2	0									
Sept. 15	2	1		1							Dry gummy material in jar.
Sept. 18	1	2	2								Wet gummy material in jar.
Sept. 19	2	2	2								Do.
Sept. 24	3	8	1			3	1	3			Wet gummy at top of jar, dry gummy at bottom. Jar covered.
			3	1	2	1					Dry gummy material in jar.
Sept. 25	1	7	1			1					Do.
Sept. 26	1	0									
Sept. 28	1	2		1		1					Wet gummy material in jar.
Sept. 29	1	1					1				Dry gummy material in jar.
Total	27	37	11	9	3	9	2	3			

TABLE 2.—Longevity of fleas during the period Aug. 5–Oct. 3, 1932, according to Dr. Manalang

Average maximum monthly temperature..... 32.5° C. (90.5° F.)  
 Average minimum monthly temperature..... 23.9° C. (75.0° F.)  
 Average relative humidity..... 84.7 percent

Date	Number of fleas	Number of fleas surviving—										Remarks	
		1 day	2 days	3 days	4 days	5 days	6 days	7 days	8 days	9 days	10 days		
Aug. 5	6	4		2									Normal atmospheric conditions.
Aug. 6	11	3	8										Do.
Do.	1	1	1										Do.
Aug. 10	2	1										1	Cotton in bottle saturated with water.
Do.	3		1				2						Do.
Do.	1								1				Do.
Aug. 31	1									1			Do.
Sept. 26	4				2	2							Do.
Do.	3		2	1									Do.
Oct. 3	2		1	1									Do.
Total	34	8	13	4	2	2	2		1	1	1		

TABLE 3.—Longevity of fleas, in days, during October, 1932

Average maximum monthly temperature..... 31.4°C. (88.3°F.)  
 Average minimum monthly temperature..... 24.0°C. (75.2°F.)  
 Average relative humidity..... 83.4 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Oct. 2.....	3	2			2					With dry piece of gunny.
Do.....	2	0								
Oct. 3.....	2	0								Do. With dry piece of gunny at bottom, wet piece of gunny at top. Jar closed.
Oct. 7.....	1	2	1	1						
Do.....	3	19		3	2	1	1			
Oct. 9.....	1	0								With dry gunny material. Do. Do. Do. Do. Do. Do.
Oct. 12.....	1	0								
Oct. 13.....	2	0								
Do.....	2	4	1	1		2				
Oct. 15.....	1	1		1						
Oct. 17.....	1	3		3						
Do.....	1	2		2						
Oct. 21.....	1	1	1							
Oct. 27.....	2	0								
Oct. 30.....	2	3	2	1						
Do.....	2	0								
Total.....	27	27	5	12	4	3	1			

1 flea died at end of eighth day, 1 at end of twelfth day.

TABLE 4.—Longevity of fleas, in days, during November, 1932

Average maximum monthly temperature..... 30.3° C. (86.0° F.)  
 Average minimum monthly temperature..... 23.1° C. (73.4° F.)  
 Average relative humidity..... 84.5 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Nov. 2.....	1	0								1 flea dead when obtained. 4 fleas dead when obtained. 3 fleas dead when obtained. 4 fleas dead when obtained. 3 fleas dead when obtained. 1 flea dead when obtained. Do. 17 additional dead fleas obtained from rats.
Nov. 4.....	2	1				1				
Nov. 6.....	2	0								
Nov. 9.....	2	0								
Nov. 10.....	1	0								
Nov. 12.....	2	16	1	5	7	2	1			
Do.....	1	10	3	3	2	1	1			
Nov. 13.....	1	5		5						
Nov. 14.....	1	4	2		1	1				
Nov. 18.....	2	1	1							
Nov. 20.....	1	1		1						
Nov. 24.....	2	0								
Nov. 24.....	2	2								
Nov. 28.....	3	11	4	7						
Total.....	21	49	11	21	10	5	2			

All fleas remained under normal atmospheric conditions in glass jars with a piece of dry gunny material in bottom of the jars.

TABLE 5.—*Longevity of fleas, in days, during December, 1932*

Average maximum monthly temperature..... 50.7° C. (87.0° F.)  
 Average minimum monthly temperature..... 22.3° C. (71.6° F.)  
 Average relative humidity..... 82.8 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Dec. 4.....	2	2	1	1						4 fleas dead when obtained.
Dec. 7.....	1	2	1		1					2 fleas dead when obtained.
Dec. 14.....	1	1		1						
Dec. 16.....	2	1		1						
Dec. 19.....	1	0								1 flea dead when obtained.
Dec. 22.....	1	0								
Total.....	8	6	2	3	1					7 additional dead fleas obtained from rats.

All fleas remained under normal atmospheric conditions in glass jars with a piece of dry gunny material in bottom of jars.

TABLE 6.—*Longevity of fleas, in days, during January, 1933*

Average maximum monthly temperature..... 29.5° C. (85.1° F.)  
 Average minimum monthly temperature..... 19.2° C. (66.2° F.)  
 Average relative humidity..... 74 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Jan. 5.....	4	1		1						
Jan. 14.....	6	4	2		2					1 flea dead when obtained.
Jan. 23.....	1	2			2					8 fleas dead when obtained.
Jan. 27.....	2	0								
Jan. 30.....	2	2		2						
Total.....	15	9	2	3	4					9 additional dead fleas obtained from rats

All fleas remained under normal atmospheric conditions in glass jars with a piece of dry gunny material in bottom of jars.

TABLE 7.—*Longevity of fleas, in days, during February, 1933*

Average maximum monthly temperature..... 30.6° C. (87.0° F.)  
 Average minimum monthly temperature..... 20.1° C. (68.0° F.)  
 Average relative humidity..... 71.3 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Feb. 11.....	2	3	2	1						
Feb. 12.....	2	22	10	10	2					2 fleas dead when obtained.
Feb. 17.....	6	10	5	4	1					3 fleas dead when obtained.
Feb. 25.....	1	3	2	1						
Feb. 27.....	1	0								
Feb. 29.....	5	0								
Total.....	17	38	19	16	3					5 additional dead fleas obtained from rats.

All fleas remained under normal atmospheric conditions in glass jars with a piece of dry gunny material in bottom of jars.

TABLE 8.—*Longevity of fleas, in days, during March, 1933*

Average maximum monthly temperature..... 31.4° C. (88.5° F.)  
 Average minimum monthly temperature..... 21.5° C. (70.7° F.)  
 Average relative humidity..... 70.6 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Mar. 4.....	6	23	9	7	5			2		5 fleas dead when obtained.
Mar. 11.....	5	20	8	8	4					4 dead fleas when obtained.
Mar. 25.....	3	11	9	2						5 fleas dead when obtained.
Total.....	14	54	26	17	9			2		14 fleas more were obtained from rats.

All fleas remained under normal atmospheric conditions in glass jars with a piece of dry gunny material in bottom of jars.

TABLE 9.—*Longevity of fleas, in days, during April and May, 1933*

Maximum temperature..... 33.4° C. (92.1° F.)  
 Minimum temperature..... 22.4° C. (72.3° F.)  
 Average relative humidity..... 70.5 percent

Date	Number of rats	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Apr. 15.....	4	35	25	.10						

Maximum temperature..... 35.2° C. (95.4° F.)  
 Minimum temperature..... 24.4° C. (75.9° F.)  
 Average relative humidity..... 66.5 percent

Date	Number of dogs	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
Apr. 22.....	2	170	170							

Maximum temperature..... 36.1° C. (96.8° F.)  
 Minimum temperature..... 24.5° C. (76.0° F.)  
 Average relative humidity..... 60.4 percent

Date	Number of dogs	Number of fleas	Number of fleas surviving—							Remarks
			1 day	2 days	3 days	4 days	5 days	6 days	7 days	
May 9.....	1	9	9							

All fleas remained under normal atmospheric conditions in glass jars with a piece of dry gunny material in bottom of jars.

TABLE 10.—*Monthly summary of number of fleas used and the average length of life*

[Fleas kept under normal atmospheric conditions]

Month	Number of fleas	Average longevity in days	Average maximum and minimum temperature		Average relative humidity
			° F.	° F.	
August and September	39	2.2	90.5	75.0	84.7
October	18	2.0	88.3	75.2	83.4
November	49	2.3	86.0	73.4	84.5
December	6	1.8	87.0	71.6	82.8
January	9	2.2	85.1	66.2	74.0
February	38	1.7	87.0	68.0	71.3
March	54	1.8	88.5	70.7	70.0
April	205	1.0	93.7	74.1	68.5
May	9	1.0	96.8	76.0	60.4

FLEAS KEPT UNDER NORMAL ATMOSPHERIC TEMPERATURE WITH RELATIVE HUMIDITY RAISED TO BETWEEN 95 AND 100 PERCENT

August and September	32	2.7	90.5	75.0	-----
October	9	4.5	88.3	75.2	-----

TABLE 11.—*Temperatures and humidities during the voyage from Calcutta to Manila, Dec. 9-22, 1932*

Date	At bridge				In hold no. 1			
	8 a.m.		8 p.m.		8 a.m.		8 p.m.	
	Temperature	Relative humidity	Temperature	Relative humidity	Temperature	Relative humidity	Temperature	Relative humidity
	° F.	Percent	° F.	Percent	° F.	Percent	° F.	Percent
Dec. 9	74	70	80	72	78	72	80	72
Dec. 10	81	72	81	75	80	79	85	80
Dec. 11	78	85	82	83	81	77	84	77
Dec. 12	81	82	83	80	83	77	85	80
Dec. 13	82	77	80	79	84	73	86	73
Dec. 14	77	83	80	79	85	82	83	79
Dec. 15	84	72	79	82	87	79	85	77
Dec. 16	79	85	79	81	83	89	86	84
Dec. 17	77	87	78	92	86	85	86	85
Dec. 18	79	91	76	87	82	87	83	84
Dec. 19	79	87	79	92	84	84	84	85
Dec. 20	81	83	79	87	81	87	84	85
Dec. 21	82	70	81	75	85	76	83	73
Dec. 22	82	64	-----	-----	82	72	-----	-----
Averages for trip	80.4	79.2	79.7	81.8	82.3	78.6	84.1	81.7

TABLE 12.—Temperatures and humidities during the voyage from Calcutta to Manila, Jan. 9–23, 1932, in holds nos. 1 and 4

Date	Hold no. 1				Hold no. 4			
	5 p.m.		8 a.m.		5 p.m.		8 a.m.	
	Temper- ature	Rela- tive hu- midity	Temper- ature	Rela- tive hu- midity	Temper- ature	Rela- tive hu- midity	Temper- ature	Rela- tive hu- midity
	° F.	Percent	° F.	Percent	° F.	Percent	° F.	Percent
Jan. 9.....	78.8	62	89.6	51	75.2	70	78.8	73
Jan. 10.....	82.4	58	89.6	53	81.5	75	77	74
Jan. 11.....	80.6	70	87.8	57	77	75	77.5	75
Jan. 12.....	81.5	80	91.5	59	83.3	80	82.4	75
Jan. 13.....	87.8	58	91.5	55	78.8	75	81.5	71
Jan. 14.....	87.8	67	90.5	58.5	80.6	75	80.6	75.2
Jan. 19 <sup>1</sup> .....			93.2	87			86	75
Jan. 20.....	95	84	96.6	86	87.8	76	86	77
Jan. 21.....	91.5	86	93.2	87	86	77	86	76
Jan. 22.....	86	87.5	82.4	90	87.8	79	84	75
Jan. 23.....	82.4	90	82.4	91	82.4	80	85	76
Averages for trip.....	85.3	74.2	90	70	82	76.2	82.2	74.7

<sup>1</sup> Jan. 15, 16, 17, and 18, vessel loading at Singapore. all hatches open.

TABLE 13.—Temperatures and humidities during the voyage from Calcutta to Manila, Feb. 8–22, 1932

Date	Outside				In hold			
	2 a.m.		2 p.m.		2 a.m.		2 p.m.	
	Temper- ature	Rela- tive hu- midity	Temper- ature	Rela- tive hu- midity	Temper- ature	Rela- tive hu- midity	Temper- ature	Rela- tive hu- midity
	° F.	Percent	° F.	Percent	° F.	Percent	° F.	Percent
Feb. 8.....			78	87			79	87
Feb. 9.....	76	91	81	84	73	95	82	84
Feb. 10.....	77	87	82	84	79	87	82	92
Feb. 11.....	84	84	85	84	81	92	85	84
Feb. 12.....	83	84	85	84	83	84	86	81
Feb. 13.....	77	95	85	92	81	87	(1)	(1)
Feb. 14.....			86	84	(1)	(1)	(1)	(1)
Feb. 15.....			86	88	(1)	(1)	(1)	(1)
Feb. 16.....			86	88	(1)	(1)	(1)	(1)
Feb. 17.....			85	92	(1)	(1)	(1)	(1)
Feb. 18.....	80	92	81	92	82	88	84	84
Feb. 19.....	79	96	81	92	80	96	84	84
Feb. 20.....	78	91	82	88	78	91	89	88
Feb. 21.....	79	87	81	83	80	87	91	81
Feb. 22.....	78	87			80	87		
Averages for trip.....	79.1	89.4	83.1	87.3	79.7	89.4	84.6	85

<sup>1</sup> Hatches open.

TABLE 14.—*Temperatures in hold no. 1 and of outside air during the voyage from Calcutta to Manila, Mar. 8–22, 1932*

[Relative humidity not furnished]

Date	In hold no. 1		Outside air	
	Daily maximum temperature	Daily minimum temperature	Daily maximum temperature	Daily minimum temperature
	°F.	°F.	°F.	°F.
Mar. 8.....	82.6	77.6	82.0	77.0
Mar. 10.....	84.7	78.5	87.0	75.0
Mar. 11.....	86.6	78.4	85.0	75.0
Mar. 12.....	91.4	82.6	87.0	80.0
Mar. 13.....	89.6	82.2	88.0	80.0
Mar. 14.....	88.2	83.2	88.0	81.5
Mar. 15.....	88.7	81.4	86.5	80.7
Mar. 18.....	84.1	79.3	82.4	77.0
Mar. 19.....	82.0	81.0	82.5	78.5
Mar. 20.....	84.0	82.0	81.5	78.0
Mar. 21.....	82.0	79.8	81.0	78.0
Average for trip.....	85.5	80.5	84.9	78.0

TABLE 15.—*Temperatures and humidities on voyage from Calcutta to Manila, May 5–21, 1932*

[Reading taken in hatch no. 1, where the Manila cargo was stored]

Date	7 a.m.		5 p.m.	
	Temperature	Relative humidity	Temperature	Relative humidity
	°F.	Percent	°F.	Percent
May 8.....	89.6	75	93.0	63
May 9.....	87.8	78	91.4	63
May 10.....	91.4	73	91.4	60
May 11.....	86.0	74	93.0	61
May 12.....	89.6	80	91.4	68
May 13.....	87.8	78	87.8	65
May 14.....	89.6	79	87.8	62
May 15.....	89.6	75	91.4	63
May 16.....	89.6	77	91.4	69
May 17.....	82.6	79	89.6	65
May 18.....	91.4	78	95.0	65
May 19.....	91.4	79	93.0	71
May 20.....	91.4	78	93.0	71
May 21.....	89.6	79	91.4	72
Average for trip.....	89.6	77	91.4	65.5

TABLE 16.—*Classification of fleas used*

Fleas dead at the end of—	Total	Species			
		X. cheopis	X. astia	Ct. felis	Ct. canis
First day (from rats).....	101	10	78	4	3
First day (from dogs).....	179	0	0	53	96
Second day.....	95	21	66	3	1
Third day.....	34	9	25	0	0
Fourth day.....	17	5	12	0	0
Fifth day.....	7	7	0	0	0
Sixth day.....	3	1	2	0	0
Eighth day.....	1	1	0	0	0
Twelfth day.....	1	1	0	0	0

The 34 fleas the data for which are presented in table 2 were not identified.

**COURT DECISIONS ON PUBLIC HEALTH**

*Damages allowed for injury to land resulting from sewage disposal.*—(Kansas City, Mo., Court of Appeals; *McCleery v. City of Marshall*, 65 S.W.(2d) 1042; decided Dec. 4, 1933.) An action for damages was brought against the city of Marshall, the complaint being that the plaintiff's real property was injured by reason of a nuisance created by the city when it extended a sewer and discharged sewage therefrom upon adjoining premises. There was a verdict and judgment in the plaintiff's favor, which judgment was affirmed by the court of appeals. The view was taken that the nuisance created by the extension was a permanent one and that the measure of damages was the difference between the reasonable value of the land immediately before and immediately after the extension of the sewer.

*Recovery had for personal injuries caused by inhalation of sulphur dust.*—(St. Louis, Mo., Court of Appeals; *Langeneckert v. St. Louis Sulphur & Chemical Co.*, 65 S.W.(2d) 648; decided Dec. 5, 1933.) An action to recover damages for personal injuries was brought against a company engaged in pulverizing crude sulphur by one who had been employed by it. The plaintiff alleged several acts of negligence under the common law and also alleged violation of certain statutory provisions having reference to the protection of employees against occupational diseases and to the protection of employees engaged in work declared especially dangerous to their health. In the trial court there was a verdict and judgment for the plaintiff, and the court of appeals affirmed the judgment.

**DEATHS DURING WEEK ENDED MAY 26, 1934**

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

	Week ended May 26, 1934	Correspond- ing week, 1933
Data from 86 large cities of the United States:		
Total deaths.....	8, 246	7, 741
Deaths per 1,000 population, annual basis.....	11.5	10.8
Deaths under 1 year of age.....	613	579
Deaths under 1 year of age per 1,000 estimated live births.....	87	148
Deaths per 1,000 population, annual basis, first 21 weeks of year.....	12.4	11.8
Data from industrial insurance companies:		
Policies in force.....	67, 801, 274	67, 990, 952
Number of death claims.....	13, 024	12, 224
Death claims per 1,000 policies in force, annual rate.....	10.0	9.4
Death claims per 1,000 policies, first 21 weeks of year, annual rate.....	10.9	10.7

<sup>1</sup> Data for 81 cities.



# PREVALENCE OF DISEASE

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring*

## UNITED STATES

### CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 2, 1934, and June 3, 1933

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 2, 1934, and June 3, 1933*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933
<b>New England States:</b>								
Maine.....				1	6	5	1	0
New Hampshire.....					101	118	0	0
Vermont.....		1			39	62	0	0
Massachusetts.....	11	27			911	539	0	1
Rhode Island.....	5	1			26	1	0	0
Connecticut.....			1	2	183	289	0	0
<b>Middle Atlantic States:</b>								
New York.....	35	30	3	10	1,029	2,094	6	5
New Jersey.....	21	20	5	1	652	946	0	2
Pennsylvania.....	27	52			2,282	1,257	0	0
<b>East North Central States:</b>								
Ohio.....	37	47	38	94	2,309	613	0	1
Indiana.....	5	13	15	25	900	211	1	3
Illinois.....	23	34	32	10	2,260	702	14	29
Michigan.....	12	28	3	13	421	640	1	2
Wisconsin.....	4	6	21	26	1,971	330	0	1
<b>West North Central States:</b>								
Minnesota.....	6	8	1	1	218	248	1	3
Iowa <sup>1</sup> .....	6	4			312	108	1	1
Missouri.....	27	15	13	2	315	196	3	4
North Dakota.....	6	3			69	268	0	0
South Dakota.....			1		219	17	2	1
Nebraska.....	1	3			90	44	0	1
Kansas.....	4	3			486	261	0	0
<b>South Atlantic States:</b>								
Delaware.....				2	77	14	0	0
Maryland <sup>1</sup> .....	4	6	3	2	1,207	50	0	1
District of Columbia.....	10	2		1	33	19	0	1
Virginia.....	9	6			945	214	1	1
West Virginia.....	8	4	7	1	161	75	0	0
North Carolina.....	3	7	3	16	1,047	413	1	1
South Carolina.....	4	9	134	100	169	252	0	0
Georgia <sup>1</sup> .....	2	1			99		0	0
Florida.....	8	3	1	7	220	39	0	0
<b>East South Central States:</b>								
Kentucky.....	6		9	16	495	63	0	1
Tennessee.....	6	4	14	14	333	108	2	1
Alabama <sup>1</sup> .....	9	6	8	14	501	55	0	1
Mississippi <sup>1</sup> .....	2	4					0	0
<b>West South Central States:</b>								
Arkansas.....	2	3		3	19	240	0	0
Louisiana <sup>1</sup> .....	11	4	5	18	145	30	1	0
Oklahoma <sup>1</sup> .....	4	9	15	3	108	130	0	0
Texas <sup>1</sup> .....	4	30	178	47	829	412	2	2

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 2, 1934, and June 3, 1933—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933
<b>Mountain States:</b>								
Montana <sup>1</sup> .....	4	1	3	-----	25	28	1	0
Idaho <sup>1</sup> .....	2	-----	-----	-----	11	43	0	0
Wyoming <sup>1</sup> .....	1	-----	-----	-----	146	13	0	0
Colorado.....	5	-----	-----	23	2, 112	16	0	0
New Mexico.....	4	9	-----	9	62	15	0	0
Arizona.....	4	2	9	2	12	111	0	0
Utah <sup>1</sup> .....	-----	-----	2	3	31	48	0	0
<b>Pacific States:</b>								
Washington.....	-----	4	-----	-----	192	57	0	0
Oregon <sup>1</sup> .....	1	1	9	17	42	47	0	1
California.....	25	38	18	29	448	1, 128	2	0
<b>Total.....</b>	<b>368</b>	<b>448</b>	<b>552</b>	<b>512</b>	<b>24, 296</b>	<b>12, 570</b>	<b>40</b>	<b>64</b>
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933
<b>New England States:</b>								
Maine.....	0	0	9	18	0	0	6	1
New Hampshire.....	0	0	6	8	0	0	6	0
Vermont.....	0	0	19	7	0	0	0	0
Massachusetts.....	0	0	230	253	0	0	3	7
Rhode Island.....	0	0	21	28	0	0	1	0
Connecticut.....	0	0	41	54	0	0	0	3
<b>Middle Atlantic States:</b>								
New York.....	1	2	645	478	0	0	7	4
New Jersey.....	0	1	133	162	0	0	3	4
Pennsylvania.....	1	0	397	669	0	0	11	10
<b>East North Central States:</b>								
Ohio.....	1	0	892	1, 039	0	7	13	24
Indiana.....	0	1	71	64	2	0	8	9
Illinois.....	1	1	522	375	4	2	6	6
Michigan.....	0	1	478	349	1	0	4	4
Wisconsin.....	0	1	268	97	19	0	1	3
<b>West North Central States:</b>								
Minnesota.....	0	1	73	81	3	1	2	0
Iowa <sup>1</sup> .....	1	0	36	17	1	14	2	1
Missouri.....	1	0	53	51	1	4	8	2
North Dakota.....	0	0	41	3	0	2	1	2
South Dakota.....	1	0	4	2	1	0	0	2
Nebraska.....	0	0	14	5	5	1	0	3
Kansas.....	1	0	27	31	1	2	2	1
<b>South Atlantic States:</b>								
Delaware.....	0	0	2	7	0	0	0	0
Maryland <sup>1</sup> .....	0	0	43	81	0	0	8	2
District of Columbia.....	0	0	7	10	0	0	1	0
Virginia.....	0	0	18	39	0	0	7	11
West Virginia.....	1	0	47	20	0	1	11	4
North Carolina.....	1	0	11	34	0	0	4	18
South Carolina.....	0	0	1	1	0	0	6	30
Georgia <sup>1</sup> .....	0	0	2	2	0	0	14	21
Florida.....	0	0	-----	0	0	0	3	2
<b>East South Central States:</b>								
Kentucky.....	0	3	27	27	0	1	14	12
Tennessee.....	0	1	19	23	2	1	8	11
Alabama <sup>1</sup> .....	0	1	5	3	0	1	5	18
Mississippi <sup>1</sup> .....	0	0	2	6	1	1	5	4
<b>West South Central States:</b>								
Arkansas.....	0	0	3	1	2	0	3	7
Louisiana <sup>1</sup> .....	2	0	7	2	0	2	10	9
Oklahoma <sup>1</sup> .....	2	0	7	6	2	0	5	2
Texas <sup>1</sup> .....	0	1	36	38	33	12	28	18

See footnotes at bottom of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 2, 1934, and June 3, 1933—Continued

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933	Week ended June 2, 1934	Week ended June 3, 1933
<b>Mountain States:</b>								
Montana <sup>1</sup> .....	0	0	8	6	0	0	2	3
Idaho <sup>2</sup> .....	0	0	1	6	1	2	0	0
Wyoming <sup>3</sup> .....	0	0	17	16	0	1	0	0
Colorado.....	0	0	22	29	2	0	0	0
New Mexico.....	0	0	6	5	0	0	2	3
Arizona.....	0	0	4	11	0	0	4	0
Utah <sup>4</sup> .....	0	0	6	7	1	0	0	0
<b>Pacific States:</b>								
Washington.....	1	0	60	40	1	1	3	0
Oregon <sup>5</sup> .....	1	0	40	25	2	12	0	4
California.....	163	0	107	132	1	23	3	5
<b>Total.....</b>	<b>179</b>	<b>14</b>	<b>4,488</b>	<b>4,368</b>	<b>86</b>	<b>96</b>	<b>228</b>	<b>270</b>

<sup>1</sup> New York City only.

<sup>2</sup> Week ended earlier than Saturday.

<sup>3</sup> Typhus fever, week ended June 2, 1934, 10 cases, as follows: Georgia, 3; Alabama, 2; Louisiana, 1; Texas, 4.

<sup>4</sup> Exclusive of Oklahoma City and Tulsa.

<sup>5</sup> Rocky Mountain spotted fever, week ended June 2, 1934, 14 cases, as follows: Montana, 5; Idaho, 3; Wyoming, 4; Utah, 1; Oregon, 1.

### SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Malaria	Measles	Pellagra	Pollio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>March 1934</i>										
Colorado.....	1	24			1,421		0	151	33	2
<i>April 1934</i>										
Colorado.....	6	16	4		1,363		0	103	5	2
Iowa.....	9	39	31		976		0	243	26	0
Mississippi.....	3	31	2,028	3,702	8,558	362		17	3	14
New Hampshire.....							1	35	0	
Puerto Rico.....		53	62	2,112	124		0		0	39

<i>March 1934</i>		<i>April 1934—Continued</i>		<i>April 1934—Continued</i>	
Cases		Cases		Cases	
Colorado:		German measles:		Septic sore throat:	
Chicken pox.....	574	Iowa.....	2,247	Iowa.....	1
Impetigo contagiosa.....	17	Hookworm disease:		Tetanus:	
Mumps.....	571	Mississippi.....	256	Puerto Rico.....	19
Septic sore throat.....	2	Impetigo contagiosa:		Tetanus, infantile:	
Undulant fever.....	1	Colorado.....	26	Puerto Rico.....	11
Vincent's infection.....	1	Iowa.....	2	Trachoma:	
Whooping cough.....	712	Leprosy:		Mississippi.....	1
		Puerto Rico.....	1	Puerto Rico.....	65
<i>April 1934</i>		Lethargic encephalitis:		Trichinosis:	
Chicken pox:		Iowa.....	1	Iowa.....	3
Colorado.....	452	Mumps:		Tularaemia:	
Iowa.....	245	Colorado.....	666	Mississippi.....	2
Mississippi.....	606	Iowa.....	313	Undulant fever:	
Puerto Rico.....	173	Mississippi.....	826	Colorado.....	1
Conjunctivitis:		Puerto Rico.....	34	Iowa.....	8
Iowa.....	6	Ophthalmia neonatorum:		Vincent's infection:	
Dengue:		Puerto Rico.....	5	Colorado.....	90
Mississippi.....	2	Puerperal septicemia:		Iowa.....	4
Dysentery:		Mississippi.....	11	Whooping cough:	
Colorado.....	1	Puerto Rico.....	10	Colorado.....	579
Mississippi (amoebic).....	44	Rabies in animals:		Iowa.....	267
Puerto Rico.....	44	Mississippi.....	1	Mississippi.....	2,315
Filaria:				Puerto Rico.....	253
Puerto Rico.....	3				

**PLAGUE-INFECTED GROUND SQUIRRELS IN TULARE COUNTY, CALIF.**

The Director of Public Health of California has reported that on May 22, 1934, three ground squirrels from Tulare County, in the interior of California, were found to be plague infected.

**WEEKLY REPORTS FROM CITIES**

*City reports for week ended May 26, 1934*

[This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.]

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
<b>Maine:</b>											
Portland	0		0	0	1	10	0	0	1	7	19
<b>New Hampshire:</b>											
Concord	0		0	6	2	1	0	0	0	3	17
Nashua	0			29		0	0	0	0	0	
<b>Vermont:</b>											
Barre											
Burlington	0		0	4	0	2	0	0	0	0	10
<b>Massachusetts:</b>											
Boston	4		1	179	29	53	0	14	2	47	232
Fall River	2		0	2	0	3	0	3	0	3	25
Springfield	0		0	0	0	1	0	0	0	14	25
Worcester	0		0	1	6	16	0	1	0	31	49
<b>Rhode Island:</b>											
Pawtucket	0		0	3	0	1	0	0	0	0	21
Providence	2		0	4	3	14	0	1	0	19	74
<b>Connecticut:</b>											
Bridgeport	0		0	0	0	17	0	1	0	1	34
Hartford	0		0	7	0	12	0	4	0	1	26
New Haven	0		0	1	4	1	0	0	0	9	32
<b>New York:</b>											
Buffalo	0		0	50	26	23	0	10	0	22	166
New York	36	19	9	323	150	306	0	95	2	147	1,541
Rochester											
Syracuse	0		0	34	1	13	0	0	0	49	51
<b>New Jersey:</b>											
Camden	0	1	0	8	2	7	0	1	0	4	36
Newark	0	4	0	52	6	19	0	6	0	53	105
Tranton	1		1	51	0	14	0	4	0	0	36
<b>Pennsylvania:</b>											
Philadelphia	8	3	3	311	44	112	0	27	3	42	496
Pittsburgh	12	1	2	296	32	45	0	7	0	20	170
Reading	0		0	5	1	3	0	0	0	12	29
Scranton	0			1		2	0		0	0	
<b>Ohio:</b>											
Cincinnati	1		0	5	9	40	0	12	0	9	145
Cleveland	11	17	3	232	23	127	0	20	1	69	207
Columbus	2	1	1	3	6	58	0	6	0	14	79
Toledo	1		0	177	4	50	0	3	0	86	85
<b>Indiana:</b>											
Fort Wayne	4		0	13	1	6	0	0	0	2	17
Indianapolis	2		0	338	11	11	0	2	0	35	
South Bend	0		1	22	2	5	0	1	0	0	14
Terre Haute	0		0	0	4	0	0	0	0	2	22
<b>Illinois:</b>											
Chicago	10	4	1	773	50	264	0	32	1	134	694
Cicero											2
Springfield	1		0	45	0	0	0	1	0	14	24
<b>Michigan:</b>											
Detroit	5	3	0	149	23	118	0	17	0	118	249
Flint	1	0	1	5	7	69	0	2	0	18	29
Grand Rapids	0		0	10	2	25	0	0	0	7	25
<b>Wisconsin:</b>											
Kenosha	0		0	5	0	7	0	0	0	3	5
Milwaukee	2		0	129	3	178	2	3	0	38	89
Racine	0		0	3	1	7	0	1	0	4	13
Superior	0		0	1	0	0	0	0	1	0	7

## City reports for week ended May 26, 1934—Continued

State and city	Diphtheria cases		Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
	Cases	Deaths	Cases	Deaths								
<b>Minnesota:</b>												
Duluth.....	0		0		1	3	4	0	0	0	0	1
Minneapolis.....	1		1		12	6	27	0	1	0	25	86
St. Paul.....	0	1	0		6	6	4	0	2	0	25	66
<b>Iowa:</b>												
Davenport.....	0				7		1	0		0	0	
Des Moines.....	1				0		13	0		0	0	33
Sioux City.....	1				230		0	0		0	3	
Waterloo.....	0				0		1	0		0	2	
<b>Missouri:</b>												
Kansas City.....	1		0		7	7	22	0	7	0	12	97
St. Joseph.....												
St. Louis.....	16	1	0		13	7	22	0	8	0	70	208
<b>North Dakota:</b>												
Fargo.....	0		0		10	0	0	0	0	0	22	4
Grand Forks.....	0				0		1	0		0	0	
<b>South Dakota:</b>												
Aberdeen.....	0				35		0	0		0	23	
<b>Nebraska:</b>												
Omaha.....	1		0		52	7	11	4	0	0	5	48
<b>Kansas:</b>												
Topeka.....	1		0		48	2	0	0	0	0	25	25
Wichita.....	0		0		30	2	1	0	2	0	10	29
<b>Delaware:</b>												
Wilmington.....	0		0		13	0	0	0	0	0	9	
<b>Maryland:</b>												
Baltimore.....	6	5	0		1,270	17	29	0	11	9	101	216
Cumberland.....	1		0		8	2	1	0	0	0	0	13
Frederick.....	0		0		14	0	0	0	0	0	0	1
<b>Dist. of Columbia:</b>												
Washington.....	8	3	3		48	10	12	0	16	0	20	174
<b>Virginia:</b>												
Lynchburg.....	0		0		111	2	1	0	0	0	11	13
Norfolk.....	0		0		5	4	0	0	3	1	3	39
Richmond.....	0		1		237	1	1	0	3	0	0	45
Roanoke.....	0		0		2	0	2	0	0	0	6	16
<b>West Virginia:</b>												
Charleston.....	1		0		39	1	0	0	1	14	0	20
Huntington.....	0				0		2	0	0	0	0	
Wheeling.....	0		1		9	2	25	0	0	0	6	22
<b>North Carolina:</b>												
Raleigh.....	0		0		9	0	0	0	0	0	21	15
Wilmington.....	0		0		10	1	0	0	0	0	8	7
Winston-Salem.....	0		0		2	0	2	0	1	0	11	15
<b>South Carolina:</b>												
Charleston.....	0	2	0		14	1	0	0	2	3	0	16
Columbia.....	0		0		0	2	0	0	0	0	0	14
Greenville.....	0		0		0	2	0	0	0	0	5	8
<b>Georgia:</b>												
Atlanta.....	0	4	0		19	7	2	0	0	2	3	60
Brunswick.....	0		0		7	0	0	0	0	0	0	3
Savannah.....	1	8	0		16	1	0	0	3	2	2	84
<b>Florida:</b>												
Miami.....	0		0		117	0	0	0	2	1	9	25
Tampa.....	1	1	1		48	0	0	0	0	0	0	26
<b>Kentucky:</b>												
Ashland.....	0				33		0	0		1	0	
Lexington.....	0		0		70	2	1	0	3	0	12	22
Louisville.....	1		0		132	5	18	0	2	0	44	86
<b>Tennessee:</b>												
Memphis.....	1		1		17	8	2	0	4	1	5	88
Nashville.....	0		0		2	6	2	0	1	0	1	42
<b>Alabama:</b>												
Birmingham.....	1	1	0		89	0	1	0	2	0	1	52
Mobile.....	0		0		7	1	0	0	0	1	0	20
Montgomery.....	1				125		0	0		0	0	
<b>Arkansas:</b>												
Fort Smith.....	1				3		0	0		0	1	
Little Rock.....	0		0		0	0	0	0	1	0	4	2
<b>Louisiana:</b>												
New Orleans.....	8	2	2		48	10	8	0	7	2	0	134
Shreveport.....	0		0		4	2	0	0	3	0	4	29

1 Nonresident.

City reports for week ended May 26, 1934—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
<b>Texas:</b>											
Dallas.....	5		0		6	4	0	3	0	5	65
Fort Worth.....	1		1	1	1	0	0	2	0	0	45
Galveston.....	0		0	0	0	2	0	0	0	0	13
Houston.....	4		0	1	6	2	1	4	0	0	67
San Antonio.....	0		2	4	6	8	0	3	3	0	68
<b>Montana:</b>											
Billings.....	0		0	0	0	0	0	0	0	0	2
Great Falls.....	0		0	3	1	1	0	0	0	0	8
Helena.....	0		0	0	0	0	0	0	0	0	3
Missoula.....	0		0	1	0	0	0	0	0	0	7
<b>Idaho:</b>											
Boise.....	0		0	0	1	0	0	0	0	2	6
<b>Colorado:</b>											
Denver.....	4	29	0	607	3	14	0	2	0	54	78
Pueblo.....	0		0	20	2	8	0	0	0	16	9
<b>New Mexico:</b>											
Albuquerque.....	0		0	30	2	2	0	3	0	3	12
<b>Utah:</b>											
Salt Lake City.....	0		0	14	5	8	11	3	0	115	26
<b>Nevada:</b>											
Reno.....	0		0	1	0	0	0	0	0	0	3
<b>Washington:</b>											
Seattle.....	0			20	4	24	0	3	0	47	72
Spokane.....	0			22	2	4	0	1	0	14	23
Tacoma.....	0		1	104	0	1	0	0	0	21	23
<b>Oregon:</b>											
Portland.....	1	1	1	14	5	14	1	3	0	12	73
Salem.....	0			0		0				0	
<b>California:</b>											
Los Angeles.....	14	7	1	29	10	43	0	23	0	48	296
Sacramento.....	2		0	5	1	4	0	0	0	1	22
San Francisco.....	0	1	0	384	1	10	0	13	0	11	135

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
<b>Massachusetts:</b>				<b>Maryland:</b>			
Boston.....	0	0	1	Baltimore.....	2	0	0
<b>Connecticut:</b>				<b>West Virginia:</b>			
Bridgeport.....	1	1	0	Wheeling.....	0	0	1
<b>New York:</b>				<b>Kentucky:</b>			
New York.....	2	0	1	Ashland.....	1	1	0
<b>New Jersey:</b>				<b>Louisiana:</b>			
Newark.....	1	0	0	New Orleans.....	1	0	0
<b>Pennsylvania:</b>				<b>Idaho:</b>			
Philadelphia.....	1	1	0	Boise.....	0	0	1
<b>Ohio:</b>				<b>Washington:</b>			
Cincinnati.....	2	2	0	Spokane.....	0	0	1
<b>Indiana:</b>				<b>Oregon:</b>			
Indianapolis.....	1	0	0	Portland.....	0	0	2
<b>Illinois:</b>				<b>California:</b>			
Chicago.....	7	4	1	Los Angeles.....	0	0	51
<b>Minnesota:</b>				Sacramento.....	0	0	11
St. Paul.....	1	0	0	San Francisco.....	0	0	3
<b>Iowa:</b>							
Des Moines.....	1		0				
<b>Missouri:</b>							
Kansas City.....	1	1	0				
St. Louis.....	2	0	0				

<sup>1</sup> Nonresident.

*Lethargic encephalitis.*—Cases: New York, 6; Pittsburgh, 1; St. Louis, 1; San Francisco, 1.  
*Pellagra.*—Cases: Chicago, 1; Charleston, S.O., 1; Savannah, 4; Memphis, 1; Dallas, 1.  
*Typhus fever.*—San Antonio, 1 case.

## FOREIGN AND INSULAR

### CANADA

*Ontario Province—Communicable diseases—4 weeks ended April 28, 1934.*—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the 4 weeks ended April 28, 1934, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis.....	5	2	Paratyphoid fever.....	4	.....
Chicken pox.....	707	1	Pneumonia.....	.....	187
Diphtheria.....	25	2	Poliomyelitis.....	3	.....
Dysentery (amoebic).....	1	.....	Puerperal septicemia.....	2	1
Dysentery (bacillary).....	5	.....	Scarlet fever.....	668	6
Erysipelas.....	24	1	Septic sore throat.....	5	1
German measles.....	10	.....	Syphilis.....	210	1
Gonorrhoea.....	175	.....	Tetanus.....	2	.....
Influenza.....	58	1	Trench mouth.....	5	.....
Jaundice.....	1	.....	Tuberculosis.....	195	48
Lethargic encephalitis.....	2	1	Typhoid fever.....	34	1
Malaria.....	1	.....	Undulant fever.....	8	.....
Measles.....	272	.....	Whooping cough.....	1,199	6
Mumps.....	952	.....			

*Quebec Province—Communicable diseases—2 weeks ended May 19, 1934.*—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the 2 weeks ended May 19, 1934, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Measles.....	610
Chicken pox.....	129	Ophthalmia neonatorum.....	2
Diphtheria.....	25	Poliomyelitis.....	2
Dysentery (amoebic).....	1	Puerperal septicemia.....	6
Dysentery (bacillary).....	47	Scarlet fever.....	113
Erysipelas.....	12	Tuberculosis.....	122
German measles.....	14	Typhoid fever.....	32
Influenza.....	11	Whooping cough.....	167

### CUBA

*Habana—Communicable diseases—4 weeks ended May 19, 1934.*—During the 4 weeks ended May 19, 1934, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria.....	3	.....	Scarlet fever.....	2	.....
Leprosy.....	2	.....	Tuberculosis.....	26	14
Malaria.....	11	1	Typhoid fever.....	13	1

CZECHOSLOVAKIA

*Communicable diseases—March 1934.*—During the month of March 1934, certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	5	1	Paratyphoid fever.....	4	1
Cerebrospinal meningitis.....	18	7	Poliomyelitis.....	3	—
Chicken pox.....	259	—	Puerperal fever.....	67	30
Diphtheria.....	2, 029	130	Scarlet fever.....	1, 848	27
Dysentery.....	1	—	Trachoma.....	115	—
Influenza.....	291	22	Typhoid fever.....	293	28
Lethargic encephalitis.....	2	2	Typhus fever.....	123	5
Malaria.....	11	—			

GREAT BRITAIN

*Scotland—Vital statistics—Quarter ended March 31, 1934.*—The Registrar General of Scotland has published the following vital statistics for Scotland for the first quarter ended March 31, 1934:

Population, estimated.....	4, 938, 000	Deaths from—Continued.	
Births.....	22, 740	Heart disease.....	2, 063
Birth rate per 1,000 population.....	18. 7	Influenza.....	220
Deaths.....	17, 406	Lethargic encephalitis.....	16
Death rate per 1,000 population.....	14. 3	Measles.....	89
Deaths under 1 year.....	2, 089	Nephritis, acute.....	66
Deaths under 1 year per 1,000 births.....	92	Nephritis, chronic.....	311
Marriages.....	7, 695	Nephritis, unspecified.....	125
Deaths from:		Paratyphoid fever.....	2
Appendicitis.....	113	Pneumonia (lobar).....	443
Bronchitis.....	915	Pneumonia, unspecified.....	232
Broncho-pneumonia.....	886	Poliomyelitis.....	2
Cancer.....	1, 829	Puerperal sepsis.....	64
Cerebrospinal fever.....	54	Scarlet fever.....	125
Diabetes.....	213	Syphilis.....	25
Diarrhea and enteritis (under 2 years).....	121	Tetanus.....	4
Diphtheria.....	173	Tuberculosis.....	1, 000
Dysentery.....	10	Typhoid fever.....	4
Erysipelas.....	74	Whooping cough.....	78

ITALY

*Communicable diseases—4 weeks ended December 10, 1933.*—During the 4 weeks ended December 10, 1933, cases of certain communicable diseases were reported in Italy, as follows:

Disease	Nov. 13-19		Nov. 20-26		Nov. 27-Dec. 3		Dec. 4-10	
	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected
Anthrax.....	16	16	26	24	21	18	20	16
Cerebrospinal meningitis.....	10	10	10	10	8	7	4	4
Chicken pox.....	171	85	235	104	281	97	301	118
Diphtheria and croup.....	759	385	774	409	836	417	751	370
Dysentery.....	12	8	20	11	6	4	10	7
Lethargic encephalitis.....	—	—	—	—	3	3	—	—
Measles.....	1, 455	218	1, 477	238	1, 192	206	1, 429	205
Poliomyelitis.....	8	8	8	8	7	6	2	2
Scarlet fever.....	467	195	481	215	459	191	373	155
Typhoid fever.....	635	326	571	316	464	247	324	205



## JAMAICA

*Communicable diseases—4 weeks ended May 19, 1934.*—During the 4 weeks ended May 19, 1934, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kings- ton	Other locali- ties	Disease	Kings- ton	Other locali- ties
Chicken pox.....	2	32	Leprosy.....		3
Diphtheria.....	1		Puerperal fever.....		4
Dysentery.....	5	13	Tuberculosis.....	33	84
Erysipelas.....	1	2	Typhoid fever.....	25	67

### CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for May 25, 1934, pp. 636-648. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued June 29, 1934, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

#### Cholera

*Philippine Islands.*—No cholera was reported in the Philippine Islands for the week ended June 2, 1934.

#### Plague

*United States—California.*—A report of plague-infected ground squirrels in Tulare County, in the interior of the State of California, appears on page 716 of this issue of PUBLIC HEALTH REPORTS.

#### Smallpox

*Mexico—Coahuila—Rosita.*—A report dated May 23, 1934, states that 11 cases of smallpox were reported on this date at Rosita, Coahuila, Mexico, in the Mexican camp connected with the American Smelting & Refining Co.'s mine. Vaccination has been made compulsory for all the inhabitants.

#### Yellow Fever

*Ivory Coast—Rubino.*—During the week ended May 26, 1934, 2 cases of yellow fever with 2 deaths were reported in Rubino, Ivory Coast.

*Senegal—Matam.*—A report dated May 23, 1934, states that 1 case of yellow fever with 1 death was reported in Matam, Senegal.