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PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

October 8–November 4, 1939

The accompanying table summarizes the prevalence of eight important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the Public Health Reports under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ending November 4, 1939, the number reported for the corresponding period in 1938, and the median number for the years 1934–38.

DISEASES ABOVE MEDIAN PREVALENCE

Poliomyelitis.—The number of cases of poliomyelitis dropped from 1,844 during the 4 weeks ended October 7 to 1,163 for the 4 weeks ended November 4. Each geographic area, except the East South Central, and most of the States in which the disease has been unusually prevalent, shared in the decline; only Iowa (62 cases), Kentucky (59 cases), and West Virginia (15 cases) reported any definite increase in the number of cases over the preceding 4-week period. For the entire reporting area the number of cases was about eight and one-half times that for the corresponding period in 1938, and one and one-third times the 1934–38 average figure (879) for the period.

From a comparison of the recent reports of poliomyelitis with the incidence in previous years, it is evident that the present outbreak has not been confined to any one section of the country but has been widespread, appearing in one or more States in practically every section of the country. Previous epidemics have been confined more or less to certain geographic areas. The minor outbreak of 1936 and 1937 occurred mostly in States in the South Central regions; while in 1934 California and other Western States experienced a more severe outbreak. In 1931, 1933, and 1935 the disease was epidemic in States along the Atlantic Coast and in 1930 the North Central and Western regions were most affected by an outbreak of epidemic-like proportions. There was no epidemic of this disease during 1938

and the number of cases reported for that year was the lowest on record; the years 1929 and 1932 were also nonepidemic years.

Influenza.—An increase in influenza is normally expected at this season of the year. The cases rose from approximately 1,800 during the preceding 4-week period to 3,361 for the 4 weeks ended November 4. The number was only about 85 percent of the figure recorded for the corresponding period in 1938, but it was about 25 percent above the preceding 5-year average incidence for this period. In the South Atlantic region the incidence was about twice the average seasonal incidence and in the West South Central and Mountain regions the numbers of cases were about 50 percent above the 1934–38 median figures; other regions reported a relatively low incidence.

Number of reported cases of 8 communicable diseases in the United States during the 4-week period Oct. 8–Nov. 4, 1939, the number for the corresponding period in 1938, and the median number of cases reported for the corresponding period 1934–38 [1]

Division	Current period	1938	5-year median	Current period	1938	5-year median	Current period	1938	5-year median	Current period	1938	5-year median
	Diphtheria			Influenza [2]			Measles [3]			Meningococcus meningitis		
United States [1]	3,219	4,262	4,262	3,361	3,836	2,659	4,506	5,410	5,410	135	168	243
New England	31	40	48	6	22	13	583	456	440	7	6	10
Middle Atlantic	215	241	262	50	88	80	568	740	1,076	27	30	43
East North Central	410	592	620	188	234	263	418	612	612	25	35	44
West North Central	131	302	349	46	117	164	381	904	694	12	7	16
South Atlantic	1,473	1,576	1,391	1,456	1,729	750	412	580	580	20	36	52
East South Central	439	674	674	241	358	268	53	66	209	20	32	28
West South Central	355	583	509	1,005	830	649	128	232	90	11	13	14
Mountain	95	118	118	272	359	161	516	652	476	3	3	11
Pacific	70	136	152	97	99	163	1,447	1,078	798	10	6	9
	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
United States [1]	1,163	136	879	9,382	11,116	12,506	119	225	244	1,096	1,320	1,600
New England	29	6	19	372	456	672	0	0	0	28	24	31
Middle Atlantic	309	27	70	1,545	1,635	1,901	0	0	0	132	220	215
East North Central	215	20	190	2,866	3,915	4,114	24	61	53	186	124	243
West North Central	170	10	51	1,147	1,430	1,430	29	46	91	67	81	117
South Atlantic	69	27	88	1,390	1,216	1,301	1	0	2	212	286	307
East South Central	64	15	46	729	725	725	6	8	8	120	136	202
West South Central	43	8	40	801	540	423	21	23	12	195	272	272
Mountain	125	11	18	377	396	614	19	52	52	70	108	127
Pacific	139	12	95	655	803	849	19	35	58	86	69	69

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

DISEASES BELOW MEDIAN PREVALENCE

Diphtheria.—During the 4 weeks ended November 4 the incidence of diphtheria continued at a relatively low level. The number of cases (3,219) was about 75 percent of the number recorded for the

corresponding period in 1938, which figure (4,262) also represents the 1934–38 average incidence for this period. The South Atlantic region reported fewer cases than were recorded for this period in 1938, but the number (1,473) was about 10 percent above the average incidence for recent years; in all other regions the incidence was comparatively low.

Measles.—The number of cases of measles was also relatively low. For the current 4-week period there were 4,506 cases reported, as compared with 5,410 cases in 1938, and 7,216 in 1937. The 1938 figure represented the 1934–38 average incidence for this period. In the Pacific region the number of cases (1,441) was the highest on record for this period in recent years, and in the New England, West South Central and Mountain regions the incidence was slightly above the normal seasonal incidence; other regions reported a relatively low incidence.

Meningococcus meningitis.—During the current 4-week period 135 cases of meningococcus meningitis were reported, approximately 80 percent of the number reported for the corresponding period in 1938, and about 55 percent of the 1934–38 average incidence for this period. The Pacific region reported about the average number of cases for this period, but in all other regions the incidence was below the 1934–38 median level.

Scarlet fever.—For the 4 weeks ended November 4 there were 9,382 cases of scarlet fever reported, as compared with 11,116, 12,506, and 9,939 cases for the corresponding period in 1938, 1937, and 1936, respectively. In the South Atlantic and East South Central regions the incidence closely approximated the 1934–38 average level for this period, but all other regions reported a comparatively low incidence. For the country as a whole the current incidence is the lowest recorded for this period in the 11 years for which these data are available.

Smallpox.—Reports indicate that this disease maintained a relatively low level. For the current period there were 119 cases reported, less than 50 percent of the 1934–38 average incidence for this period. The West South Central region reported a few more cases than might normally be expected, but in other regions the disease either stood at about the normal seasonal level or fell considerably below the average incidence for recent years.

Typhoid fever.—The incidence of typhoid and paratyphoid fever remained at a very satisfactory level. The number of cases (1,096) reported for the 4 weeks ended November 4 was the lowest recorded for this period in the 11 years for which these data are available. The Pacific region alone reported an excess in the number of cases over the average seasonal incidence; California reported 60 cases, as compared with 43, 31, and 34 cases for the corresponding period in 1938, 1937, and 1936, respectively. In the New England region the number of

cases was only slightly below the average seasonal level, but other regions reported very definite decreases from the median figures for the 5 preceding years.

MORTALITY, ALL CAUSES

The average mortality rate from all causes in large cities for the 4 weeks ended November 4, based on data received from the Bureau of the Census, was 10.4 per 1,000 inhabitants (annual basis). The average rate for the corresponding period in the 5 preceding years was 10.8.

FACTORS INFLUENCING CARCINOGENESIS WITH METHYLCHOLANTHRENE

II. LACK OF EFFECT OF FOSTER NURSING[1]

By MICHAEL B. SHIMKIN, *Assistant Surgeon*, and HOWARD B. ANDERVONT, *Senior Biologist, United States Public Health Service*

Studies of the extrachromosomal influences in the genesis of breast tumors in mice (*1*) culminated in the interesting observation that if the offspring of mice susceptible to spontaneous mammary carcinoma are removed from their mothers before suckling has taken place and are foster nursed by mice of a strain that has a low susceptibility to breast tumors, the incidence of breast cancer in such offspring is radically reduced (*2*). Thus, if strain A mice (high breast tumor line) are suckled by strain C57 black (low breast tumor line), the foster-nursed A strain females develop very few spontaneous mammary tumors; the finding has been confirmed in this laboratory, using the C_3H strain as the high tumor line (*3*).

Apparently there is a factor in the milk of the high breast tumor lines of mice that must be introduced into the offspring before breast cancer can develop in the animal. This factor has not been incriminated in the genesis of other types of tumors. Bittner (*4*) has reported that foster nursing has no influence upon the incidence of spontaneous primary lung tumors in strain A mice. Moreover, it has been shown that the incidence or the susceptibility to the induction of one type of tumor in an animal is not correlated to the incidence or the susceptibility to induction of some other type of neoplasia in the same animal. There is no correlation, for example, between the susceptibilities of eight strains of mice to spontaneous breast tumors, induced pulmonary tumors, and transplantable tumors (*5*).

It was not expected, therefore, that the "milk factor" apparently necessary for the occurrence of spontaneous breast cancer in mice

[1] From the Office of Cancer Investigations, U. S. Public Health Service, Gibbs Memorial Laboratory, Harvard University, Cambridge, Mass.

would influence the production of neoplasms with carcinogenic hydrocarbons. It was felt that the possibility was sufficiently interesting, however, to perform the following experiment.

EXPERIMENTAL

Brother-sister mating of mice of strains C_3H, C, C57 black, I, and Y was started in November 1938. Gestation occurred between 3 and 5 weeks later. Within 17 hours or less after birth, half of each C_3H litter was transferred to a mother of strains C, C57 black, I, or Y, and at the same time half of the litter of strains C, C57 black, I, or Y was given to a C_3H female.

Thus, C_3H litter mates were obtained in which half were nursed by their own mothers and half were foster nursed by mothers of one of the four other strains; of the litters of C, C57 black, I, or Y strains, half were nursed by their own mothers and half by C_3H females.

The sexes and the strains were separated at weaning and the females reserved for other investigations. The males were marked individually and were injected subcutaneously in the right axilla with methylcholanthrene, in January 1939, when they were about 1 month old. For mice of strains C_3H, C, C57 black, and I, the dose of the hydrocarbon employed was 0.5 mg. and for strain Y mice, 1.0 mg. The methylcholanthrene was a synthethic compound with a melting point of 178.6°–179.6° C. (corr.), and the solvent was 0.25 cc. of lard, filtered at 37°–39° C.

The mice were examined weekly. As soon as an indubitable tumor was palpable, and as soon as it was ascertained that the mass was growing progressively, the mice were killed and necropsied.

The results are presented in table 1. It is apparent that foster nursing exerted no influence upon the latent period or upon the incidence of tumors produced with methylcholanthrene in the doses used. When the data were resolved according to litter mates, as shown in table 2, the same findings were reiterated. Strain I mice, 8 nursed by their own mothers and 5 foster nursed by C_3H females, received 0.5 mg. of methylcholanthrene; by 26 weeks only 2 animals had developed a tumor, and the strain has not been included in the results.

DISCUSSION

The experiment demonstrates that the foster nursing of male mice of strains highly susceptible to the induction of neoplasia with methylcholanthrene by mice of lower susceptibility to this agent, or the foster nursing of male mice of strains resistant to the action of methylcholanthrene by mice of susceptible strains, does not alter the susceptibility of the animals to the subcutaneous introduction of the hydrocarbon.

TABLE 1.—*Lack of influence of foster nursing upon carcinogenesis with methylcholanthrene*

Mice	Foster nursed	Methylcholanthrene, mg. subcutaneous	Number of mice injected	Time, in weeks: 7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Number of tumors	Average time in weeks
				Number of tumors															
C_3H ♂		0.5	21		1	2	10	2	2		2					1		20	11.1
Do	x C57	0.5	5		1	1		1		1		1						5	11.2
Do	x Y	0.5	14	1	2	5	2	2					1		1			14	10.3
Do	x C	0.5	4	1		1					1				1			4	12.0
Do	x I	0.5	13	1	1	2	3	2		1	1		1					12	10.6
C ♂		0.5	6	1	1	2		1	2									6	11.3
Do	x C_3H	0.5	10			2	1	4			2							9	11.1
C57 black ♂		0.5	10			1		3	1	1	1	1	1		1			10	13.0
Do	x C_3H	0.5	15			2		3	4	1	2	1		1				14	12.3
Y ♂		1.0	11			1						2	2			1		7	15.3
Do	x C_3H	1.0	11				2	1		2		2		1	1			10	14.6

TABLE 2.—*Carcinogenesis with methylcholanthrene in normal and foster nursed litter mates of four strains of mice*

Strain	Methylcholanthrene, mg.	Number in litter	Time, in weeks: 7	8	9	10	11	12	13	14	15	16	17	18	19	20
			Tumors													
C_3H ♂	0.5	2					Y		O							
Do	0.5	4			O	O		O		C						
Do	0.5	4				OOI						I				
Do	0.5	6				OOO	I	O	I							
Do	0.5	4	I	I	I	O										
Do	0.5	2			O							Y				
Do	0.5	3				OY	O									
Do	0.5	4			YY	OO										
Do	0.5	5		O			B		B	O	B					
C ♂	0.5	3	O			X		O								
Do	0.5	4			OX		X	O								
C57 ♂	0.5	5					O		X	X	X	O				
Do	0.5	5			X		OX	O		O						
Do	0.5	4			X		O			O		X				
Do	0.5	2					X	O								
Y ♂	1.0	5				O					X	O	X		O	
Do	1.0	3			O						XO					
Do	1.0	4				X			X		O			X		

Key.—O=nursed by own mother.
X=foster nursed by C_3H.
C=foster nursed by C.
B=foster nursed by C57 black.
I=foster nursed by I.
Y=foster nursed by Y.

Table 2 indicates that the spread of the latent period of carcinogenesis in litter mates of inbred mice is no less than the spread of the latent period in unselected members of the same strain.

An incidental observation in this study is the relative susceptibility to methylcholanthrene of the four strains of mice employed. A report of investigations on the relative susceptibility of eight strains of mice

to carcinogenic hydrocarbons, made in this laboratory, was published in 1938 (*5*); the data which are pertinent to the present discussion are recapitulated and are compared in table 3 with the present findings.

It is to be noted that the relative susceptibility of the four strains agrees in the two experiments, i. e., C_3H is the most susceptible, the C and the C57 black strains are next in order, and the Y strain is most resistant to the action of methylcholanthrene. The mean latent periods, however, are significantly shorter in the present study, despite the use of smaller doses of the hydrocarbon.

TABLE 3.—*Comparison of latent periods of carcinogenesis in present study and those found in a previous study at this laboratory (5)*

Time, in weeks				8	10	12	14	16	18	20	22	24	32-36	Number of tumors	Average time in weeks	Source
Strain	Sex	Methylcholanthrene, mg.	Number of mice	Number of tumors												
C_3H	♂	0.5	57	8	26	9	6	3	3	1	----	----	-----	55	10.8	Present study.[1]
Do	do	.8	19	12	7	--	--	--	--	--	----	----	-----	19	8.3	Shimkin (*6*).
Do	do	2.0	24	19	5	--	--	--	--	--	----	----	-----	24	8.2	Andervont (*5*).
C	do	.5	16	1	5	5	1	--	--	--	----	----	-----	15	11.2	Present study.[1]
Do	do	.8	21	--	--	7	--	3	--	5	----	3	1	19	16.7	Andervont (*5*).
C57 black	do	.5	25	--	3	11	5	3	2	--	----	----	-----	24	12.6	Present study.[1]
Do	do	.8	12	--	--	2	4	2	--	1	----	----	2	11	17.2	Andervont (*5*).
Y	do	1.0	22	--	3	1	2	6	2	2	----	1	-----	17	14.9	Present study.[1]
Do	♂ and ♀	2.0	28	--	--	2	5	4	2	2	2	2	-----	19	17.1	Andervont (*5*).

[1] Data from table 1.

Analysis of the factors that may have been responsible for this discrepancy reveals that all the mice were males, were raised in this laboratory, and were kept under similar environmental conditions. The animals were examined by different investigators (H. B. A. and M. B. S.), but the technique of examination and the criteria for recording the results were identical.

The mice previously used were 2 to 3 months of age, whereas the mice in this report were injected when about 1 month old. It has been found (*6*) that tumors evoked with methylcholanthrene arise earlier in younger mice than in older mice of the same strain, but the slight age difference probably is not sufficient to explain disparities of as much as 5 weeks.

The same sample of synthetic methylcholanthrene,[2] with the same melting point, was used in both experiments. It is possible that carcinogenesis was slower with the larger dose of the hydrocarbon because of the greater degree of necrosis of the tissues at the injection site. The evidence available at present, however, indicates that, within the dose range employed (0.5 to 1.0 mg.), tumors should have appeared earlier with the larger amount. No external ulceration occurred in any of the animals. Beck (*7*) has reported that acute

[2] Prepared by Dr. E. B. Hershberg.

and subacute inflammation at the site of introduction of 3:4-benzpyrene does not influence carcinogenesis.

The solvent used in both instances was lard, obtained from the same commercial source but at different dates. The lard was filtered at 37°–39° C., and the filterable portion sterilized by heating at 100° C. It was heated again to dissolve the methylcholanthrene and stored in the icebox at 4° C.; the temperature was raised to about 40° C. before the solution was injected into the animals. A more concentrated solution was used previously (0.8 mg. in 0.2 cc. as compared with 0.5 mg. in 0.25 cc.); the influence of the lower concentration and of the slightly greater amount of lard employed in the present investigation is not evident at this time.

It has been determined that crystalline 1:2:5:6-dibenzanthracene produces tumors more slowly than the hydrocarbon in solution (*8*); neither solution of methylcholanthrene was supersaturated, so that crystallization of the compound in the tissues may be precluded as a modifying factor.

It has been brought out that lard is a complex, variable mixture which may undergo changes on storage or on being heated (*9*). It is possible that the discrepancy between the two series may be attributed to the variability of the solvent. Investigations being conducted at present in this laboratory indicate that the latent periods and incidence of tumors after injection with methylcholanthrene vary widely when different samples of lard are used as solvents, whereas with certain pure glycerides (especially tricaprylin) as solvents for the hydrocarbon the results are much more consistent (*10*).

The spread of the latent period in litter mates, and the number of mice used in each series, however, make it apparent that the variability of the experimental animal itself, as well as the possible extraneous factors mentioned above, must be considered as the explanation for the difference in these and in similar investigations.

A review of the factors that may be responsible for discrepancies in apparently similar experiments indicates the fallacy of comparing too exactly data of this nature from different laboratories, especially where the quality of the hydrocarbon and the solvent are unknown, where the experimental animals are kept under different conditions and are used at different ages, and where the criteria for recording the results vary with the investigators.

CONCLUSION

Foster nursing of male mice of a strain (C_3H) highly susceptible to the induction of subcutaneous sarcoma with 0.5 mg. methylcholanthrene in lard by mice of lower susceptibility to the agent (I and Y strains), or the foster nursing of male mice of strains more resistant

to the action of methylcholanthrene in 1.0-mg. doses (Y strain) by mice of a highly susceptible strain (C_3H), does not alter the susceptibilities of the animals to formation of tumors with the hydrocarbon.

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STUDIES ON SOME POSSIBLE CAUSATIVE FACTORS OF THE SPONTANEOUS ADENOMATOUS LESION OF THE STOMACH IN MICE OF STRAIN I[1]

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Previous communications (*1*, *2*, *5*) have described the occurrence, pathology, development, and genetic basis of the adenomatous stomach lesion in strain I mice. The lesion arises spontaneously and is characterized by an overgrowth of the epithelium in the glandular portion of the stomach. It is not considered malignant because of its symmetric development, the absence of metastases, and because susceptibility to its development is inherited in a recessive manner. The lesion is not due to a communicable disease for it does not occur in mice of other strains when raised in close contact with strain I mice, and it is not associated with the presence of any gross parasite, for histologic studies of all stages in its development do not reveal the consistent presence of any such organism. The present paper

[1] From the Office of Cancer Investigations, U. S. Public Health Service, Gibbs Memorial Laboratory, Harvard University, Cambridge, Mass.

reports experiments made to determine whether the gastric hyperplasia might be caused by an infectious agent or be due to vitamin A deficiency.

STUDIES OF THE INFECTIVITY OF THE LESION

The possible infectivity of the process was investigated by feeding tissues of the lesion to mice. This was accomplished by sacrificing strain I mice which had pronounced lesions, removing the entire stomach, and feeding it to the experimental mice. If the animals were deprived of food for 24 hours before the feeding, they devoured the stomachs immediately.

Two experiments were performed. In the first, 6 strain C mice were fed stomachs from 2 strain I animals. Six months later the mice were sacrificed and all had normal stomachs, indicating that if the lesion is the result of an infection the etiological agent is specific for mice of strain I. In the second experiment 8 litters of strain I mice were removed from their mothers at the conclusion of the nursing period and divided into two equal groups. One group was fed stomachs from 4 strain I mice and the other group, which served as controls, was given only a diet of dog chow. If the lesion is caused by an infectious agent which localizes in the gastric mucosa, the animals fed the stomachs might be expected to develop gastric hyperplasia earlier and to a greater extent than their litter mate controls. Entire litters were sacrificed and necropsied from 3 to 4 months after the time of feeding and in every instance there was no apparent difference in the appearance of the stomachs of the control and experimental animals.

Although it might seem unjustifiable to state with certainty that the lesion is not an infectious disease, the results of the feeding experiments strongly suggest that an infectious agent is not involved.

VITAMIN STUDIES

Since the pathologic changes of vitamin A deficiency appear in epithelial structures, it was decided to study the influence of vitamin A upon the occurrence of the lesion. These investigations were made possible through the kindness of Prof. Percy R. Howe and Dr. Mark Elliott of the Forsyth Dental Infirmary, who supplied the diets and gave much valuable advice.

In one experiment an effort was made to produce regression of the lesion by feeding mice a diet rich in vitamin A. Twenty-two strain I female mice were used, all of which were 9 months old. The selection of mice of this age assured the use of animals with definite lesions, for it has been shown (*5*) that the lesion is well developed in all 8-month-old strain I animals. The mice consisted of 7 litters and were divided into two groups with representatives from each litter

in the groups. The experimental group was given the following diet:

	Percent
Casein	18
Butter fat	10
Yeast	8
Mendel's inorganic salt mixture	4
Harris purified vitamin A free starch	60

The control group was given Purina dog chow, which is the standard mouse diet used in this laboratory.

The animals remained on the diets for 3 months and during that time 8 mice (5 experimental and 3 control) died; at the termination of the experiment all the remaining mice were sacrificed. The stomach of each animal dying or killed was preserved by tying off the esophagus and pylorus, injecting fixative into the lumen, and placing the entire organ in fixative. After hardening for 24 hours, the stomach was cut longitudinally through the orifices; one half was kept for macroscopic observations and the other half prepared for histologic studies.

Macroscopic and microscopic examinations revealed that every mouse had a definite stomach lesion with no obvious difference between those of the experimental and control groups. It is concluded that the ingestion of a vitamin A rich diet for 3 months had no influence upon pronounced stomach lesions in strain I mice.

In another investigation young strain I mice were fed diets rich or deficient in vitamin A. If the genetic constitution of strain I mice is such that the mice require more vitamin A than is present in the diet of dog chow, or if they are unable to utilize the vitamin to the same extent as other inbred mice, the development of the gastric lesion should be inhibited in those fed the vitamin A rich diet and should be accelerated in those fed the diet deficient in vitamin A.

Forty strain I mice, consisting of 27 females and 13 males ranging in age from 4 to 7 weeks, were employed. The animals were from 8 litters and were divided into three groups, two receiving the experimental diets and one the control diet of dog chow. There were representatives of seven litters in each group, while one litter of 2 mice was divided between the deficient and control diets. Care was taken to use animals of the same sex as controls for those fed the experimental diets, for it has been shown (*2*) that the lesion appears earlier and is, as a rule, more pronounced in male mice.

Eight 10-week-old females of strain C_3H and 6 of strain M "leaden" were included in the study. These animals, representing 3 strain C_3H litters and 1 strain M litter, were divided so that some were given the vitamin A deficient diet and others the control diet. None was fed the vitamin A rich diet.

The designation of the groups of mice and the diets each received is presented below.

Group A.—These mice were given the vitamin A rich diet, the formula being the same as that used in the previous investigation.

Group B.—These mice were fed the vitamin A deficient diet, which was made up as follows:

	Percent
Lard	15
Casein	18
Yeast	4
Mendel's inorganic salt mixture	4
Harris purified vitamin A free starch	59

All the mice of this group were kept in cages with wire mesh bottoms so that fecal matter dropped through the floor.

Group C.—These mice were fed dog chow and were controls for groups A and B.

An unlimited supply of drinking water was available at all times. Data regarding the mice used in this investigation are given in table 1.

TABLE 1.—*Vitamin A feeding experiment. Summary of mice used*

Strain	Sex	Group A Number of mice fed diet rich in vitamin A	Group B Number of mice fed diet deficient in vitamin A	Group C Number of mice fed diet of dog chow
I	F	7	9	11
I	M	3	4	6
C_3H	F	----	5	3
M	F	----	3	3
Total	----	10	21	23

The experiment began on April 2, 1938, and the mice of group A were fed the vitamin A rich diet exclusively until the conclusion of the experiment. The animals of group B were in ill health 36 days after the beginning of the experiment and, since it was desirable to keep the mice alive for at least 100 days, they were fed the deficient diet plus 1 percent of butterfat. This food was administered for only 30 days, following which the mice were again given the deficient diet exclusively.

Surviving mice of strain I were sacrificed on September 22, 1938. Up to that time the experimental mice of group A had received the vitamin A rich diet for 173 days, while those of group B had been fed the vitamin A deficient diet for 143 days and the diet containing 1 percent butterfat for 30 days. Mice of strains C_3H and M were maintained on the diets until October 5, 1938; thus, these C_3H and M animals of group B received the deficient diet for 156 days and the deficient diet plus 1 percent butterfat for 30 days.

A group B strain I female was the first animal coming to autopsy. It was sacrificed because of illness 126 days after the beginning of the experiment and had a slight hyperplasia of the glandular mucosa of

the stomach and, in addition, a thickened forestomach with 6 definite papillomas on the lining. Between that time and the conclusion of the experiment, 9 other strain I mice, consisting of 3 males of group A and 2 females and 4 males of group B, became ill and were sacrificed. All these mice were included in the results of the investigation. None of the strain C_3H or strain M mice died during the course of the experiment.

The I mice of group B, mentioned in the preceding paragraph, were sacrificed when they were obviously about to die. Their eyes were closed and encrusted and their coats roughened. They assumed a humped posture and staggered weakly when trying to move about. It cannot be stated with certainty that these symptoms were due to a deficiency of vitamin A because most of the strain I mice of group B lived through the experiment without such pronounced signs of ill health. However, at the conclusion of the experiment the strain I mice of group B were in worse condition than the C_3H or M mice of the same group. This may have been due to the fact that the C_3H and M animals were from 3 to 6 weeks older than the I mice when the experiment began, or else the strain I mice were more responsive to a deficiency of vitamin A. All mice of groups A and C were in good health at the end of the investigation.

The weight of each mouse was recorded at the beginning of the experiment, at five regular intervals during its progress, and at its termination. Table 2 summarizes the average weights of the mice according to strain, sex, and group and includes all animals dying or killed during the experiment.

It is seen in table 2 that the young of all 3 strains developed normally on the vitamin A rich or dog chow diets. It was surprising that mice fed the vitamin A deficient diet also showed a slight average gain in weight.

TABLE 2.—*Vitamin A feeding experiment. Average weights of mice according to strain, sex, and group*

Strain	Sex	Group [1]	Number of mice	Average weight at beginning of experiment (gm.)	Average weight when sacrificed (gm.)
I	F	A	7	16.5	27.0
I	F	B	9	17.7	19.7
I	F	C	11	17.3	30.2
I	M	A	3	15.8	27.6
I	M	B	4	17.6	18.2
I	M	C	6	17.9	30.4
C_3H	F	B	5	20.7	24.3
C_3H	F	C	3	20.8	33.0
M	F	B	3	20.6	24.5
M	F	C	3	19.0	26.6

[1] Group A fed vitamin A rich diet; group B fed vitamin A deficient diet; Group C fed dog chow.

As in the preceding experiment, the stomach of every mouse was filled with fixative and, after hardening, was cut longitudinally through

the orifices. The organ was examined macroscopically for the degree of development of the spontaneous lesion and other gross changes. One-half of each stomach was prepared for histologic studies. The results of the macroscopic and microscopic examinations are summarized in table 3.

TABLE 3.—*Vitamin A feeding experiment. Summary of results*

Strain	Sex	Group[1]	Number of mice used	Spontaneous lesion in mucosa			Forestomach	
				Slight hyperplasia	Moderate hyperplasia	Pronounced hyperplasia	Hyperkeratosis	Papilloma formation
I	F	A	7	3	3	1	1	0
I	F	B	9	7	2	0	9	5
I	F	C	11	1	4	6	2	0
I	M	A	3	1	2	0	0	0
I	M	B	4	3	1	0	3	1
I	M	C	6	0	1	5	1	0
C_3H	F	B	5	----------	----------	----------	4	0
C_3H	F	C	3	----------	----------	----------	0	0
M	F	B	3	----------	----------	----------	3	0
M	F	C	3	----------	----------	----------	0	0

[1] Group A fed vitamin A rich diet; group B fed vitamin A deficient diet; group C fed dog chow.

So far as the adenomatous lesion is concerned, the results presented in table 3 show that a deficiency of vitamin A is not the chief factor in its occurrence, for it was, on the average, less pronounced in strain I mice fed the deficient diet than in those kept on the vitamin A rich or dog chow diets. Furthermore, strain C_3H and strain M mice of group B showed no change in the glandular portion of their stomachs.

The most striking feature noted in the mucosa of stomachs from strain I animals was that the mice which were fed dog chow developed considerably more hyperplasia than those maintained on the experimental diets. Of 23 mice given diets rich or deficient in vitamin A only 1 developed a pronounced gastric lesion, while of 17 mice given dog chow 11 had extensive lesions. The macroscopic observations in this respect were confirmed by microscopic studies. In addition, histologic investigations also revealed an abundance of dilated acini in group C mice of strain I, but only a few in mice of groups A and B. Indeed, the presence of numerous enlarged acini identified the I mice maintained on the dog chow (figs. 1 and 2). These acini have been mentioned in an earlier pathologic description of advanced stomach lesions (*5*).

The variation in the extent of spontaneous stomach lesions in strain I mice fed different diets raises the question of whether the physical state of the food was a contributory factor to this result. The experimental diets were obtained as dry powders, were made into a paste by the addition of distilled water, and formed into small cakes which were dried at 37° C. The cakes were rather soft and crumbly because of the high fat content. The dog chow was obtained

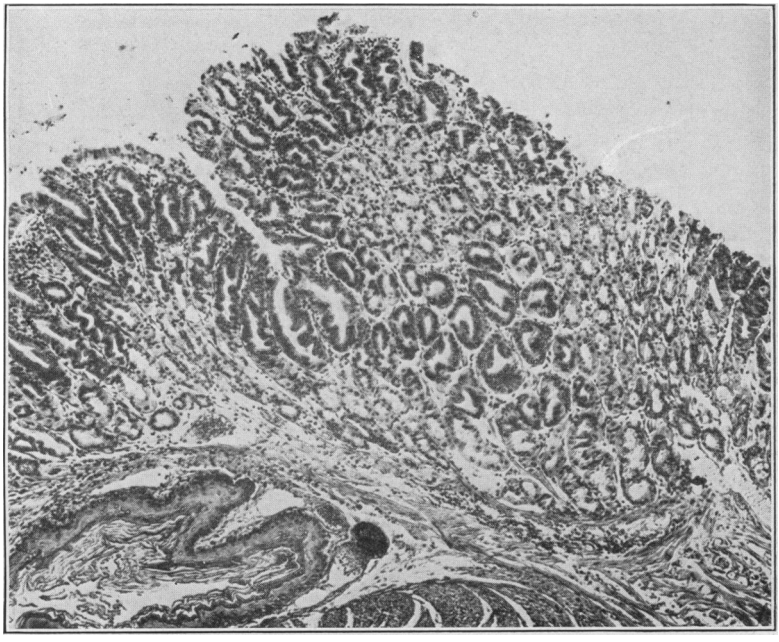

FIGURE 1.—Section through the glandular portion of the stomach from a strain I female mouse, aged 8.5 months, which received a vitamin A rich diet exclusively for 173 days. The spontaneous lesion is not pronounced. The section is near the junction of the two portions of the stomach and some of the squamous lining of the forestomach can be seen (× 70).

FIGURE 2.—Section through the glandular portion of the stomach from a strain I female mouse, aged 8.5 months, which received a diet of dog chow exclusively. The spontaneous lesion is pronounced. Compare with the less advanced lesion shown in figure 1 which occurred in a litter mate. Note the presence of enlarged acini (× 70).

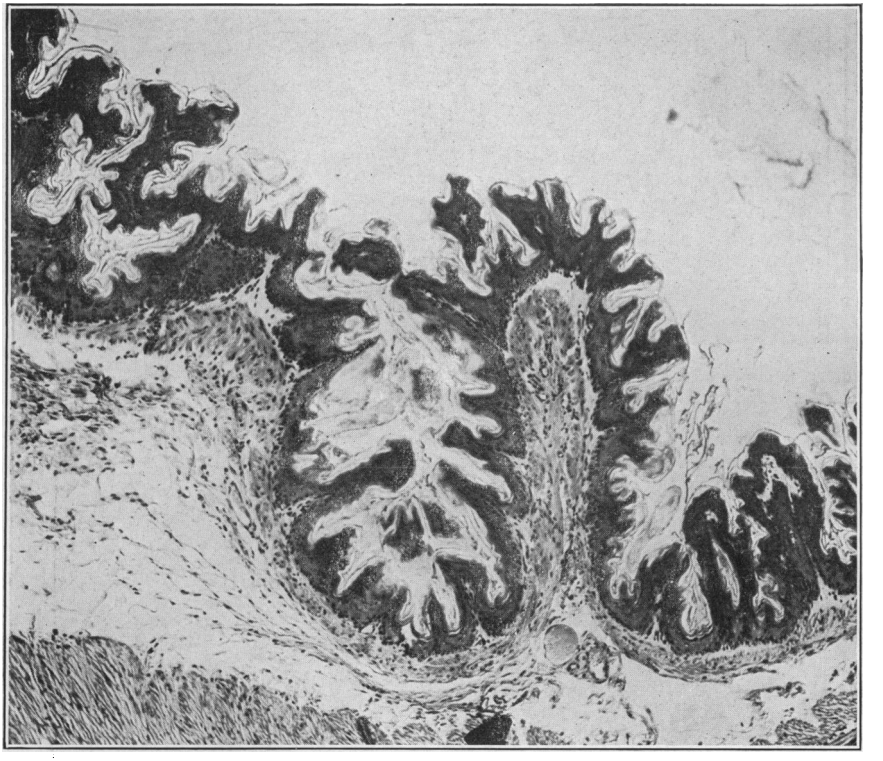

FIGURE 3.—Section through the forestomach from a strain I female mouse, aged 8.5 months, which was fed a vitamin A deficient diet exclusively for 143 days. Note the hypertrophy and hyperkeratosis of the squamous lining (× 70).

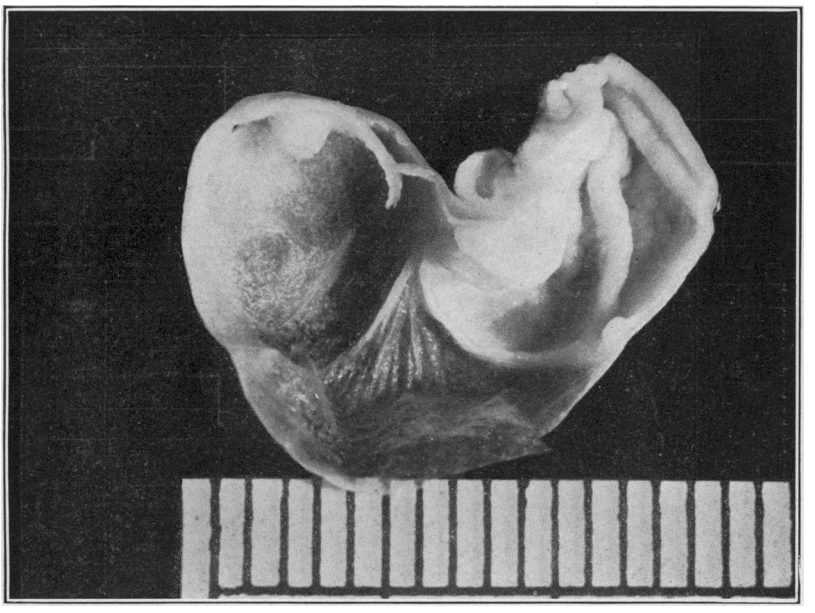

FIGURE 4.—The stomach from a strain I female mouse, aged 7 months, fed a vitamin A deficient diet exclusively for 138 days. A part of the forestomach is thickened and contains a papilloma, while the mucosa is normal in appearance (× 4).

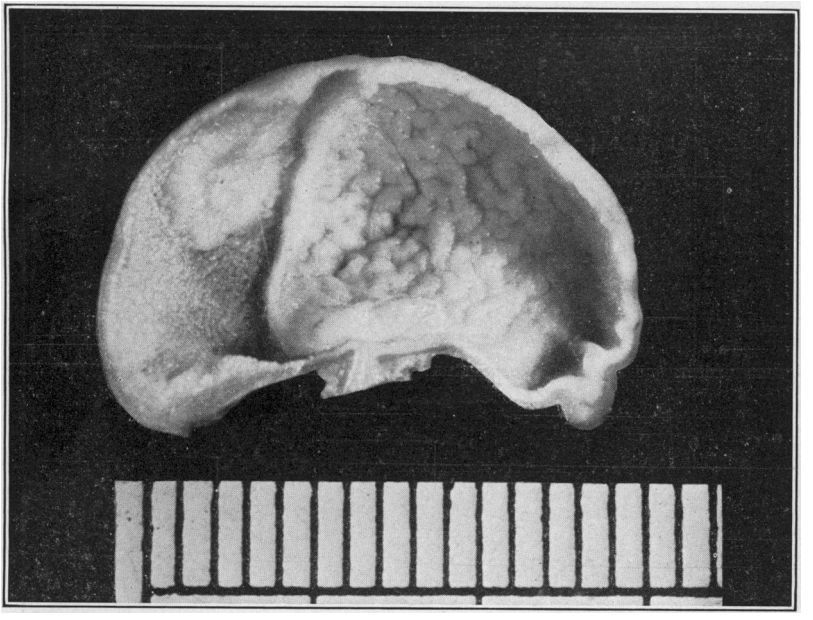

FIGURE 5.—The stomach from a strain I female mouse, aged 8.5 months, receiving a vitamin A deficient diet exclusively for 143 days. Note the thickened wall and roughened lining of the forestomach which also contains a craterlike wart. The glandular portion of the stomach contains a moderate spontaneous lesion. A hair ball was found in this stomach (× 4).

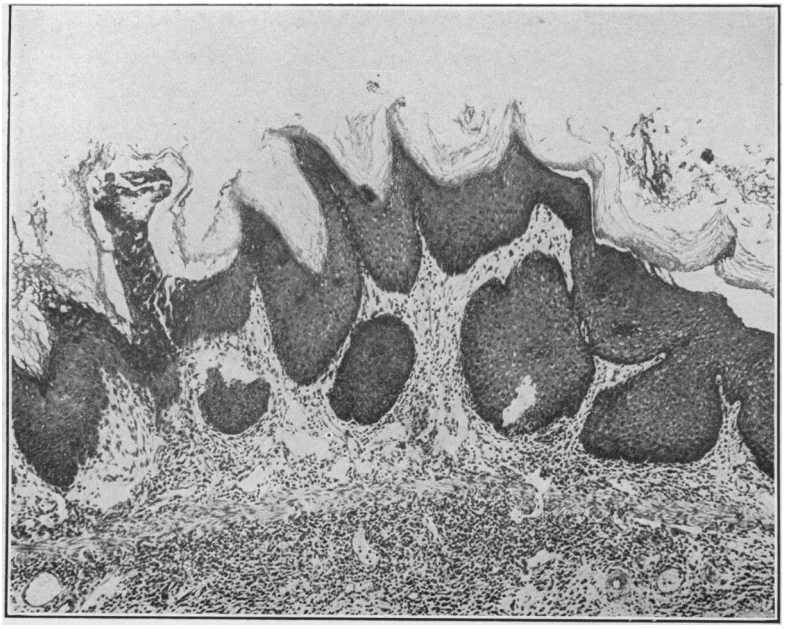

FIGURE 6.—Section through a papilloma in the forestomach of a strain I female mouse, aged 8.5 months, given a vitamin A deficient diet exclusively for 143 days. Note the marked hyperplasia of the squamous lining (× 70).

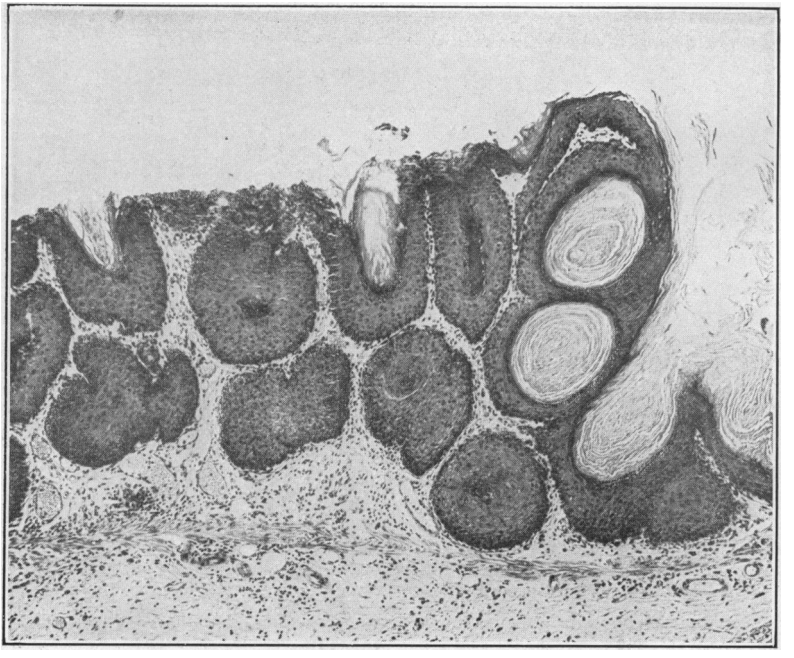

FIGURE 7.—Another section through the papilloma shown in figure 6. Note the hyperplasia of epithelial cells and hyperkeratinization (× 70).

as hard cakes and fed to the mice as such. According to the formula of the manufacturer they contained 7 percent fiber, while the experimental diets contained no roughage. This difference in the diets suggests that strain I mice given food containing a large amount of roughage may develop more extensive lesions than those fed a bland diet. This possibility is receiving attention.

While noting the degree of spontaneous hyperplasia in the glandular portion of the stomachs, it was found that in many mice the lining of the forestomach was definitely thickened and rough (fig. 5). As shown in table 3, this change occurred in 1 of 10 mice of group A, in 19 of 21 mice of group B, and in 3 of 23 mice of group C. Histologic studies of the thickened forestomachs revealed a pronounced hypertrophy and hyperkeratosis of the lining squamous epithelium (fig. 3). In addition to the generalized thickening, the forestomachs in 6 of 13 strain I mice of group B also contained papillomas or warty excrescences (figs. 4 and 5). Microscopically the papillomas consisted of a pronounced hyperplasia and keratinization of epithelial cells (figs. 6 and 7).

A description of similar lesions in the forestomach of the mouse has not been encountered in the literature. Wolfe and Salter (*6*) report no evident change in the stomachs of mice fed a vitamin A deficient diet for 120 days, although changes occurred in various other structures within 35 days.

An earlier publication described hypertrophy and hyperkeratosis of the forestomachs in old mice of strain I, but these conditions are not commonly seen in mice of the age (8 to 8.5 months) of those used in this investigation. It is essential to record that in a few instances papillomas similar to the one shown in figure 4 have been seen in the forestomachs of strain I mice maintained exclusively on dog chow. The occasional occurrence of hyperkeratosis and of papillomas in the forestomachs of mice kept on normal diets suggests that the changes found in mice of group B of this experiment are not specific for vitamin A deficiency. This view is in accord with that of Bessey and Wolbach (*3*) who, in a description of the pathology of vitamin A deficiency in the rat, state, "While in the rat hyperkeratosis of the forestomach is of frequent occurrence, it cannot be regarded as specific." Cramer (*4*) published studies of an extensive hyperplasia occurring in the forestomach of the rat and came to the conclusion that "unbalanced diets, especially diets deficient in vitamin A, may play a contributory part, but they are not the chief determining factor." While discussing the factors [2] which may influence the occurrence of the lesions, Cramer describes his experience with different

[2] The presence of hair balls in the stomach of the rat has been considered a factor in the occurrence of the lesion. In the experiment recorded here hair balls were found in the stomachs of two mice. One of these ate the vitamin deficient diet and the other the vitamin rich diet. The forestomach of the mouse fed the deficient diet is shown in figure 5. The forestomach of the mouse kept on the rich diet was normal.

stocks of rats and suggests that the strain of animal may be of considerable importance.

In the experiment reported here, mice of three inbred strains responded to a deficiency of vitamin A by developing hypertrophy and hyperkeratosis of the lining of the forestomach, but mice of strain I were more responsive than those of strains C_3H or M if the occurrence of papilloma is used as a criterion. Microscopic studies also disclosed a more extensive hyperkeratosis in strain M mice than in strain C_3H mice. Such observations mean that mice of different inbred strains vary in their response to a deficiency of vitamin A and suggest that strains of mice in which older animals have a tendency to develop lesions in certain structures similar to those elicited by vitamin deficiencies may be most responsive when fed deficient diets.

Finally, the use of inbred strains of mice as experimental animals has yielded results of exceptional interest in the study of infectious diseases as well as in the study of malignant growths and it is suggested that their use may also prove helpful in vitamin studies.

SUMMARY AND CONCLUSIONS

The adenomatous stomach lesion which occurs spontaneously in strain I mice did not occur in mice of other strains when they were kept in pens with strain I mice or when they were fed the lesion. Feeding tissues of the lesion to young strain I mice did not hasten its appearance or increase its degree of development in the young animals. It is concluded that the stomach lesion is not communicable and is not, apparently, caused by an infectious agent.

The lesion did not regress in older strain I mice fed a vitamin A rich diet and occurred in young strain I mice fed a diet rich in vitamin A. It is concluded that the lesion is not the result of vitamin A deficiency.

The lesion was more pronounced in young strain I mice kept on a dog chow diet which contained roughage than in those fed diets rich or deficient in vitamin A but which contained very little roughage. This suggests that the physical state of the diet may exert some influence upon the development of the lesion.

The vitamin A deficient diet caused hypertrophy and hyperkeratosis of the lining in the forestomachs of mice from three inbred strains but the strains varied in their responses to the deficient diet. The implication of this variation in response is discussed and it is suggested that inbred strains of mice may be of some use in the study of vitamins.

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STUDIES IN CHEMOTHERAPY

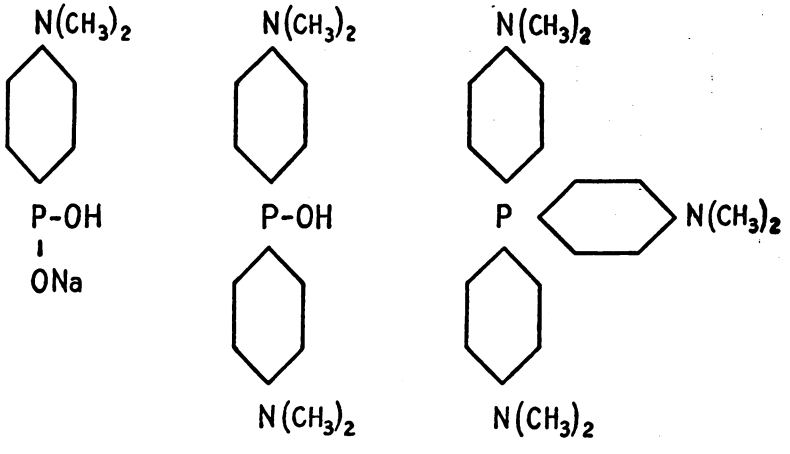
XI. Antibacterial Action of Phosphorus Compounds. Preliminary Report.

By Hugo Bauer, *Research Associate*, and Sanford M. Rosenthal, *Senior Pharmacologist, Division of Pharmacology, National Institute of Health, United States Public Health Service.*

In a previous report (*1*) it has been shown that sulfur is not essential to chemotherapeutic action. Compounds active against streptococci were obtained in which sulfur was replaced by arsenic, and some antipneumococcal activity was shown for 4-nitrobenzoic acid and related compounds.

Since the arsenic compounds were highly toxic, investigation was begun upon some analogous phosphorus derivatives. Preliminary results indicate that active phosphorus compounds with comparatively low toxicity can be obtained.

The following compounds were studied upon experimental streptococcal and pneumococcal infections in mice:



I II III

These compounds are known (*2*). They were prepared according to the method of Raudnitz (*3*). The sodium salt of 4-dimethylaminophenyl phosphonous acid (I) and tris (4-dimethylaminophenyl) phosphine (III) were inactive. The secondary compound bis (4-dimethylaminophenyl) phosphinous acid (II) administered by

TABLE 1.—*Antistreptococcal and antipneumococcal action of bis(dimethylaminophenyl) phosphinous acid (compound No. II) in mice (0.5 cc. of 10^{-6} dilutions of cultures injected intraperitoneally)*

Compound	Dosage (gm. per kilo)	Number of mice	Deaths (in days)											Mortality, percent	Organism
			1	2	3	4	5	6	7	8	9	10	11–14		
No. II	0.5×3 days oral	20	1	1		1	5	1		1			1	55	Streptococcus No. 1685, 10^{-6}.
Sulfanilamide	0.5×3 days oral	20				1	5		1			1	2	50	
Controls		12	12											100	
No. II	0.5×4 days oral	20			1			3	4					40	Streptococcus No. 1685, 10^{-6}.
No. II	0.5×4 days s. c.	20			1			4	2	1		1	1	50	
Sulfanilamide	0.5×4 days oral	20			3	1		3	1	3	1	1		65	
Controls		20	19	1										100	
No. II	0.25×2 days oral	15			3	5	2			2				80	Streptococcus No. 995, 10^{-6}.
Sulfanilamide	0.5×2 days oral	15					1	1	1			1	1	33	
Controls		15	12		1	1		1						100	
No. II	0.062×4 days oral	15		1	5	2	2	1				1		80	Streptococcus No. 995, 10^{-6}.
No. II	0.125×4 days oral	15			2	2	2	5	1				2	93	
No. II	0.25×4 days oral	15						3	2		1			40	
Sulfanilamide	0.5×4 days oral	15					1			1				13	
Controls		15	12			1	1		1					100	
No. II	0.7×4 days oral	15	1		10		1	1	1					93	Pneumococcus, Lederle I, 10^{-6}.
Controls		15	13		2									100	
No. II	0.25×3 days oral	15	5		8		1							93	Pneumococcus, Lederle I, 10^{-6}.
Controls		15	10		5									100	

mouth or subcutaneously was active against streptococcal infections in mice. The activity was equal to that of sulfanilamide (table 1).[1]

The effect upon pneumococcus (Type I) infections in mice, as with sulfanilamide, was much less pronounced.

The acute toxicity of these compounds for mice is shown in table 2. The maximum tolerated dose of compound II was 2 gm. per kilo orally or subcutaneously. For compound I orally it was greater than 8 gm. per kilo, and for compound III greater than 4 gm. per kilo. No evidence of delayed toxic effects has been seen.

The degree of activity of compound II, associated with the low toxicity of this class of compounds, warrants further study in various types of experimental infections. Related compounds, with particular reference to changes in the amino groups and in the valence of the phosphorus, are being investigated.

TABLE 2.—*Toxicity for mice of single doses of the phosphorus compounds. I was freely soluble in water. II and III were suspended in water for subcutaneous injection and in 5 percent acacia for oral administration*

Compound	Dosage (gm. per kilo)	Route	Number of mice	Deaths
I	1.0	Oral	5	0
	2.0	do	5	0
	3.0	do	5	0
	4.0	do	5	0
	6.0	do	5	0
	8.0	do	6	0
II	1.0	Oral	10	0
	2.0	do	15	0
	3.0	do	5	[1]2
	0.5	s. c.	5	0
	1.0	do	10	0
	2.0	do	10	[2]1
III	0.5	Oral	5	0
	1.0	do	5	0
	2.0	do	10	0
	3.0	do	5	0
	4.0	do	5	0
	1.0	s. c.	5	0
	2.0	do	5	0

[1] 6 hours.
[2] 4 days.

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(*2*) Michaelis, A. and Schenk, A.: Über die Einwirkung von Phosphorchlorür auf tertiäre aromatishe Amine. Liebig's Ann. d. Chem., **260**: 1 (1890). L. Cassella and Co.: Verfahren zur Darstellung von p-dialkylaminoarylphosphinigen Saeuren. German Patent No. 397813.

(*3*) Raudnitz, H.: Ueber die Einwirkung von Phosphor-, Arsen-, und Antimontrichlorid auf N-Dimethyl-anilin. Bericht. d. Deutsch. Chem. Gesellsch., **60**: 743 (1927).

[1] We are indebted to Dr. A. M. Patterson, Antioch College, for suggestions as to naming of these compounds.

DEATHS DURING WEEK ENDED NOVEMBER 4, 1939

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

	Week ended Nov. 4, 1939	Corresponding week, 1938
Data from 88 large cities of the United States:		
Total deaths	7,765	7,926
Average for 3 prior years	[1] 7,911	
Total deaths, first 44 weeks of year	362,544	356,613
Deaths under 1 year of age	448	492
Average for 3 prior years	[1] 515	
Deaths under 1 year of age, first 44 weeks of year	21,916	23,144
Data from industrial insurance companies:		
Policies in force	66,594,573	68,302,390
Number of death claims	11,775	11,545
Death claims per 1,000 policies in force, annual rate	9.2	8.8
Death claims per 1,000 policies, first 44 weeks of year, annual rate	10.0	9.3

[1] Data for 86 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.

In these and the following tables, a zero (0) indicates a positive report and has the same significance as any other figure, while leaders (----) represent no report, with the implication that cases or deaths may have occurred but were not reported to the State health officer.

Cases of certain diseases reported by telegraph by State health officers for the week ended Nov. 11, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median

Division and State	Diphtheria				Influenza				Measles			
	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median
NEW ENG.												
Maine	6	1	5	2	----	----	7	----	127	21	11	20
New Hampshire	0	0	0	0	----	----	----	----	41	4	1	1
Vermont	0	0	0	0	----	----	----	----	643	48	0	1
Massachusetts	8	7	2	2	----	----	----	----	123	105	115	65
Rhode Island	0	0	0	0	----	----	----	----	260	34	1	1
Connecticut	0	0	6	4	9	3	2	2	18	6	23	32
MID. ATL.												
New York [3]	6	15	14	28	[1]5	[1]7	[1]14	[1]10	68	171	137	139
New Jersey	27	23	4	16	5	4	3	6	10	8	11	26
Pennsylvania	14	27	41	41	----	----	----	----	16	31	60	78
E. NO. CEN.												
Ohio	52	68	91	56	4	5	----	5	6	8	14	56
Indiana [3]	22	15	31	33	9	6	12	19	10	7	10	10
Illinois	12	18	46	49	7	11	7	10	9	14	16	16
Michigan [3]	13	12	20	20	1	1	----	1	169	160	54	41
Wisconsin	2	1	3	5	53	30	42	36	47	27	60	59
W. NO. CEN.												
Minnesota	2	1	6	12	2	1	----	----	60	31	122	39
Iowa	38	19	18	13	----	----	5	2	12	6	20	6
Missouri	14	11	21	55	1	1	4	36	1	1	9	9
North Dakota	22	3	5	1	29	4	1	----	44	6	252	13
South Dakota	15	2	0	1	23	3	2	----	30	4	28	1
Nebraska	4	1	2	2	4	1	----	----	4	1	1	2
Kansas	6	2	10	16	17	6	5	2	98	35	8	4

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Nov. 11, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Diphtheria				Influenza				Measles			
	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median
SO. ATL.												
Delaware	0	0	0	1					0	0	3	3
Maryland [3]	22	7	9	14	12	4	5	7	9	3	23	10
District of Columbia	32	4	7	11	16	2	2	1	0	0	2	2
Virginia [3]	169	90	81	81	214	114	109		13	7	6	18
West Virginia	46	17	13	43	32	12	14	16	22	8	16	16
North Carolina [3]	206	141	89	96	3	2		4	108	74	157	38
South Carolina [3]	63	23	17	17	653	239	229	220	14	5	15	5
Georgia [3]	76	46	40	44	291	175	36		8	5	13	0
Florida [2 3]	18	6	1	12	6	2			12	4	6	2
E. SO. CEN.												
Kentucky	31	18	41	41	7	4	51	10	3	2	12	36
Tennessee [3]	79	45	43	36	49	28	28	28	12	7	8	8
Alabama [3]	63	36	23	43	104	59	62	52	14	8	3	1
Mississippi [3]	38	15	24	24								
W. SO. CEN.												
Arkansas	87	35	24	24	40	16	56	19	2	1	3	3
Louisiana	31	13	21	23	27	11	3	13	0	0	62	2
Oklahoma	24	12	7	14	107	53	21	25	0	0	7	3
Texas [3]	47	57	96	73	166	200	147	147	24	29	6	19
MOUNTAIN												
Montana	0	0	0	2	131	14	3	5	75	8	140	15
Idaho	0	0	0	0			3	3	51	5	29	17
Wyoming	22	1	0	2					327	15	2	2
Colorado	34	7	25	8	135	28	31		63	13	2	2
New Mexico	62	5	5	8			2	2	0	0	5	5
Arizona	12	1	2	2	564	46	55	37	12	1	5	2
Utah [2 4]	10	1	1	1	30	3	2		228	23	34	14
PACIFIC												
Washington	22	7	0	3	3	1	1	1	644	209	21	24
Oregon	0	0	4	1	35	7	13	18	55	11	7	7
California [3]	19	23	28	49	10	12	28	27	91	111	209	152
Total	33	836	926	1,077	53	1,115	1,005	766	52	1,277	1,746	1,746
45 weeks	17	19,586	24,494	24,494	167	159,002	54,789	110,137	321	357,617	772,659	683,515

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median
NEW ENG.												
Maine	0	0	0	0	0	0	3	0	24	4	10	14
New Hampshire	0	0	0	0	0	0	0	0	20	2	1	4
Vermont	0	0	0	0	13	1	0	0	13	1	10	10
Massachusetts	1.2	1	0	0	2.4	2	0	2	54	46	76	125
Rhode Island	0	0	0	0	0	0	0	0	61	8	7	7
Connecticut	3	1	0	0	0	0	0	0	65	22	32	37
MID. ATL.												
New York [3]	1.6	4	2	6	9	23	3	5	54	135	222	294
New Jersey	1.2	1	0	1	6	5	0	1	74	62	36	54
Pennsylvania	2	4	2	4	7	13	2	4	123	242	178	331

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Nov. 11, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median
E. NO. CEN.												
Ohio	0	0	4	2	4	5	1	2	158	205	292	292
Indiana [2]	0	0	1	1	3	2	0	2	180	121	104	147
Illinois	0	0	0	3	1.3	2	0	4	163	248	215	382
Michigan [2]	2.1	2	0	1	6	6	2	3	256	242	278	206
Wisconsin	1.8	1	0	0	9	5	1	1	204	116	138	210
W. NO. CEN.												
Minnesota	1.9	1	0	0	16	8	0	1	165	85	63	94
Iowa	0	0	0	1	47	23	1	2	158	78	50	76
Missouri	0	0	1	2	1.3	1	1	2	50	39	86	86
North Dakota	0	0	0	0	0	0	0	0	175	24	24	40
South Dakota	15	2	0	0	30	4	0	0	240	32	28	28
Nebraska	0	0	0	0	0	0	0	1	57	15	8	21
Kansas	0	0	0	0	8	3	0	4	282	101	102	98
SO. ATL.												
Delaware	0	0	0	0	0	0	0	0	315	16	6	6
Maryland [2]	0	0	0	2	0	0	0	1	108	35	17	72
Dist. of Columbia	8	1	0	1	0	0	0	0	113	14	4	9
Virginia [2]	4	2	2	3	1.9	1	0	1	105	56	65	56
West Virginia	5	2	1	1	11	4	0	0	239	89	84	100
North Carolina [2]	0	0	0	1	4	3	1	1	140	96	112	90
South Carolina [2]	5	2	0	0	11	4	0	0	55	20	10	10
Georgia [2]	0	0	0	0	3	2	1	1	66	40	30	27
Florida [2 3]	0	0	0	0	6	2	0	1	24	8	4	6
E. SO. CEN.												
Kentucky	1.7	1	1	4	23	13	0	1	129	74	113	107
Tennessee [2]	4	2	2	2	0	0	0	1	176	100	76	71
Alabama [2]	0	0	2	2	1.8	1	0	1	83	47	34	23
Mississippi [2]	2.5	1	1	1	0	0	2	2	35	14	11	20
W. SO. CEN.												
Arkansas	2.5	1	0	0	2.5	1	1	1	27	11	16	16
Louisiana	7	3	1	1	2.4	1	0	1	56	23	23	17
Oklahoma	2	1	0	0	4	2	0	1	28	14	32	20
Texas [2]	4	5	0	1	3	4	1	4	32	39	71	71
MOUNTAIN												
Montana	0	0	0	0	0	0	0	0	309	33	22	37
Idaho	10	1	0	0	20	2	0	0	122	12	11	33
Wyoming	0	0	0	0	0	0	0	0	131	6	3	16
Colorado	0	0	1	0	14	3	0	0	154	32	41	42
New Mexico	0	0	0	0	37	3	0	0	99	8	6	25
Arizona	0	0	0	0	0	0	1	0	12	1	6	7
Utah [2 4]	0	0	0	0	50	5	0	0	248	25	12	29
PACIFIC												
Washington	3	1	0	0	3	1	1	3	219	71	18	43
Oregon	0	0	0	0	5	1	1	3	65	13	50	45
California [2]	0.8	1	1	2	18	22	0	11	95	116	184	180
Total	1.6	41	22	67	7	178	23	112	113	2,841	3,021	3,993
45 weeks	1.5	1,730	2,553	4,861	6	6,640	1,566	6,871	121	136,566	160,475	191,424

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Nov. 11, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Smallpox				Typhoid and paratyphoid fever				Whooping cough		
	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases	1934–38, median	Nov. 11, 1939, rate	Nov. 11, 1939, cases	Nov. 12, 1938, cases
NEW ENG.											
Maine	0	0	0	0	6	1	2	2	266	44	62
New Hampshire	0	0	0	0	0	0	0	0	0	0	6
Vermont	0	0	0	0	13	1	1	0	952	71	75
Massachusetts	0	0	0	0	0	0	1	3	162	138	89
Rhode Island	0	0	0	0	8	1	0	0	160	21	24
Connecticut	0	0	0	0	0	0	1	1	214	72	74
MID. ATL.											
New York [1]	0	0	0	0	6	16	7	9	120	300	495
New Jersey	0	0	0	0	4	3	2	2	106	89	161
Pennsylvania	0	0	0	0	7	14	11	20	142	279	208
E. NO. CEN.											
Ohio	0	0	0	0	4	5	6	10	29	38	191
Indiana [2]	1	1	8	5	12	8	3	3	55	37	10
Illinois	0	0	3	1	5	7	6	17	106	161	553
Michigan [2]	16	15	6	1	1	1	3	6	108	102	194
Wisconsin	5	3	8	8	0	0	2	2	232	132	378
W. NO. CEN.											
Minnesota	4	2	6	6	6	3	0	0	110	57	16
Iowa	12	6	1	3	0	0	2	3	32	16	22
Missouri	0	0	8	2	3	2	5	7	14	11	11
North Dakota	0	0	0	1	7	1	7	1	29	4	4
South Dakota	8	1	0	0	8	1	0	0	45	6	9
Nebraska	4	1	1	1	0	0	0	0	27	7	1
Kansas	3	1	1	2	11	4	4	6	34	12	22
SO. ATL.											
Delaware	0	0	0	0	0	0	0	0	197	10	5
Maryland [2]	0	0	0	0	12	4	3	7	160	52	16
District of Columbia	0	0	0	0	32	4	0	1	57	7	13
Virginia [3]	0	0	0	0	9	5	3	10	111	59	20
West Virginia	0	0	0	0	30	11	7	7	27	10	23
North Carolina [3]	0	0	0	0	6	4	4	4	111	76	166
South Carolina [3]	0	0	0	0	16	6	3	3	25	9	21
Georgia [3]	0	0	0	0	5	3	2	7	13	8	4
Florida [2 3]	0	0	0	0	6	2	0	0	30	10	4
E. SO. CEN.											
Kentucky	0	0	2	1	2	1	3	12	137	79	4
Tennessee [3]	0	0	0	0	12	7	2	9	115	65	24
Alabama [3]	0	0	0	0	7	4	2	3	21	12	26
Mississippi [3]	0	0	0	0	10	4	3	8	----	----	----
W. SO. CEN.											
Arkansas	0	0	3	1	25	10	7	7	30	12	13
Louisiana	5	2	1	0	7	3	7	9	44	18	17
Oklahoma	2	1	1	4	16	8	3	15	4	2	8
Texas [3]	0	0	11	1	11	13	22	25	37	45	50
MOUNTAIN											
Montana	0	0	4	5	0	0	4	3	37	4	25
Idaho	0	0	1	1	10	1	4	2	0	0	4
Wyoming	0	0	1	1	0	0	0	0	153	7	10
Colorado	14	3	6	3	14	3	9	1	43	9	37
New Mexico	0	0	0	0	0	0	3	10	334	27	19
Arizona	0	0	0	0	0	0	4	1	12	1	1
Utah [2 4]	0	0	0	0	0	0	1	0	1,063	107	21
PACIFIC											
Washington	0	0	1	22	12	4	8	3	59	19	31
Oregon	0	0	1	1	5	1	1	2	94	19	10
California [2]	0	0	5	1	25	30	7	13	47	57	82
Total	1	36	79	84	8	196	185	318	94	2,321	3,242
45 weeks	8	9,001	13,271	6,531	10	11,726	13,125	13,879	139	154,703	182,892

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Typhus fever, week ended Nov. 11, 1939, 76 cases as follows: Virginia, 1; North Carolina, 1; South Carolina, 4; Georgia, 41; Florida, 1; Tennessee, 13; Alabama, 6; Texas, 8; California, 1.
[4] Rocky Mountain spotted fever, week ended Nov. 11, 1939, Utah, 1 case.

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	Diphtheria	Influenza	Malaria	Measles	Meningitis, meningococcus	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid and paratyphoid fever
October 1939										
Arkansas	90	70	383	8	1	57	8	51	3	48
California	60	60	38	302	8	3	146	407	13	58
Maine	4	1	--	9	2	--	1	30	0	6
Michigan	80	32	15	134	8	--	152	700	1	48
New Jersey	36	30	1	30	3	--	27	215	0	17
Texas	107	572	368	105	6	88	36	128	1	117
West Virginia	88	45	--	11	3	--	16	343	0	30

October 1939

	Cases
Actinomycosis:	
California	1
Michigan	1
Botulism:	
California	1
Chickenpox:	
Arkansas	41
California	427
Maine	115
Michigan	575
New Jersey	393
Texas	34
West Virginia	137
Dengue:	
California	1
Texas	2
Dysentery:	
Arkansas (amoebic)	3
Arkansas (bacillary)	24
California (amoebic)	28
California (bacillary)	77
Maine (bacillary)	1
Michigan (amoebic)	10
Michigan (bacillary)	18
Michigan (unspecified)	2
New Jersey (amoebic)	1
NewJersey (bacillary)	2
Texas (amoebic)	8
Texas (bacillary)	119
West Virginia (bacillary)	4
Encephalitis, epidemic or lethargic:	
California	7
Maine	1
Michigan	1
New Jersey	2
Texas	2
Food poisoning:	
California	45
German measles:	
California	61
Maine	9
Michigan	28
New Jersey	24

	Cases
Granuloma, coccidioidal:	
California	7
Hookworm disease:	
Arkansas	3
California	2
Jaundice, epidemic:	
California	15
Michigan	3
Leprosy:	
California	2
New Jersey	1
Texas	1
Mumps:	
Arkansas	20
California	626
Maine	5
New Jersey	299
Texas	26
Ophthalmia neonatorum:	
California	2
New Jersey	15
Texas	1
Psittacosis:	
California	2
Puerperal septicemia:	
Arkansas	2
Rabies in animals:	
Arkansas	15
California	23
Michigan	1
New Jersey	21
Relapsing fever:	
California	3
Texas	5
Rocky Mountain spotted fever:	
Michigan	1
New Jersey	1
Septic sore throat:	
Arkansas	27
California	7
Maine	1
Michigan	34
New Jersey	5
West Virginia	2

	Cases
Tetanus:	
Arkansas	1
California	4
Maine	1
Michigan	4
New Jersey	2
Trachoma:	
Arkansas	21
California	21
Texas	5
Trichinosis:	
California	1
Tularaemia:	
Arkansas	2
Texas	5
Typhus fever:	
Arkansas	1
California	5
Texas	36
Undulant fever:	
Arkansas	1
California	22
Maine	2
Michigan	7
New Jersey	5
Texas	12
West Virginia	1
Vincent's infection:	
Maine	1
Michigan	26
Whooping cough:	
Arkansas	55
California	456
Maine	153
Michigan	419
New Jersey	357
Texas	116
West Virginia	82

WEEKLY REPORTS FROM CITIES

City reports for week ended November 4, 1939

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

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	232	101	31	424	489	973	6	335	42	974	-------
Current week [1]	123	63	18	216	327	611	0	307	42	713	-------
Maine:											
Portland	0	------	0	6	1	2	0	0	0	3	23
New Hampshire:											
Concord	0	------	0	1	1	0	0	0	0	0	11
Manchester	0	------	0	0	0	0	0	0	0	0	11
Nashua	0	------	0	0	0	0	0	0	0	0	8
Vermont:											
Barre	------	------	------	------	------	------	------	------	------	------	-------
Burlington	0	------	0	0	0	0	0	0	0	7	9
Rutland	0	------	1	0	0	0	0	0	0	0	8
Massachusetts:											
Boston	1	------	1	8	10	18	0	7	0	27	202
Fall River	1	------	0	0	0	0	0	1	0	6	24
Springfield	0	------	0	0	0	2	0	0	0	3	33
Worcester	0	------	0	0	5	1	0	2	0	7	52
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	13
Providence	0	------	0	42	6	3	0	0	0	8	60
Connecticut:											
Bridgeport	0	1	1	0	0	4	0	3	0	0	28
Hartford	0	------	0	1	0	6	0	1	1	37	46
New Haven	0	------	0	3	2	2	0	0	0	2	35
New York:											
Buffalo	1	------	0	5	8	7	0	8	0	0	131
New York	16	3	1	14	58	38	0	57	4	75	1,363
Rochester	0	2	0	2	1	0	0	0	0	20	62
Syracuse	0	------	0	0	4	6	0	0	0	12	41
New Jersey:											
Camden	4	------	0	0	2	4	0	0	0	1	35
Newark	0	1	0	1	4	9	0	4	0	32	78
Trenton	0	------	0	0	4	0	0	0	0	0	44
Pennsylvania:											
Philadelphia	1	------	1	2	13	24	0	21	1	63	427
Pittsburgh	6	------	1	2	9	30	0	3	0	6	140
Reading	0	------	0	0	1	0	0	0	0	4	10
Scranton	0	------	0	1	0	0	0	0	0	1	-------
Ohio:											
Cincinnati	10	------	0	0	3	7	0	5	0	8	136
Cleveland	3	12	0	1	7	22	0	9	1	42	186
Columbus	0	------	0	1	4	16	0	1	0	1	75
Toledo	0	------	0	9	2	7	0	5	1	15	63
Indiana:											
Anderson	0	------	0	0	0	0	0	0	0	4	10
Fort Wayne	1	------	0	0	2	0	0	1	0	1	25
Indianapolis	1	------	0	4	2	22	0	4	0	10	99
Muncie	0	------	0	0	3	3	0	0	0	0	7
South Bend	0	------	0	0	0	3	0	0	0	2	8
Terre Haute	1	------	0	0	0	2	0	1	0	0	19
Illinois:											
Alton	1	------	0	0	0	1	0	0	1	0	11
Chicago	9	7	0	9	23	85	0	32	2	67	631
Elgin	0	------	0	0	1	1	0	0	0	4	15
Moline	0	------	0	0	0	1	0	0	0	0	3
Springfield	------	------	------	------	------	------	------	------	------	------	-------
Michigan:											
Detroit	7	------	0	6	7	56	0	11	0	32	204
Flint	0	------	0	0	1	6	0	0	0	8	17
Grand Rapids	0	------	0	2	1	7	0	0	0	2	22
Wisconsin:											
Kenosha	0	------	0	0	0	5	0	0	0	2	5
Madison	0	------	0	0	0	1	0	0	0	4	12
Milwaukee	0	------	0	4	4	23	0	2	0	14	97
Racine	0	------	0	0	0	1	0	1	0	0	22
Superior	0	------	0	0	0	0	0	0	0	0	6
Minnesota:											
Duluth	0	------	0	7	1	1	0	1	0	2	14
Minneapolis	1	------	1	2	9	20	0	0	0	8	100
St. Paul	0	------	0	0	4	6	0	0	0	28	48

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

City reports for week ended November 4, 1939—Continued

State and city	Diphtheria cases	Influenza cases	Influenza deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Iowa:											
Cedar Rapids	0	------	--------	0	-------	1	0	-------	0	0	--------
Davenport	0	------	--------	0	-------	2	0	-------	0	0	--------
Des Moines	0	------	0	0	0	8	1	0	0	0	31
Sioux City	0	------	--------	0	-------	7	0	-------	0	2	--------
Waterloo	3	------	--------	1	-------	1	0	-------	0	1	--------
Missouri:											
Kansas City	0	------	0	3	5	14	0	7	1	0	89
St. Joseph	0	------	0	0	3	1	0	2	0	0	34
St. Louis	6	------	1	1	11	15	0	4	2	8	207
North Dakota:											
Fargo	0	------	0	0	0	0	0	0	0	0	5
Grand Forks	0	------	--------	0	-------	0	0	-------	0	0	--------
Minot	0	------	0	0	0	1	0	0	0	0	11
South Dakota:											
Aberdeen	0	------	--------	0	-------	1	0	-------	0	0	--------
Sioux Falls	0	------	0	0	0	3	0	0	0	0	7
Nebraska:											
Lincoln	0	------	--------	1	-------	2	0	-------	0	2	--------
Omaha	1	------	0	0	2	2	0	1	0	2	65
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	0	4
Topeka	0	------	0	0	0	4	0	0	0	0	25
Wichita	0	------	0	16	1	1	0	4	0	0	30
Delaware:											
Wilmington	0	------	0	2	0	3	0	0	0	6	26
Maryland:											
Baltimore	3	3	3	3	9	3	0	3	0	21	200
Cumberland	0	------	0	0	0	2	0	0	1	0	17
Frederick	0	------	0	0	0	3	0	0	0	1	3
District of Columbia:											
Washington	2	------	0	0	11	10	0	7	1	15	161
Virginia:											
Lynchburg	4	------	0	0	0	2	0	0	0	8	3
Norfolk	3	3	0	0	2	1	0	3	0	0	20
Richmond	0	------	0	0	0	2	0	3	0	2	52
Roanoke	2	------	0	0	0	1	0	0	0	0	11
West Virginia:											
Charleston	0	------	0	0	1	3	0	0	1	0	15
Huntington	4	------	--------	0	-------	1	0	-------	0	0	--------
Wheeling	0	------	1	2	2	5	0	1	0	1	20
North Carolina:											
Gastonia	0	------	--------	0	-------	1	0	-------	1	0	--------
Raleigh	1	------	0	0	2	4	0	1	0	0	14
Wilmington	------	------	--------	-------	-------	-------	-------	-------	-------	-------	--------
Winston-Salem	1	------	0	0	1	6	0	0	0	0	23
South Carolina:											
Charleston	0	8	2	0	2	0	0	0	0	0	18
Florence	0	9	0	0	1	0	0	0	0	0	2
Greenville	0	------	--------	0	-------	0	0	-------	0	0	--------
Georgia:											
Atlanta	4	1	0	1	5	6	0	4	1	1	73
Brunswick	0	------	0	0	0	0	0	0	0	0	2
Savannah	1	8	1	0	7	1	0	2	0	0	38
Florida:											
Miami	0	1	0	0	0	0	0	1	1	1	26
Tampa	0	------	0	0	0	0	0	0	0	0	13
Kentucky:											
Ashland	0	------	0	0	0	0	0	1	0	0	5
Covington	1	------	0	0	2	4	0	0	0	0	9
Lexington	0	------	0	0	0	0	0	1	2	0	18
Louisville	3	------	0	0	4	8	0	0	1	33	63
Tennessee:											
Knoxville	0	------	0	0	1	12	0	3	0	2	26
Memphis	0	------	0	0	2	7	0	5	4	21	91
Nashville	0	------	0	0	3	2	0	0	0	9	50
Alabama:											
Birmingham	4	5	0	0	2	3	0	2	1	0	53
Mobile	0	------	1	0	1	5	0	1	0	0	17
Montgomery	3	1	--------	0	-------	1	0	-------	0	0	--------
Arkansas:											
Fort Smith	0	------	--------	1	-------	1	0	-------	1	0	--------
Little Rock	1	1	0	0	3	0	0	4	0	0	--------
Louisiana:											
Lake Charles	0	------	0	0	0	0	0	0	0	0	4
New Orleans	6	1	1	0	7	1	0	10	0	9	137
Shreveport	1	------	0	0	6	2	0	2	0	0	49

City reports for week ended November 4, 1939—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Oklahoma:											
Oklahoma City	0	------	0	0	0	2	0	3	0	0	39
Tulsa	0	------	-------	0	-------	1	0	-------	0	0	-------
Texas:											
Dallas	6	------	0	0	4	2	0	5	0	1	53
Fort Worth	2	------	0	0	1	1	0	2	0	3	33
Galveston	4	------	0	0	0	0	0	0	0	0	12
Houston	2	------	0	0	3	0	0	14	1	0	77
San Antonio	0	------	0	1	4	0	0	4	1	0	55
Montana:											
Billings	0	------	1	0	0	0	0	1	1	0	9
Great Falls	0	------	0	0	2	3	0	0	0	0	12
Helena	0	------	0	0	0	0	0	0	0	0	1
Missoula	0	------	0	0	0	0	0	0	0	0	8
Idaho:											
Boise	0	------	0	0	1	0	0	0	0	0	8
Colorado:											
Colorado Springs	0	------	0	0	0	5	0	0	0	0	13
Denver	3	------	0	2	4	4	0	6	0	3	85
Pueblo	0	------	0	0	0	2	0	1	0	0	12
New Mexico:											
Albuquerque	0	------	0	1	4	0	0	3	0	0	13
Utah:											
Salt Lake City	2	------	0	3	1	4	0	2	0	44	31
Washington:											
Seattle	0	------	0	3	3	1	0	3	1	7	77
Spokane	2	------	0	1	1	8	0	1	2	0	29
Tacoma	0	------	0	47	4	3	0	0	1	0	31
Oregon:											
Portland	0	------	0	2	1	7	0	2	0	3	81
Salem	0	------	-------	5	-------	0	0	-------	0	0	-------
California:											
Los Angeles	3	9	1	3	7	25	0	21	10	3	337
Sacramento	1	------	0	0	1	4	0	3	0	0	25
San Francisco	0	1	0	5	7	9	0	8	0	9	150

State and city	Meningitis, meningococcus		Poliomyelitis cases	State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				South Dakota:			
Worcester	0	0	1	Aberdeen	0	0	1
New York:				Maryland:			
Buffalo	0	0	3	Baltimore	0	0	2
New York	2	1	4	Georgia:			
Rochester	0	0	1	Atlanta	1	1	0
Pennsylvania:				Kentucky:			
Philadelphia	1	0	3	Lexington	1	0	0
Pittsburgh	1	1	1	Arkansas:			
Ohio:				Little Rock	0	0	1
Columbus	0	0	1	Louisiana:			
Indiana:				Lake Charles	1	0	0
Indianapolis	0	0	1	New Orleans	1	1	0
Illinois:				Shreveport	0	2	0
Chicago	0	0	3	Oklahoma:			
Michigan:				Tulsa	0	0	1
Detroit	1	0	2	Texas:			
Flint	0	0	1	Houston	1	0	1
Wisconsin:				Colorado:			
Madison	0	0	1	Denver	0	0	2
Minnesota:				Pueblo	0	0	2
Minneapolis	0	0	5	Utah:			
St. Paul	0	0	3	Salt Lake City	0	0	1
Iowa:				Oregon:			
Des Moines	0	0	12	Portland	0	0	1
North Dakota:				California:			
Fargo	0	0	1	Los Angeles	0	0	3
				San Francisco	0	0	4

Encephalitis, epidemic or lethargic.—Cases: New York, 1; St. Louis, 1; Wichita, 3.
Pellagra.—Cases: Lynchburg, 1; Charleston, S. C., 2; Florence, 1; Savannah, 1; New Orleans, 1; Dallas, 1; Sacramento, 1.
Typhus fever.—Cases: New York, 1; Atlanta, 3; Savannah, 1; Mobile, 4; New Orleans, 1; Los Angeles, 1.

FOREIGN REPORTS

AUSTRALIA

Infectious diseases—1938.—During the year 1938, cases of certain infectious diseases were reported in Australia as follows:

Disease	Cases	Disease	Cases
Anthrax	1	Malaria	6
Beriberi	5	Measles	103
Cerebrospinal fever	45	Poliomyelitis	2,698
Chickenpox	9	Psittacosis	2
Coastal fever	6	Puerperal fever	430
Dengue	115	Scarlet fever	5,932
Diphtheria	8,831	Tetanus	10
Dysentery	25	Trachoma	41
Erysipelas	81	Tuberculosis	3,572
Filariasis	2	Typhoid fever	315
Hookworm disease	14	Typhus fever	102
Influenza	178	Undulant fever	5
Leprosy	12	Weil's disease	8
Lethargic encephalitis	18	Whooping cough	248

CANADA

Provinces—Communicable diseases—Week ended October 28, 1939.—During the week ended October 28, 1939, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1	1					2
Chickenpox		12		150	146	26	34	73	49	490
Diphtheria			5	63	4	7	6	3		88
Dysentery				3	1					4
Influenza		35			3	1			26	65
Measles		4		194	140	2	1	1	44	386
Mumps				8	37	2	1	2	11	61
Pneumonia		8			13	1	1		12	35
Poliomyelitis		3	1	2	9	1				16
Scarlet fever		6	22	84	122	30	5	18	22	309
Trachoma						14			10	24
Tuberculosis		20	35	54	52	5	25	1		192
Typhoid and paratyphoid fever		1		15		5	6	1		28
Whooping cough		41		91	53	26	14	18	16	259

NOTE.—No cases of the above diseases were reported in Prince Edward Island for this period.

FINLAND

Communicable diseases—September 1939.—During the month of September 1939, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	283	Poliomyelitis	6
Dysentery	1	Scarlet fever	378
Influenza	1,140	Typhoid fever	20
Paratyphoid fever	121		

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

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

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Mar. 26–Apr. 29, 1939	Apr. 30–May 27, 1939	May 28–June 24, 1939	June 25–July 29, 1939	Week ended— August 1939 5	12	19	26	September 1939 2	9	16	23	30	October 1939 7	14	21	28
Afghanistan	C					[1] 214		[1] 122				19			17			
	D				82	99		45			[1] 58							
Kandahar Province	C							101		[1] 107								
Greshk	C				5													
Tchakhansour	C				P													
Ceylon: Batticaloa	C				1									2	2	2		
China:																		
Canton	C		9															
	D		6															
Fatshan	C		P															
	D		154															
Hainan Island	C		P															
Hankow	C				P													
Honan	C		P															
Hong Kong	C		25	113	214	26	75	52	36	17	5	12	18	27	21	11	11	4
	D		19	80	136	20	54	33	18		7		8		15			
Macao	C	1	20	59	403	20	17	17		11		17	21	26	25	17	31	16
	D		12	33	188	9	7	6		9								
Shanghai	C			1	2		1	[2] 2		36	64	93	71	60	22	22	29	19
Tientsin	C					1												
Tsinan	C													3				
Tsingtao	C													P				
Whampoa	C		P															
India	C	11,896	7,117	6,638	18,349	5,045	5,138											
	D	5,502	3,337	2,877	8,283	2,450	2,520											
Akyab	C		1	1	[2] 1													
Allahabad	C		1	[2] 1	24		12	15	12	10	2	6	2	1	1	1		
Assam	C	220	405	321	76	9		2	7	6		5			2			
	D	105	156	117	32	2		1	5	3		5			1			
Bassein	C	2	6	5														
Bengal Presidency	C	8,754	3,193	2,040	3,732	593	578	469	446	454	420	377			403			
	D	4,174	1,504	874	1,578	324	359	284	281	272		222			219			

Bihar Province	C		584	263															
	D		264	107															
Bombay Presidency	C	157	196	98	1,139	302	332	290	191										
	D	61	83	37	429	100	117	88	68										
Burma	C						10	26	7	16									
	D						10	24	7										
Calcutta	C	963	821	593	636	27	38	21	9	13	11	14	12	15	19	12			
Cawnpore	C	3	4	10	5	6	18	29	41	18	9	11	7	5	12	3			
	D		2	4	4	2	3	11	12										
Central Provinces and Berar	C	184	194	34	79	49	86	203	262		180	488	382	306	351	205			
Chittagong	C	12	9	3	13	1	2	2	2	1	1	1	5		2				
Delhi	C				1		2							1					
	D	1					2												
Howrah	C	785	420	257	311	40	36	31	16	8									
Madras Presidency	C	84	60	66	200	62	31	6	8	6									
	D	30	24	13	70	21	8	4	3	3									
Madras	C			1															
Orissa Province	C	161	111	173	719	150	106	283	197	387	527	658	891	976	868	653			
Punjab	C					1			5	2									
Rangoon	C	4	9	4															
Sind State	C										6	6							
India (French):																			
Chandernagor Territory	C	22																	
Pondichery Territory	C	1																	
Indochina (French): Tonkin Province	C				1														
Iran:																			
Khorassan	C				371	30													
Zabol	C				34														
Iraq: Basra	C								[3] 1										
Japan: Osaka	C															[2] 1			
Thailand:																			
Bangkok	C	4	1											1	1				
Smud Prakar Province	C	13																	
On vessels:																			
S. S. *Erinpura* at Rangoon from Calcutta	C		1																
S. S. *Amra* at Calcutta from Rangoon	C			1															
S. S. *Tin How* at Singapore from Hong Kong	C				1														
S. S. *Essi* at Hong Kong from Calcutta	C				1														

[1] For 2 weeks. [2] Imported. [3] Suspected.

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

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Mar. 26–Apr. 29, 1939	Apr. 30–May 27, 1939	May 28–June 24, 1939	June 25–July 29, 1939	Week ended— August 1939 5	12	19	26	September 1939 2	9	16	23	30	October 1939 7	14	21	28
Argentina (see also table below)	C	------	------	------	2	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	------	------	2	------	------	------	------	------	------	------	------	------	------	------	------	------
Belgian Congo	C	------	18	------	1	1	------	------	------	5	2	2	2	------	------	[2]8	------	10
Brazil. (See table below.)																		
British East Africa:																		
Nyasaland	C	------	------	------	2	------	------	------	------	------	------	------	------	------	------	------	------	------
Uganda	C	17	17	25	61	4	12	5	4	------	------	------	------	------	------	------	------	------
	D	17	17	25	55	3	11	5	4	------	------	------	------	------	------	------	------	------
China: Manchuria.[3] (See also table below.)																		
Dutch East Indies:																		
Java—																		
Batavia	C	------	------	------	------	------	------	[4]1	------	------	------	------	------	------	------	------	------	------
Batavia Residency.[5]																		
Java and Madura	C	167	94	37	130	------	------	28	------	------	------	------	------	------	------	------	------	------
	D	165	94	37	130	------	------	28	------	------	------	------	------	------	------	------	------	------
Ecuador (see also table below):																		
Chimborazo Province	C	[6]18	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Guayaquil	C	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Egypt: Asyut Province	C	35	10	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Hawaii Territory: Plague-infected rats:																		
Hawaii Island—Hamakua District:																		
Hamakua Mill Sector		------	1	------	1	------	------	------	------	------	2	------	------	1	1	------	------	------
Honokaa		1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Kapulena		2	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Paauhau Sector		------	------	------	3	------	------	------	------	1	------	1	------	------	------	------	------	------
Paauilo		------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
India	C	10,527	770	72	291	506	432	------	------	------	------	------	------	------	------	------	------	------
	D	3,118	524	35	152	295	266	------	------	------	------	------	------	------	------	------	------	------
Bassein	C	------	------	1	2	1	------	------	------	------	2	------	2	------	------	------	------	------
Plague-infected rats		------	------	------	1	------	------	------	2	------	------	2	------	------	------	------	------	------
Bihar Province	C	------	12	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	9	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Bombay Presidency	C	46	11	6	24	16	45	33	33	------	------	------	------	------	------	------	------	------
	D	23	8	2	11	10	19	20	16	------	------	------	------	------	------	------	------	------
Burma	C	------	------	------	44	------	4	15	21	32	------	------	------	------	------	------	------	------
	D	------	------	------	36	------	9	14	19	------	------	------	------	------	------	------	------	------

Calcutta	C	1																	
Calicut	C		1												2	1			
Central Provinces and Berar	C	1,914	198	6	7	10	31	31	65	47	76	140	130	135	148	137			
Coorg Province	C	4	1	1	2														
Madras Presidency	C	15	14	14	12	10	4	1	3	7									
	D	8	8	6	2	3	3			2									
Rangoon	C			1					1							1			
	D			1					1										
Indochina:																			
Cambodia	C			1															
Pnom Penh	C	1																	
Madagascar. (See table below.)																			
Peru. (See table below.)																			
Thailand:																			
Bichitr Province	C		4																
	D		1																
Prae	C	3																	
Tunisia: Tunis	C	1																	
Union of South Africa	C	9							6		4								
Cape Province	C	4	1																
Orange Free State	C	7																	
United States.[7]																			

Place		April 1939	May 1939	June 1939	July 1939	August 1939	September 1939
Argentina (see also table above):							
Jujuy Province	C						1
Mendoza Province	C				1		
San Luis Province	C				1		
Brazil:							
Alagoas State	C	1					
Pernambuco State	C	6					
Sao Paulo State	C	1					
China: Fukien Province	C				[8] 467		

Place		April 1939	May 1939	June 1939	July 1939	August 1939	September 1939
Ecuador (see also table above):							
Guayaquil and vicinity—Plague-infected rats					41		
Madagascar (central region)	C	33	16	12	21	25	
	D	25	14	12	19	22	
Peru	C	11	11	3	7	2	
Lambayeque Department	C	1	1				
Libertad Department	C	2	3	1		2	
Lima Department	C	1		1	7		
Piura Department	C	7	7	1			

[1] Including plague in the United States and its possessions.
[2] For 2 weeks.
[3] Information dated May 5, 1939, states that 34 cases of plague with 8 deaths had occurred in Hsinking, Manchuria, since the beginning of the year. Report dated Aug. 26, 1939, states that up to the beginning of August, 12 deaths from plague occurred in Kailu, in the eastern part of Hsingan West Province, and that up to Aug. 15, 1939, 51 deaths from plague occurred in Kirin Province, Manchuria.
[4] Imported.
[5] A report dated July 10, 1939, states that up to July 6, 1939, 84 deaths from pneumonic plague occurred in Batavia Residency, Java, Dutch East Indies.
[6] Includes 11 cases of pneumonic plague.
[7] Last reported human case, Aug. 30, 1937, Fresno County, Calif. Intensive plague work is being conducted in the Western States and detailed reports of plague infection found in animals and insect hosts are published currently in the PUBLIC HEALTH REPORTS. The following summarizes recent reports for 1939: *California*—Ground squirrels, April; insects, June and Sept. 30; *Idaho*—Insects, June 14; *Montana*—Ground squirrels, July 15; insects, July 15 and 17; *Nevada*—Insects, April; *New Mexico*—Kangaroo rat, Apr. 15; *Oregon*—Ground squirrels, June; insects, May and June; *Washington*—Rabbit, May; insects, April and May; *Wyoming*—Insects, July 3.
[8] Includes 92 cases of pneumonic plague.

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

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Mar. 26–Apr. 29, 1939	Apr. 30–May 27, 1939	May 28–June 24, 1939	June 25–July 29, 1939	Week ended— August 1939 5	12	19	26	September 1939 2	9	16	23	30	October 1939 7	14	21	28
Algeria: Oran Department	C	1	2	1	2													
Angola. (See table below.)																		
Belgian Congo. (See table below.)																		
Bolivia. (See table below.)																		
Brazil: Porto Alegre	C		7	6														
British East Africa:																		
Nairobi	C			26														
Nyasaland	C				1	1		7	9	1	4							
Tanganyika	C	146	9	48	19	4	27											
Canada:																		
Alberta	C			22														
Manitoba	C	13	2	1	1													
Saskatchewan	C			1	1													
China (see also table below):																		
Dairen	C	4	5	2	2													
Foochow	C	8	12	8	13	5		4	5									
Hong Kong	C	34	11	1	2													
	D	26	11	1	1													
Shanghai	C	50	18	8	3		1											
Swatow	C	7																
Tientsin	C	4	1	1														
Chosen (Korea). (See table below.)																		
Colombia (see also table below): Cartagena	D	1			1										3	3	5	
Dahomey. (See table below.)																		
Dominican Republic	C					1												
Ecuador: Guayaquil	C	1		3	1													
	D	1		1														
Eritrea: Massaua	C			1	1													
French Equatorial Africa:																		
Brazzaville	C						31											
Chad	C	14																
French Guinea	C				40													
Gold Coast	C				45													
Accra	C				1													
Greece. (See table below.)																		
Guatemala. (See table below.)																		

India	C	18,580	17,603	11,499	8,220	1,078	959												
	D	4,895	4,051	3,009	2,156	308	267												
Allahabad	C		1		1														
Assam	C	225	252	127	72	12	22	19	52	15	18	22			7				
Bengal Presidency	C	3,305	1,626	781	669	49	77	48	46	93	62	49			37				
	D	1,242	605	295	240	21	28	18	10	29		22			15				
Bihar Province	C		2,360	672															
Bombay Presidency	C	6,398	4,061	2,809	1,924	315	273	307	232										
	D	961	598	415	423	67	52	63	47										
Bombay	C	61	41	40	50	9	8	6	5	3		2	1	1	2				
	D	20	17	21	32	8	4	3	2										
Burma	C				8		6	3	9	7									
	D				3		5		3										
Calcutta	C	910	298	127	112	12	3	5	2	5	1	3	3	1	1				
	D	676	235	95	77	10	1	5	1	3		1							
Calicut	C												1		1				
Cawnpore	C	14	16	3															
Central Provinces and Berar	C	1,132	904	757	367		52	47	27	23	3	37	1	10	9	5			
Cochin	C	3		1															
Delhi	C	187	203	99	34	7	2	3	2	1		1	3			1			
Howrah	C	222	103	87	73	3	5	2	4	18									
Jodhpur	D		38	7	14			2			1	1			1				
Karachi	C	3	8	1	6	2	1	3	1	1	3		1		1				
Madras Presidency	C	1,020	545	465	705	149	216	140	133	121									
	D	241	155	102	128	39	38	28	30	15									
Madras	C	193	32	12	13	1	4	5	1	1	3	2		1					
Negapatam	C					1					1								
Northwest Frontier Province	C	110	86	165	95	7	3	1	10	9	7	8	9	29	9	4			
Orissa Province	C	1,039	722	376	391	52	68	231	159	98	167	118	106	138	130	81			
Punjab	C	191	214	214	80				1	5	6				1				
Rangoon	C	10	14	10	4	2	5		9	7	3		2	14	10				
Sind State	C	251	209	131	173	13	16	51	4	14	3		27	9	18	7			
Vizagapatam	C	6																	
India (French):																			
Chandernagor Territory	C	4	3		2														
Pondichery Territory	C	3			10														
	D	2			5														
Indochina (French) (see also table below):																			
Tonkin Province	C	228	135	54	3														
Hanoi	C	13	22	3	3														
Saigon-Cholon	C														1				
Iran	C	10	3	3															
Teheran	D				6			1					9						
Iraq	C	6		6															
Baghdad	C		[1] 1																
Japan:																			
Nagoya	C				1	1													
Osaka	C	1	5	1															
Taiwan:[2]																			
Tokyo	C	1																	

[1] Imported.
[2] Information dated Apr. 6, 1939, states that up to Mar. 31, 61 cases of smallpox were reported in Taiwan, Japan.

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

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Mar. 26–Apr. 29, 1939	Apr. 30–May 27, 1939	May 28–June 24, 1939	June 25–July 29, 1939	Week ended— August 1939 5	12	19	26	September 1939 2	9	16	23	30	October 1939 7	14	21	28
Mexico (see also table below):																		
Mexico, D. F.	C	3	3	5	3	1					2							
Monterrey	C	1					1								1		1	
San Luis Potosí	D	1	1	4	1									1				
Tampico	C	1						1										
Morocco. (See table below.)																		
Mozambique	C	11	32	1	1													
Nigeria	C	1,261	514	76	116	11	53	8	11	58	25							
Calabar	C	3	44		1			1	1	1								
Lagos	C		4				1											
Port Harcourt	C			[1]1						1								
Niger Territory. (See table below.)																		
Northern Rhodesia	C										1	6						
Portugal (see also table below):																		
Lisbon	C	34	33	53	32	3	15	11	10	12	8	14	17	8	4	6		
Oporto	C	2	8	10	12			1			1				1			
Portuguese Guinea. (See table below.)																		
Senegal. (See table below.)																		
Sierra Leone	C	8	20				[2]2				[4]4		[1]1					
Society Islands: Tahiti	C				12													
Southern Rhodesia	C	21	11	8						6			3					
Spain (see also table below):																		
Barcelona	C				5													
Malaga	D				5				1			3	1	2	2			
Seville	D															[1]1		
Valencia	C			1		4	3	3	2	1		7			5	2	1	3
Sudan (Anglo-Egyptian)	C	90	12	15	23	5	74	11	16	9	5			4				
Thailand	C	2		1	3	1			1									
Bangkok	C				1													
Nan Province	C				24										70			
Turkey. (See table below.)																		
Union of South Africa. (See table below.)																		
Venezuela. (See table below.)																		

On vessels:

S. S. *Mau Sang* at Sandakan from Hong Kong ..... 1 case ..... Apr. 6, 1939
S. S. *Thisteleglen* at Singapore ..... 1 case ..... Apr. 10, 1939
S. S. *Empress of Russia* at Hong Kong from Shanghai ..... 2 cases ..... Apr. 20, 1939
S. S. *Liebenfels* at Rangoon from Moulmein ..... 1 case ..... June 2, 1939

On vessels—Continued.

S. S. *City of Pittsburgh*, Manila, P. I. ..... 1 case ..... June 28, 1939
S. S. *Atalaya* at New Orleans ..... 1 case ..... July 25, 1939
S. S. *Saturnia* at Jamaica, N. Y., from Lisbon ..... 1 case ..... Aug. 3, 1939
S. S. *Erinpura* at Rangoon from Madras ..... 1 case ..... Aug. 7, 1939

Place		April 1939	May 1939	June 1939	July 1939	August 1939	September 1939
Angola	C				[4] 36		
Belgian Congo	C		169	199			
Bolivia:							
Cochabamba Department	C	1		9	6		
La Paz Department	C	4	4	1			
Oruro Department	C	2		4	14		
Potosi Department	C						
Santa Cruz Department	C		2		1		
China: Harbin	C	5	1	1			
Chosen (Korea)	C				7	1	
Colombia (see also table above)	C	494	437	375	137	161	
Dahomey	C				8		
Ecuador: Guayaquil and vicinity	C			5			
Greece	C	7	11				
Guatemala	C	4					
Indochina (French) (see also table above)	C	609	671	178	103	149	93
	D	52	109	31	21	30	19
Mexico (see also table above):							
Aguascalientes State	D			[5] 3		[6] 5	
Chiapas State	D					[6] 1	
Chihuahua State	D			[5] 5		[6] 1	
Coahuila State	D			[5] 2	7		
Durango State	D					[6] 4	
Guanajuato State	D			[5] 246		[6] 270	
Guerrero State	D			[5] 3		[6] 3	
Hidalgo State	D			[5] 13		[6] 9	
Jalisco State	D			[5] 4		[6] 3	
Mexico, D. F.	D	3		5		1	
Mexico—Continued.							
Mexico State	D			[5] 146		[6] 41	
Michoacan State	D			[5] 137		[6] 79	
Morelos State	D			[5] 9		[6] 1	
Nayarit State	D			[5] 2			
Nuevo Leon State	D			[5] 1		[6] 2	
Oaxaca State	D			[5] 1		[6] 1	
Puebla State	D			[5] 20		[6] 32	
Queretaro State	D			[5] 34		[6] 31	
San Luis Potosi State	D			[5] 22		[6] 19	
San Luis Potosi	C			8	9		
	D			5	1		
Sinaloa State	D			[5] 7		[6] 1	
Tlaxcala State	D					[6] 2	
Vera Cruz State	D					[6] 1	
Zacatecas State	D			[5] 27		[6] 16	
Morocco	C		6				
Niger Territory	C	9		3			
Portugal (see also table above)	C	108			79	180	
	D	9			3	7	
Portuguese Guinea	C	115		7			
	D	8					
Senegal	C	42	55	25	24	2	3
Spain (see also table above)	C		49		31	59	
Turkey	C	59	34				
Union of South Africa: Transvaal	C			81	56		
Venezuela	D	3	7	6	2		19
Caracas	C				1	22	11

[1] Imported.
[2] For 2 weeks.
[4] June and July.
[5] May and June.
[6] July and August.

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

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Mar. 26–Apr. 29, 1939	Apr. 30–May 27, 1939	May 28–June 24, 1939	Week ended— July 1939					August 1939				September 1939					October 1939		
					1	8	15	22	29	5	12	19	26	2	9	16	23	30	7	14	21
Algeria:																					
Algiers Department	C	21	26	74	18			21	6	7	4	12	7	6	35	1	20				
Algiers	C	5	22	14	2			4													
Constantine Department	C	195	188	198	33			78	13	11	10	2	3	3	3		1	21			
Bone	C	9	1					1													
Constantine	C	39	52	34	6			51	6	6											
Philippeville	C	2	9	6				1													
Oran Department	C	31	28	39	7			1	2	4	5					1					
Southern Territories	C	13	62	21																	
Australia:																					
Brisbane	C			1	1											1					
Queensland	C	5	1				4														
Bolivia. (See table below.)																					
British East Africa: Kenya	C	1																			
Bulgaria. (See table below.)																					
Chile	C	28	49	190	106	115	114	3	8	90	67										
Antofagasta Province	C	2	5	5	6			1		1											
Bio Bio Province	C	2																			
Concepcion Province	C						2														
Curico Province	C		1		1																
Nuble Province	C	7					2	1		1	3										
Santiago Province	C	14	37	102	92	113	104	1	1	84	59										
Valdivia Province	C	1	1	5						1											
Valparaiso	C	1	1			1		1	3	1		1				3		1			
China (see also table below):																					
Dairen	C		2					2		3	2					1					
Hankow	C		1	1																	
Shanghai	C		2	12	7	14	8	10	10	9	9	6	11	10	16	9					
Tientsin	C	3	1																		
Chosen (Korea). (See table below.)																					
Egypt:																					
Alexandria	C	13	26	12		1	2		1		1		1					1			1
Asyut Province	C	14	15	5			1			1				1	1						
Beheira Province	C	109	64	21	8	7	15	1	2	9	2	3	3		3						

Beni Suef	C		1						1	1			1										
Cairo	C	37	9	5				1					2									1	
Dakahliya Province	C	178	196	141	31	23	11	10	2	4	8	3				1							
Faiyum Province	C	7														1							
Gharbiya Province	C	355	216	112	18	26	48	30	8	4	3	6	4	4		7							
Girga Province	C	42	31	26	3	1	1	1	1	2		2		2		3							
Giza Province	C	53	22	28																			
Kalyubiya Province	C	44	45	26						4	1												
Minufiya Province	C	96	141	65	12	27	11	5	3	6	3	5	2			1							
Port Said	C										3												
Qena Province	C	127	21	6						1													
Sharkiya Province	C	66	24	24	3	2	1	3	1	2													
Suez	C																						
Provinces	C	1,110	828	461	75	92	92	53	18	38	21	18	10	8	1	1	22	6	2	6	1	1	5
Eritrea: Hamasien	C			5																			
Guatemala. (See table below.)																							
Hawaii Territory: Honolulu	C		1	1				1	2		1		1					2	4	6	3	1	2
Hungary	C	9				1													3				
India: Coorg Province	C	3		3																	4		
Iran	C	1	18	13																			
Tabriz	C			10			4			1	1	10							2				
Iraq	C				2	1		1	1														
Arbil Province	C		1	4						4													
Baghdad	C	3	2	1	2	1		1	1	1			2	4		1							
Kirkuk Province	C		7																				
Irish Free State: Louth County—Drogheda	C				5																		
Latvia. (See table below.)																							
Lithuania. (See table below.)																							
Mexico (see also table below):																							
Guadalajara	D																						
Mexico, D. F.	C	5	13	21	4	9	7	6								1					1		
Monterrey	C		1	3			3		2			1				7							
Saltillo	C			1												1	1		1				
San Luis Potosi	D	1	1																				
Torreon	D	2	1					4														1	
Morocco	C	193	145	87	10	5	6			3												1	
Casablanca	C	12		1	1																3		
Nigeria: Kano Province	C								[1]1														
Palestine:																							
Haifa	C	2	4	3	1		1		1			1	2			4	3	1			4	4	4
Jaffa	C	1	2	3	5		1		1	1			5	4			6	4			5	8	
Panama Canal Zone. (See table below.)																							
Peru. (See table below.)																							

[1] Suspected.

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

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		Mar. 26–Apr. 29, 1939	Apr. 30–May 27, 1939	May 28–June 24, 1939	Week ended— July 1939 1	8	15	22	29	August 1939 5	12	19	26	September 1939 2	9	16	23	30	October 1939 7	14	21
Poland	C	786	437	327	60	46	43	23	16	24	18	------	------	------	------	------	------	------	------	------	------
	D	34	12	13	2	2	1	1	------	1	1	------	------	------	------	------	------	------	------	------	------
Portugal: Oporto	C	3	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Rumania. (See table below.)																					
Spain. (See table below.)																					
Straits Settlements: Singapore	C	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Syria: Lebanese Republic	C	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Trans-Jordan	C	8	9	1	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Tunisia:																					
Tunis	C	89	39	18	5	9	1	14	1	1	2	3	1	------	------	------	------	------	------	------	------
Provinces	C	1,073	1,006	967	333	202	181	158	124	109	52	44	29	------	------	------	[2] 31	------	------	------	------
Turkey. (See table below.)																					
Union of South Africa. (See table below.)																					
Venezuela. (See table below.)																					
Yugoslavia	C	115	62	35	------	5	17	2	2	1	4	------	------	------	2	3	2	3	------	------	------
On vessels:																					
S. S. *Stanbrook* at Mers el Kebir	C	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
S. S. *Normandie* at Plymouth	C	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Place		April 1939	May 1939	June 1939	July 1939	August 1939	September 1939
Bolivia:							
De Beni Department	C				2		
La Paz Department	C	10	11	7	4		
Oruro Department	C	1	1		3		
Potosi Department	C	11	2	4	2		
Santa Cruz Department	C		2		1		
Bulgaria	C	14		8		16	
China: Manchuria—Harbin	C	4	16	14			
Chosen (Korea)	C		290	156	22	32	
Guatemala	C	14	4	8	9	21	46
Latvia	C	1					
Lithuania	C	23	6		10		
Mexico (see also table above):							
Aguascalientes State	D			[3] 4		[4] 4	
Chihuahua State	D			[3] 1			
Coahuila State	D			[3] 2		[4] 5	
Durango State	D			[3] 2		[4] 4	
Guanajuato State	D			[3] 7		[4] 12	
Guerrero State	D			[3] 2			
Hidalgo State	D			[3] 15		[4] 19	
Jalisco State	D			[3] 3		[4] 7	
Mexico, D. F.	C			27	31		
	D	3		11	5	[4] 9	
Mexico State	D			21		[4] 17	
Michoacan State	D			[3] 10		[4] 5	

Place		April 1939	May 1939	June 1939	July 1939	August 1939	September 1939
Mexico—Continued.							
Nuevo Leon State	D					[4] 1	
Oaxaca State	D			[3] 22		[4] 16	
Puebla State	D			[3] 24		[4] 24	
Queretaro State	D			[3] 4	1	[4] 1	
San Luis Potosi State	D			[3] 2		[4] 2	
Sonora State	D			[3] 2		[4] 1	
Tabasco State	D			[3] 1			
Tlaxcala State	D			[3] 2		[4] 3	
Vera Cruz State	D			[3] 3		[4] 3	
Yucatan State	D					[4] 1	
Zacatecas State	D			[3] 17		[4] 14	
Panama Canal Zone	C		1	1			1
Portugal	C				5		
Rumania	C	28	40	75	13	7	
Spain	C	4	14	9	7		
Turkey	C	62	49	35	15	12	
Istanbul	C	4		8			
Union of South Africa:							
Cape Province	C	32	127		132		
Natal	C	35	7	7	12		
Orange Free State	C	4	4	4	5		
Transvaal	C	16	13	13	12		
Venezuela: Bolivar	C	1	8			8	

[3] For 4 weeks.
[3] May and June.
[4] July and August.

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

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Mar. 26–Apr. 29, 1939	Apr. 30–May 27, 1939	May 28–June 24, 1939	Week ended— July 1939 1	8	15	22	29	August 1939 5	12	19	26	September 1939 2	9	16	23	30	October 1939 7	14	21
Brazil:[1]																					
Amazonas State	D						[2]1														
Bahia State	D								[2]1												
Espirito Santo State	D	28	[2]1																		
Minas Geraes State	D	2																			
Para State	D		[2]1			1	1														
Cameroon: Bafia	C									[2]1											
Colombia: Antioquia Department:																					
Caracoli	D			1				1													
San Carlos	D				1			1						1		1				1	
Dahomey: Bohicon.[4]																					
French Equatorial Africa:																					
Bangui	C															[5]1					
Gabon	D						1														
French Guinea	C			2																	
Gold Coast	C	1		1																	
Ivory Coast [6]	C	3	[7]5	[8]9																1	
Nigeria	C							1					[5]1								
Niger Territory:																					
Dosso.[9]																					
Konni Circle	C			3																	
Tahua	C		[5]1																		

Senegal:																									
Bambey	C			1																					
Dakar.[10]																									
Diourbel	C			6																					
Ziguinchor	C			10																					
	D			5																					
Sudan (French): Bandiagara	C			1																					
Togo (French mandate): Anecho	C																								1

[1] See also reports of yellow fever in Brazil in preceding issues of the PUBLIC HEALTH REPORTS.
[2] Jungle type.
[3] Exact date not given.
[4] The suspected case of yellow fever in Bohicon, Dahomey, published on pages 1910 and 1963 of the PUBLIC HEALTH REPORTS, was not yellow fever.
[5] Suspected.
[6] During the week ended Nov. 4, 1939, 1 suspected case of yellow fever was reported in Abengourou, Ivory Coast.
[7] Includes 1 suspected case.
[8] Includes 4 suspected cases.
[9] During the week ended Nov. 11, 1939, 1 suspected case of yellow fever was reported in Dosso, Niger Territory.
[10] During the week ended Nov. 4, 1939, 1 suspected case of yellow fever was reported in Dakar, Senegal, as being imported from Tivaouane.

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