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PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

April 24–May 21, 1938

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 May 21, the number reported for the corresponding period in 1937, and the median number for the years 1933–37.

DISEASES ABOVE THE MEDIAN PREVALENCE

Smallpox.—The incidence of smallpox remains relatively high. The number of reported cases is about 38 percent greater than the number for the corresponding period in 1937 and more than twice the 5-year median, 1933–37. The situation in the New England and Middle Atlantic States, where no cases were reported, is in striking contrast with other regions of the country.

The incidence of smallpox has been increasing since 1934, when slightly more than 5,000 cases were reported. By 1937, with 11,000 cases the number of reported cases had more than doubled, and preliminary reports for the first 20 weeks of 1938 indicate that the incidence during the current year will be nearly twice that during 1937. With the exception of India and possibly one or two other countries, the United States has one of the highest case rates of smallpox reported in North America and Europe. The actual incidence is unknown in most parts of South America, Africa, and Asia. In view of the success of other leading nations in practically stamping out smallpox, the situation prevailing in the United States reveals a curious indifference to the existence of a disease which can be readily controlled by well-known methods.

Figure 1 shows the geographic distribution of cases of smallpox reported during 1937. The disease is relatively rare in all parts of the country except the Great Plains and Pacific Northwest States. In some of these States, notably Montana and North Dakota, the case rate is among the highest reported anywhere in the world. It should be remembered, however, that some of the countries where smallpox probably prevails to a considerable extent do not report cases of the disease. The present high incidence started in the Northwest States and has slowly spread until many States outside the "smallpox area" are reporting a much higher case rate than usual.

Fortunately the States in the "smallpox area" are sparsely settled. It would indeed be unfortunate if the case rate in Montana, 167

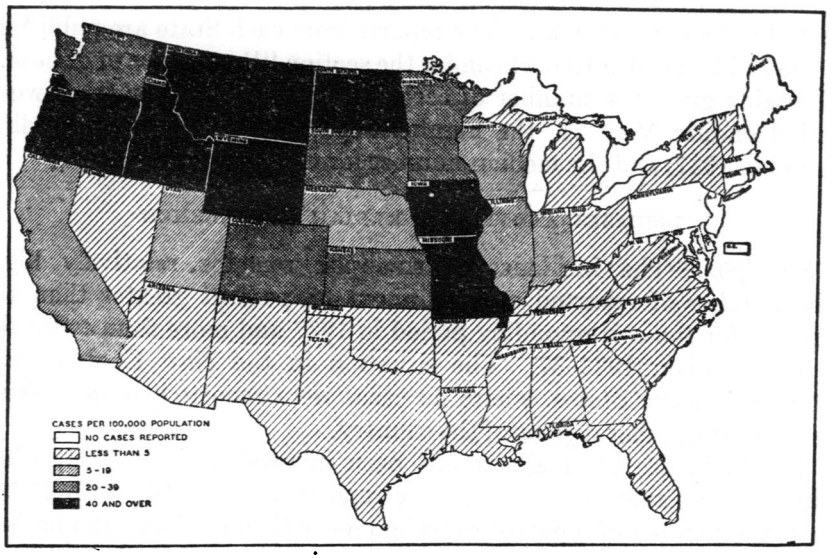

FIGURE 1.—Numbers of reported cases of smallpox per 100,000 population, by States, 1937

per 100,000 population, prevailed in Pennsylvania or New Jersey, where no cases were reported during 1937. The smallpox problem in this country is concentrated almost entirely within a small number of States; and until it is met by systematic vaccination and revaccination, the United States will continue to have a case rate well above that reported by most of the leading nations of the world.

Measles.—The incidence of measles continued to decline. For the 4 weeks ending May 21 the reported cases numbered 113,755, approximately 35,000 less than were reported for the preceding 4-week period. The current incidence was, however, more than two times that for the corresponding period in each of the 2 preceding years and was almost twice the 1933–37 median figure (67,856) for this period. In 1935 and 1934 the cases for this period totaled approximately 129,000 and 125,000, respectively.

Each geographic region, except the New England and Pacific, showed a decline from the preceding 4-week period. In both of these regions the incidence was the highest for the season, while in all other regions the peak was reached several weeks earlier. The disease is still unusually prevalent in the East North Central region, where the number of cases (42,412) was more than three times the average incidence, and in the Mountain region, where, although the number of cases (3,412) is not large, it is also more than three times the normal seasonal incidence. The New England and West South Central regions reported fewer cases than is normally expected, but in all other parts of the country the incidence was relatively high.

Typhoid fever.—Typhoid fever was slightly above normal for this season—645 cases as compared with 514 in 1937 and 629 cases, the 1933–37 median incidence for this period. Of the various geographic regions, the East North Central, South Atlantic, and Pacific reported excesses over the preceding 5-year median, while the North Atlantic, West North Central, and East South Central regions reported fewer cases than usually occur at this season. The West South Central region reported about the expected seasonal incidence. An increase of this disease is expected at this time of the year, but the incidence in the East North Central and Mountain and Pacific regions is somewhat above the expectancy.

Number of reported cases of 8 communicable diseases in the United States during the 4-week period Apr. 24–May 21, 1938, the number for the corresponding period in 1937, and the median number of cases reported for the corresponding period 1933–37 [1]

Division	Diphtheria			Influenza [2]			Measles [3]			Meningococcus meningitis		
	Current period	1937	5-year median	Current period	1937	5-year median	Current period	1937	5-year median	Current period	1937	5-year median
United States [1]	1,486	1,544	2,033	2,796	4,939	3,918	113,755	49,148	67,856	233	504	504
New England	49	47	52	21	15	30	2,840	5,101	7,778	7	30	15
Middle Atlantic	301	314	300	52	63	81	35,244	19,646	22,998	44	82	82
East North Central	289	296	347	187	482	585	42,412	9,189	12,191	31	63	89
West North Central	118	102	202	142	251	258	7,304	513	6,672	19	35	35
South Atlantic	208	244	263	570	926	968	12,979	6,126	6,126	47	116	116
East South Central	124	95	117	225	664	384	3,394	2,110	2,110	52	106	51
West South Central	181	271	271	1,194	1,842	933	2,719	4,094	4,094	18	35	25
Mountain	97	39	47	150	229	186	3,412	1,163	1,163	4	11	11
Pacific	119	136	142	255	467	293	3,451	1,206	5,903	11	20	20

Division	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Current period	1937	5-year median	Current period	1937	5-year median	Current period	1937	5-year median	Current period	1937	5-year median
United States [1]	64	78	78	18,074	24,641	24,641	1,571	1,142	710	645	514	629
New England	1	3	3	2,082	2,000	1,417	0	0	0	15	12	28
Middle Atlantic	5	5	11	5,371	7,037	7,037	0	0	0	71	54	91
East North Central	14	13	9	5,223	8,683	8,683	365	226	82	105	57	86
West North Central	2	3	4	2,437	3,570	3,064	463	493	268	23	42	38
South Atlantic	19	6	11	707	725	890	12	5	5	154	101	144
East South Central	7	14	4	265	277	277	90	7	7	54	54	82
West South Central	8	17	8	426	810	359	145	61	61	124	128	123
Mountain	3	0	2	460	525	525	150	178	91	41	34	25
Pacific	5	17	17	1,034	1,014	1,080	346	172	172	58	32	36

[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] 46 States. Mississippi and Georgia are not included.

DISEASES BELOW MEDIAN PREVALENCE

Meningococcus meningitis.—The number of cases of meningococcus meningitis reported for the current period was 233, only about 45 percent of the number reported for the corresponding period in 1937, and also of the 1933–37 median, which is represented by the 1937 figure. The incidence is the lowest since 1934, when the number of cases for this period totaled 220. Each geographic region shared in this favorable situation. In the South Atlantic and East South Central regions, where the disease was unusually prevalent at this time during the 2 preceding years, the incidence has dropped to a more normal seasonal level, and all other regions reported very definite decreases from the average incidence of preceding years.

Scarlet fever.—For the country as a whole the scarlet-fever incidence is relatively low. During the current period, 18,074 cases were reported, as compared with 24,641, 26,142, and 27,821 for the corresponding period in 1937, 1936, and 1935, respectively. In the New England and West South Central regions the incidence is somewhat above the seasonal expectancy, but in the Middle Atlantic and North Central regions, where the disease has been unusually prevalent, the current incidence is considerably below the average for this season of the year.

Diphtheria.—The diphtheria incidence remains comparatively low. For the 4 weeks ending May 21 the number of reported cases was 1,486, as compared with 1,544, 1,649, and 2,044 for the corresponding period in 1937, 1936, and 1935, respectively. The Mountain region reported more than twice the 1933–37 median number of cases for this period, and the East South Central region reported a slight excess over the median. In New England about the average seasonal incidence was reported; in all other regions the incidence was relatively low.

Influenza.—Reported cases of influenza for the current 4-week period totaled 2,796 as against 4,939, 11,783, and 3,358 for the corresponding period in 1937, 1936, and 1935, respectively. The current figure represents the lowest incidence during this period in the 10 years for which these data are available. The West South Central region alone showed an increase over the average seasonal incidence.

Poliomyelitis.—The incidence of poliomyelitis continued below the average for the season; 64 cases were reported for the current 4-week period, as compared with 78 in 1937, which figure also represents the median incidence for the years 1933–37. While the number of cases (19) in the South Atlantic region was not large, it represents the highest incidence during this period in recent years. Some seasonal increase of this disease may be expected within the next month or two.

MORTALITY, ALL CAUSES

The average mortality rate in large cities for the 4 weeks ending May 21, based on data received from the Bureau of the Census, was 11.2 per 1,000 inhabitants (annual basis). The current rate was the lowest for this period since 1933. The average rate for the years 1933–37 was approximately 12.0.

THE EFFECT OF MOISTURE AND AGE ON STABILITY OF NEOARSPHENAMINE

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The instability of the arsphenamines, especially neoarsphenamine, has been recognized since they were first developed. To retard as far as possible deterioration of neoarsphenamine the United States Pharmacopoeia (*1*) makes the following recommendation:

> Preserve neoarsphenamine in sealed tubes of colorless glass, from which the air has been excluded either by the production of a vacuum or by displacement with a non-oxidizing gas, in a cool place, preferably not above 10° C.

From time to time, the National Institute of Health has been requested to reexamine certain lots of the arsphenamines ranging in age up to 15 years from date of manufacture. Although arsphenamine is relatively stable, the Institute would be reluctant to recommend use of any member of the arsphenamine group, however stable, of such unusual age. These instances illustrate that it is possible for the more unstable arsphenamines of this age to be available for clinical use. This suggests the advisability of restudy of the entire question with reference to the adoption of an expiration date.

Because neoarsphenamine is generally considered the least stable of the group, and because it is the most widely used, it was deemed advisable first to concentrate the investigation on this drug rather than attempt a general survey of all the arsphenamines. The percentage of lots of neoarsphenamine which showed evidence of deterioration by the survey was surprisingly high, indicating that a comprehensive study was necessary to determine the time limitation for neoarsphenamine and to ascertain, if possible, the factors which may influence its stability.

These factors may be numerous, especially those of chemical origin, owing to its delicate, indefinite structure; but the physical factors, such as storage, age, temperature, dryness of the powder, and similar conditions, are to a large extent controllable and their

effect reducible to a minimum. Protection against deterioration due to exposure to air, improper storage, and temperatures are accounted for by the provision referred to in the United States Pharmacopoeia and generally followed and recommended by all manufacturers. The effect of age of the product and incomplete drying of the powder were considered of principal importance in this investigation.

Roth (*2*), in 1921, recorded that neoarsphenamine was unstable and that deterioration is a general phenomenon which may occur in all products. His experience with material at the Hygienic Laboratory (now National Institute of Health) was that 25 to 30 percent of 2-year old material from two manufacturers had become insoluble. It was also recorded that similar experiences were noted with products of other countries. Van den Branden and Dumont (*3*), in 1933, called attention to the influence of time and temperature upon the stability of neoarsphenamine.

Kolmer (*4*) recorded changes in the powder but was of the opinion that such changes were present in only a few ampules of a lot, found only in 5 to 12 percent of the ampules. He suggested the probability that such deterioration was due to defective handling and ampuling.

The possible influence of "moisture" as a cause of deterioration was noted by Roth (*2*) in one sample of neoarsphenamine consisting of two different shipments, one drier than the other. The drier sample was satisfactory after some 14 months, whereas the other sample was insoluble.

Kolmer (*4*) called attention to humidity at the time of ampuling as a possible factor in causing deterioration of neoarsphenamine.

The loss in weight due to drying of the arsphenamines, especially arsphenamine, was recorded as early as 1911 by Garbel (*5*). Subsequently, considerable work was reported and the nature of the volatile substances was discussed extensively. The loss in weight after drying neoarsphenamine was recorded by Raiziss and Falkov (*6*) as varying from 3.63 to 4.46 percent (4 samples). Myers (*7*) reported that the loss for the other salvarsan substitutes was practically the same as the reported 7.5 percent for salvarsan.

The material tested consisted of samples of neoarsphenamine routinely submitted to the National Institute of Health for official test in compliance with the arsphenamine regulations (*8*), during the 8-year period 1930–37, inclusive, and a few samples of foreign material purchased or obtained by courtesy directly from the manufacturers. There were 1,004 different lot numbers of neoarsphenamine examined.

The products of seven manufacturers holding American license make up the bulk of the material. All lots of several manufacturers were tested, and for each of the others some 20 different lots from each year were picked at random, representing even distribution as to the season of the year of manufacture. The material representing the

period 1930–36, inclusive, 1 to 7 years old, consisted of 638 different lot numbers. The 326 lots of the current (1937) material represented practically all lots received for official test.

All material, except the current (1937) samples tested at the time of receipt for official test and recorded as current lots, has been stored in a basement room below ground level on the north side of a stone building. This storage, with temperature slightly lower than 20° C., is considered as being better than average storeroom conditions.

The foreign material was represented by 40 different lot numbers of neoarsphenamine from 13 manufacturers located in 8 countries. Of the 40 lots, 31 may be considered as current material. The remaining 9 lots were old samples from the file of this Institute.

The evidence of stability in this investigation is based entirely upon solubility, i. e., the powder must be completely soluble and the solution clear and transparent (*9*) in a 10-percent solution.

The moisture content is defined as the loss in weight caused by the extraction of volatile substances by drying in vacuo over phosphorus pentoxide for 24 hours, recorded in the percentage which the weight loss bears to the original weight. The identification of the volatile material is of no importance in this study.

The method employed consisted of exposing approximately 0.9 g of neoarsphenamine in a weighing bottle of 25 mm diameter over fresh pentoxide in a vacuum desiccator of 250 mm diameter, at less than 5 mm pressure, for 24 hours at room temperature. The pentoxide was exposed in a 150-mm culture dish and was renewed for each batch of samples. The procedure permitted determinations of not more than 15 samples at one time in a desiccator. This method does not reduce the material to constant weight, as was determined by longer exposure; but in order to keep the test simple and within reasonable time limits, the time of exposure to drying was fixed at 24 hours. Adjustments can be made to obtain constant weight, but the additional time and necessary weighings offer no practical improvement in the test except to obtain the loss computed on dryness to constant weight, which would be slightly higher than figures based on 24 hours of drying.

The moisture content of the 1,004 lots detailed in table 1 varied from less than 0.5 to 14.0 percent; only 4 lots were greater than 7.0 percent, approximately 75 percent (755 lots) were under 3.0 percent, and 43 percent (426 lots) were under 1.0 percent. The distribution of the material according to age, previously described, consisted of 638 lots received during 1930 to 1936, inclusive, detailed in table 2, by age from 1 to 7 years, 326 lots received during current year, and 40 lots of foreign manufacture which, except for a few batches, is of unknown date but believed to be in current clinical use.

TABLE 1.—*Moisture content distribution—1,004 lots of neoarsphenamine*

Moisture content (percent)	Number of lots	Moisture content (percent)	Number of lots
0.0 to 0.5	33	4.5 to 5.0	28
0.5 to 1.0	191	5.0 to 5.5	11
1.0 to 1.5	202	5.5 to 6.0	15
1.5 to 2.0	136	6.0 to 6.5	7
2.0 to 2.5	108	6.5 to 7.0	2
2.5 to 3.0	85	7.0 to 14.0	4
3.0 to 3.5	78		
3.5 to 4.0	57	Total	1,004
4.0 to 4.5	47		

The current (1937) lots received from the manufacturers for official test were examined at the time of their receipt. All of the 326 lots examined were satisfactory. The moisture content varied from less than 0.5 to 6.0 percent, only 8 lots contained more than 3.5 percent, and approximately 64 percent were under 1.5 percent. Inasmuch as these lots are not classifiable by age or instability, they are included only in table 1, giving the total lots tested with moisture distribution.

The moisture content of the 40 lots of foreign manufacture indicated considerable variation in the amount of volatile material present. There was insufficient material, however, for satisfactory comparative appraisal. The age of these lots not being definitely known, they are recorded only in table 1.

In table 2 is detailed the record of the 638 different lot numbers of neoarsphenamine from 7 different licensed manufacturers received during the 7-year period from 1930 to 1936, inclusive. It will be noted that the stability of neoarsphenamine is affected by age and moisture content, deterioration being directly proportional to these influencing factors. As one or both increases, the percentage of instability likewise increases.

The influence of the age of the product, without consideration of the moisture content, is detailed on the bottom line of totals. There it will be seen that the unsatisfactory lots increased from 15 percent (14 of 92 lots) in the 1-year old material to 66 percent (68 of 103 lots) in the material 7 years old. The instability of neoarsphenamine progressively increases as the age increases.

The effect of the moisture content on stability without regard to the age of the drug is shown in the last column—1 to 7 years. The record clearly demonstrates that as the moisture content increases the stability decreases, for example, all of the 12 lots having less than 0.5 percent moisture were stable; but as the moisture increased, the percentage of stable lots decreased to zero at the 5.0 percent moisture level.

The deterioration due to age at a definite moisture level or the effect of moisture for a specific period, can be determined by study of table 2.

TABLE 2.—*The effect of age and moisture on the stability of neoarsphenamine (638 different lots from 7 manufacturers holding American license. Stored at better than average room temperature)*

Moisture content, percent	Age, in years, from official release																	
	7		6		5		4		3		2		1		1 to 7			
	Lots		Lots		Lots		Lots		Lots		Lots		Lots		S (lots)		U	Total
	S	U	S	U	S	U	S	U	S	U	S	U	S	U	Number	Percent	Lots	Lots
0.0 to 0.5	2	0	3	0	-----	-----	1	0	2	0	3	0	1	0	12	100	0	12
0.5 to 1.0	9	7	8	4	12	2	5	4	13	0	15	0	13	0	75	82	17	92
1.0 to 1.5	0	10	13	7	9	12	7	5	9	2	16	0	23	0	77	68	36	113
1.5 to 2.0	7	4	4	7	7	5	14	4	10	2	13	0	4	1	59	72	23	82
2.0 to 2.5	6	8	6	6	7	5	2	3	4	2	5	0	14	0	44	65	24	68
2.5 to 3.0	10	4	5	7	3	5	1	8	4	5	0	4	4	4	27	42	37	64
3.0 to 3.5	1	9	3	2	0	5	1	10	3	10	3	1	10	5	21	33	42	63
3.5 to 4.0	0	7	1	2	0	3	1	6	0	9	3	12	3	2	8	16	41	49
4.0 to 4.5	0	8	0	4	0	7	0	2	2	5	1	11	4	1	7	16	38	45
4.5 to 5.0	0	2	0	7	0	2	0	4	0	3	1	4	1	1	2	8	23	25
5.0 to 5.5	0	1	0	1	0	6	0	1	-----	-----	-----	-----	-----	-----	0	0	9	9
5.5 to 6.0	0	3	0	6	-----	-----	0	1	-----	-----	-----	-----	1	0	1	9	10	11
6.0 to 7.0	0	5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	0	0	5	5
0.0 to 1.5:																		
Number	11	17	24	11	21	14	13	9	24	2	34	0	37	0	164	76	53	217
Percent	39	61	68	32	60	40	59	41	92	8	100	0	100	0	76	-----	24	-----
1.5 to 7.0:																		
Number	24	51	19	42	17	38	19	39	23	36	26	32	41	14	169	40	252	421
Percent	32	68	31	69	31	69	33	67	39	61	45	55	75	25	40	-----	60	-----
Total	35	68	43	53	38	52	32	48	47	38	60	32	78	14	333	52.2	305	638
Percent	34	66	45	55	42	58	40	60	55	45	65	35	85	15	52.2	-----	47.8	-----

S=Stable.
U=Unstable.

The percentage of instability increases in both directions as the influencing factors increase, except that at the 0.5 percent moisture level all products were satisfactory.

It is indicated that instability of neoarsphenamine is common in products after 2 years with a moisture content in excess of 2.5 percent, after 3 years with 2.0 percent moisture content, and that after 4 years only an extremely dry product (less than 0.5 percent moisture) may remain stable.

Analysis of the report of the stability of the products from 1 to 3 years old indicates that there is little difference in the deterioration at the 0 to 1.5 percent as compared with the 0.0 to 2.0 percent moisture level; the former records 98 percent stable as compared with 96 percent of the latter group.

The small number of lots at these two moisture levels in the 3-year age period available for study does not permit a definite appraisal of comparative stability. It is felt, however, that in the interest of safety the lower moisture content should be recommended as being in conformity with the general observation that instability increases with the moisture content.

The adjustments necessary for the manufacturers to produce a product of low moisture content are apparently not difficult to accomplish. The several licensed manufacturers have been appraised of these findings and have proceeded to achieve this objective. The samples received during the current year are approximately equally divided into two groups—the early products before the results of the moisture study were known and the later products during and after adjustment. In the former group, approximately 48 percent were under 1.5 percent moisture content whereas of the latter group 76 percent are in this classification. Recently this percentage has been materially increased and now only the occasional sample is higher than 1.5 percent.

CONCLUSIONS

This investigation indicates that the stability of neoarsphenamine is affected by the age of the product and by the moisture retained in the powder and that instability increases directly as one, or both, of these influences are increased. Neoarsphenamine containing not more than 1.5 percent volatile material as determined by the method herein described may be expected to remain stable for three years when stored at a temperature slightly less than 20° C.

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THE EFFECT OF THE AGE OF NEOARSPHENAMINE ON REACTION EXPECTANCY

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In the preceding paper by Probey and Harrison (*1*) the stability of neoarsphenamine is reported to be affected adversely by the age of the material and by incomplete drying of the powder. The percentage of lots showing evidence of deterioration increased as one, or both, of these factors became greater. Although animal toxicity was not investigated, insolubility being the sole criterion of instability, the findings suggested the advisability of ascertaining what effect age of the material might have as a contributing factor in clinical reactions following neoarsphenamine therapy.

Roth (*2*) has reported that changes in the physicochemical character of neoarsphenamine were not necessarily accompanied by an increase in animal toxicity and that an increase in animal toxicity was apparent in material showing no evidence of deterioration. The material used was under 3 years old.

Kolmer (*3*) has noted that cloudy or opalescent solutions of neoarsphenamine are invariably more toxic for the lower animals and man than the perfectly clear solutions.

Probey and Harrison's study (*1*) of the stability of neoarsphenamine included 638 different lots ranging in age from 1 to 7 years. Deterioration was noted in 15 percent of the 1-year old lots; and as the age increased, the percentage increased to 66 percent of the 7-year old material.

Deterioration of neoarsphenamine may be classified as being of two types: one with physicochemical changes, which may be accom-

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panied by increased animal toxicity, and another in which the toxicity has increased without evidence of physical change. The former type, with visible physical evidence of deterioration, offers no problem to the clinician, but the latter, which cannot be detected by examination of the powder or the solution, is of importance, as it may be reflected in the reaction expectancy. Unfortunately, it is extremely difficult to show slight toxic change by the animal test unless very extensive tests are made using a large number of animals; and, moreover, it would be difficult to interpret these findings in terms of human toxicity. The only practical means of determining the actual influence of this type of deterioration is by an extensive clinical study.

An investigation showing the relation of age of the material as a possible factor in reactions following neoarsphenamine therapy can be accomplished only with the cooperation of an organization with extensive clinical material and the laboratory charged with the official control of the arsphenamines. Since 1924 the medical officers of the United States Navy (*4*) have been required to report all arsenical administrations and to report separately, in detail, each case of unfavorable reaction following arsenical therapy. During the 12-year period 1925–36, administration of 1,087,083 doses of neoarsphenamine have been recorded, with 854 reactions of all types, the incidence being 1 reaction to every 1,272 injections (*4*). The National Institute of Health, charged with the administration of the arsphenamine control, has a record of every lot of the several licensed arsphenamines available for clinical use, including the date that each lot was officially released for distribution. Only this Institute has the information necessary to identify the age of every lot of the arsphenamines in clinical use in the United States.

The clinical reports of the United States Navy of all neoarsphenamine therapy for the 5-year period 1933–37, inclusive, were taken for study. These records were investigated for all essential information and then the age of each lot of neoarsphenamine administered was ascertained from the National Institute of Health. The clinical reports were classified according to the year of administration, and the age of each lot was estimated by the year of official release, i. e. material released in 1935 and administered during 1937 is recorded as having an average age of 2 years.

Since the material is taken entirely from United States Navy records and represents all neoarsphenamine administered by all of its medical services during a continuous period of 5 years, it is assumed that all other factors which might influence the reaction ratio are fairly constant. During this period no essential change has been made in the management of antisyphilitic therapy.

The material included (table 1) comprises all of the neoarsphenamine administered during the 5-year period. The clinical record for

TABLE 1.—*Analysis of 541,381 clinical administrations of neoarsphenamine according to the age of the material*

Year of clinical use	Average age, in years, at the time of administration																				
	Current			1 year			2 years			3 years			4 years			5 to 7 years			Total		
	Lots	Doses	Reactions	Lots	Doses	Reactions	Lots	Doses	Reactions	Lots	Doses	Reactions	Lots	Doses	Reactions	Lots	Doses	Reactions	Lots	Doses	Reactions
1937	------	------	------	23	29,768	16	10	9,985	5	22	32,099	17	2	7,177	6	8	2,765	1	65	81,794	45
1936	13	4,514	2	8	11,733	4	22	37,414	26	4	23,440	18	8	13,028	13	7	773	7	62	90,902	70
1935	2	1,242	0	20	22,861	39	6	43,114	27	8	42,410	27	3	4,021	9	3	23	0	42	113,671	102
1934	5	2,279	1	4	21,803	23	11	73,742	79	6	19,130	14	8	727	0	1	118	0	35	117,799	117
1933	3	832	0	10	105,317	68	5	15,890	13	7	9,785	8	5	985	1	2	4,406	2	32	137,215	92
1933–37 (total)	23	8,867	3	65	191,482	150	54	180,145	150	47	126,864	84	26	25,938	29	21	8,085	10	236	541,381	426
Reactions:																					
Mild	------	------	2	------	------	84	------	------	102	------	------	49	------	------	25	------	------	8	------	------	270
Severe	------	------	1	------	------	62	------	------	42	------	------	31	------	------	3	------	------	1	------	------	140
Fatal	------	------	0	------	------	4	------	------	6	------	------	4	------	------	1	------	------	1	------	------	16
Reaction ratio to doses, 1 to—	------	2,956	------	------	1,276	------	------	1,200	------	------	1,510	------	------	894	------	------	808	------	------	1,270	------

Reaction expectancy: Lots current to average age of 3 years: 1 to 1,312 doses.
Lots average age in excess of 3 years: 1 to 870 doses.

each year is detailed separately, showing the age of the material by years with the number of doses administered and the reactions. The totals give the summary for the entire period, showing the number of doses and reactions with the reaction expectancy according to the age of the material.

The total number of administrations was 541,381, representing 326 lots of three different manufacturers. The reactions recorded numbered 426, and were classified according to severity as "Mild," 270; "Severe," 140; and "Deaths," 16. The reaction expectancy is 1 to 1,270 doses, which is in agreement with a previous United States Navy report of 1 to every 1,272 doses (*4*).

The reaction expectancy increases as the age of the material increases, excepting lots with an average age of 3 years, which show a slight decrease. The material with an average age not in excess of 3 years shows a reaction expectancy of 1 to 1,312 doses, as compared with the ratio of 1 in 870 doses in material older than 3 years, an increase of approximately 65 percent.

Analysis of 541,381 human doses of neoarsphenamine from all medical services of the United States Navy over a continuous 5-year period shows that the reaction expectancy increases with the age of the material. This clinical experience agrees with the laboratory observation that neoarsphenamine changes with age.

REFERENCES

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FLEA INFESTATION OF DOMESTIC RATS IN SAN FRANCISCO, CALIF.

By C. R. Eskey, *Senior Surgeon, United States Public Health Service*

During the course of the routine rat-trapping operations carried on at San Francisco during 1936 and 1937, the trappers found in their traps 3,027 live rats, which they killed, placed in cloth bags, and brought to the laboratory for the removal of parasites. Sixty-four percent of the rats thus obtained were found to be flea-infested and yielded a total of 21,659 fleas, or an average of 7 fleas per rat.

Rattus norvegicus was caught in all parts of San Francisco, while the less common *Rattus rattus* was found almost exclusively in the section of the city that was rebuilt after the great fire in 1906. Three quarters

of the rats caught were *R. norvegicus* and they averaged nearly twice as many fleas per animal as were collected from *R. rattus*.

Besides the three species of rodent fleas, which will be discussed later, 85 *Ctenocephalides felis* and *canis*, 5 *Pulex irritans*, and 48 *Malaraeus telchinum* were found on domestic rats. The last-named species is one of the common fleas infesting wood rats. No ground squirrel flea was discovered, although some of the rats were caught in areas where there was some contact with ground squirrels. The slight infestation of rats with *Pulex irritans* at the present time is in marked contrast with that existing 30 years ago, when this species was found to average nearly one flea per rat. There has apparently been a great reduction in the prevalence of this bothersome pest in San Francisco.

During most flea surveys a few rats are caught that are infested with enormous numbers of fleas as compared with the number harbored by the general rat population. An exaggerated example of this type of infestation occurred during this investigation when 1,600 *Xenopsylla cheopis* were collected from 10 *R. norvegicus* trapped in the same basement during a 10-day period. Over 400 *cheopis* were found on one of the rats, and one-sixth of the total *cheopis* obtained during the survey were collected from the 10 rats.

It is obvious that, if such abnormal flea infestations as just noted are used for computing the average number of fleas per rat, the results will fail to represent the general prevalence of fleas. For this reason the 1,600 *cheopis* found on the 10 rats caught in the same place have not been included in the computations that follow. For comparative purposes the percentage of flea-infested rats affords more reliable information than is often obtained from indices of infestation.

The following tabulations show the extent to which rats were found infested with the three common rodent fleas:

Xenopsylla cheopis

	Percentage of rats infested	Index
Rats trapped in buildings	34	3. 2
Rats trapped exterior to buildings	23	1. 4
Total rats trapped	29	2. 5

Nosopsyllus fasciatus

Rats trapped in buildings	41	2. 7
Rats trapped exterior to buildings	55	3. 6
Total rats trapped	47	3. 1

Ctenopsyllus segnis

Rats trapped in buildings	25	1. 0
Rats trapped exterior to buildings	25	1. 0
Total rats trapped	25	1. 0

Although the great majority of rats caught out of doors were obtained in traps set very close to buildings, the above figures clearly show that the animals trapped exterior to structures were less infested with *Xenopsylla cheopis* than those caught within buildings, while, conversely, the prevalence of *Nosopsyllus fasciatus* was greater on animals obtained outside of buildings. The fact that rats not associated with buildings may be infested with many *fasciatus* and very few *cheopis* was demonstrated in the case of nearly 300 rats trapped in a large park where they lived in burrows. Seventy-three percent of these park rodents harbored *fasciatus* and only 4 percent *cheopis* with an average of 3.8 and 0.1 fleas respectively per rat.

The prevalence of the three common species of rodent fleas varied according to the species of rats from which they were collected as shown in the following tabulation:

	R. rattus		R. norvegicus	
	Percent infested	Index	Percent infested	Index
X. cheopis	34	2.0	27	2.6
N. fasciatus	11	0.5	59	4.0
C. segnis	15	0.7	28	1.2

During the survey, rats were trapped on 604 different premises, being caught inside buildings on 354 and outside only on 249. In many instances rats were obtained from the same locations during different months while there were a few premises on which rats were caught nearly every month. The following table shows the percentage of premises that were found to be infested with the three species of rat fleas according to whether rats were trapped inside or outside buildings:

	Inside buildings	Outside buildings
	Percent	*Percent*
Premises *X. cheopis* infested	45	20
Premises *N. fasciatus* infested	66	83
Premises *C. segnis* infested	46	59
Premises no fleas found	13	8

The climate of San Francisco may be briefly described as follows: Mean monthly temperatures normally vary from about 50° F. to 61° F. with the coldest weather in January and the warmest in September and October. The average annual precipitation is 22 inches, with most of the rain falling from December to March, inclusive. The

relative humidity is high throughout the year, ranging between 80 and 90 percent of saturation during the early morning and dropping to 60 or 70 percent at noon. During the two years that this survey was in progress, climatic conditions did not vary much from normal.

As might be predicted, in a locality with such equitable seasons as those of San Francisco, there was no great seasonal variation in the prevalence of the different species of rodent fleas. At the end of the rainy season, during March and April, there was a definite reduction in the prevalence of *Xenopsylla cheopis*. During these 2 months only about 25 percent of rats were found infested with *cheopis*. These fleas increased in numbers during the following months so that 35 to 40 percent of rats were infested with them from August to October, inclusive. The *cheopis* index fluctuated so erratically from month to month that it was of little value for determining the extent of seasonal infestation. *Nosopsyllus fasciatus* were found on 68 to 72 percent of *R. norvegicus* during the 6 months from February to July, inclusive, while only 55 to 43 percent of Norway rats were infested with *fasciatus* during the other months. There was no definite seasonal variation in the prevalence of *Ctenopsyllus segnis*.

In conclusion it may be stated that the domestic rats of San Francisco act as the natural hosts for three species of rodent fleas, *Xenopsylla cheopis*, *Nosopsyllus fasciatus*, and *Ctenopsyllus segnis*, and that nearly two-thirds of the rats trapped were flea-infested, or a greater percentage of infestation than has been reported for most communities. The widespread dissemination of fleas on San Francisco rats can be accounted for by the fact that, of the two most prevalent species of fleas found on them, one, *Xenopsylla cheopis*, is particularly adapted to existence on rats having close contact with buildings, while the second, *Nosopsyllus fasciatus*, thrives best on rats nesting exterior to buildings.

DEATHS DURING WEEK ENDED MAY 21, 1938

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

	Week ended May 21, 1938	Corresponding week, 1937
Data from 87 large cities of the United States:		
Total deaths	8,175	[1] 8,311
Average for 3 prior years	8,438	
Total deaths, first 20 weeks of year	174,761	195,141
Deaths under 1 year of age	529	[1] 502
Average for 3 prior years	540	
Deaths under 1 year of age, first 20 weeks of year	10,802	11,981
Data from industrial insurance companies:		
Policies in force	68,326,308	69,731,099
Number of death claims	12,459	13,016
Death claims per 1,000 policies in force, annual rate	9.5	9.7
Death claims per 1,000 policies, first 20 weeks of year, annual rate	9.9	11.2

[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) is to be interpreted to mean that no cases or deaths occurred, while leaders (------) indicate that cases or deaths may have occurred, although none were reported.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 28, 1938, and May 29, 1937

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937
New England States:								
Maine	0	0	------	2	156	10	0	1
New Hampshire	0	0	------	------	3	3	0	0
Vermont	0	1	------	------	140	7	0	0
Massachusetts	3	7	------	------	392	697	0	5
Rhode Island	0	0	------	------	------	59	0	0
Connecticut	7	2	1	------	71	181	0	0
Middle Atlantic States:								
New York	22	28	[1] 2	[1] 7	3,445	1,565	4	5
New Jersey [2]	10	7	9	1	708	1,291	0	3
Pennsylvania	35	24	------	------	2,216	1,969	3	8
East North Central States:								
Ohio	5	31	------	27	1,362	1,839	4	9
Indiana	5	5	------	15	159	556	0	3
Illinois	36	36	6	69	1,089	417	0	4
Michigan [2]	1	23	2	------	3,080	192	1	2
Wisconsin	1	4	22	19	2,511	58	1	0
West North Central States:								
Minnesota	1	1	1	------	359	10	0	0
Iowa	2	4	------	1	308	6	0	0
Missouri	7	7	13	25	192	30	0	0
North Dakota	2	1	5	------	76	------	0	1
South Dakota	0	1	------	------	------	4	0	0
Nebraska	1	1	1	------	294	17	0	0
Kansas	2	12	5	------	401	43	1	3
South Atlantic States:								
Delaware	1	0	------	------	8	19	0	0
Maryland [2 3]	5	7	1	2	84	351	0	4
District of Columbia [2]	11	5	------	------	19	146	0	0
Virginia [3]	11	9	------	------	325	465	1	11
West Virginia	3	4	28	23	504	35	1	7
North Carolina [3 4]	6	6	3	3	1,402	298	1	8
South Carolina	9	4	59	101	118	68	1	0
Georgia [4]	1	4	------	------	204	------	0	0
Florida [4]	7	8	3	------	110	------	1	2
East South Central States:								
Kentucky	7	5	4	------	148	293	2	6
Tennessee [4]	5	6	17	16	87	121	2	2
Alabama [4]	7	12	28	10	226	31	6	18
Mississippi [3]	4	2	------	------	------	------	1	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 28, 1938, and May 29, 1937—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937
West South Central States:								
Arkansas	5	3	38	26	143	16	0	0
Louisiana [4]	5	13	5	13	13	10	1	2
Oklahoma	3	10	18	4	95	60	0	1
Texas [4]	25	27	163	137	79	498	1	4
Mountain States:								
Montana [3]	0	2	----	1	84	1	0	0
Idaho [3]	0	2	8	12	5	14	0	0
Wyoming [3]	0	0	----	----	26	5	0	0
Colorado [3]	14	6	----	----	266	21	1	2
New Mexico	4	3	3	2	76	75	0	0
Arizona	0	0	40	31	16	41	0	0
Utah [3]	2	0	----	----	339	50	0	0
Pacific States:								
Washington	1	3	----	----	37	62	0	1
Oregon [3]	7	1	30	9	36	6	2	0
California	22	33	20	52	564	310	7	8
Total	305	370	535	608	22,116	11,960	47	120
First 21 weeks of year	10,693	9,998	41,434	270,457	660,788	176,891	1,639	3,332

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fever		Whooping cough
	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938
New England States:									
Maine	0	0	31	18	0	0	0	2	68
New Hampshire	0	0	7	7	0	0	0	1	----
Vermont	0	0	16	22	0	0	0	0	57
Massachusetts	0	0	323	204	0	0	1	0	86
Rhode Island	0	0	16	51	0	0	0	0	14
Connecticut	0	0	98	133	0	0	4	0	143
Middle Atlantic States:									
New York	1	0	643	758	0	0	11	5	452
New Jersey [3]	0	0	97	181	0	0	5	2	177
Pennsylvania	0	1	391	922	0	0	11	7	157
East North Central States:									
Ohio	1	1	241	390	1	1	6	13	212
Indiana	0	0	28	90	22	9	2	1	8
Illinois	1	1	331	607	7	16	4	8	169
Michigan [3]	0	1	381	773	7	0	3	2	295
Wisconsin	0	1	155	289	5	3	2	3	209
West North Central States:									
Minnesota	1	0	79	130	13	23	0	0	31
Iowa	1	0	88	138	31	43	2	1	37
Missouri	0	0	14	120	11	40	2	1	5
North Dakota	0	0	6	32	2	29	0	2	17
South Dakota	0	0	7	27	10	1	0	0	11
Nebraska	0	0	14	47	3	2	0	0	14
Kansas	0	0	84	101	28	18	1	0	148
South Atlantic States:									
Delaware	0	0	6	3	0	0	1	2	9
Maryland [3] [5]	0	0	68	38	0	0	3	6	57
District of Columbia [3]	0	0	15	12	0	0	4	0	9
Virginia [3]	0	0	17	4	0	0	2	5	51
West Virginia	0	0	25	55	0	0	5	0	168
North Carolina [3] [4]	0	2	10	30	1	0	9	7	315
South Carolina	0	0	4	4	0	0	6	2	62
Georgia [4]	1	0	10	7	0	1	21	1	70
Florida [4]	1	1	2	7	0	0	8	6	33

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 28, 1938, and May 29, 1937—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fever		Whooping cough
	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938	Week ended May 29, 1937	Week ended May 28, 1938
East South Central States:									
Kentucky	1	0	12	37	3	0	5	5	87
Tennessee [4]	0	1	7	9	0	0	7	5	59
Alabama [4]	2	1	11	4	0	1	9	4	44
Mississippi [2]	0	5	2	5	4	0	5	10	----
West South Central States:									
Arkansas	0	0	3	13	9	11	14	2	66
Louisiana [4]	4	0	11	10	1	0	4	15	2
Oklahoma	0	0	14	22	31	1	6	4	21
Texas [4]	2	0	68	120	4	5	8	16	297
Mountain States:									
Montana [3]	0	0	21	21	15	20	0	0	50
Idaho [3]	0	0	4	----	9	6	1	1	7
Wyoming [3]	0	0	5	13	1	3	0	0	1
Colorado [5]	0	0	45	42	6	5	2	0	28
New Mexico	0	0	10	15	0	2	1	1	19
Arizona	0	0	5	3	3	0	1	1	41
Utah [3]	0	0	20	11	0	0	1	0	60
Pacific States:									
Washington	0	0	17	38	28	4	0	0	133
Oregon [3]	0	0	28	34	4	10	1	3	27
California	2	5	202	194	18	15	4	5	356
Total	18	20	3,692	5,791	277	269	182	149	4,382
First 21 weeks of year	408	432	117,582	140,683	10,436	6,508	2,722	2,414	89,953

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended May 28, 1938, 13 cases as follows: Maryland, 2; District of Columbia, 1; Virginia, 1; North Carolina, 1; Montana, 2; Idaho, 1; Wyoming, 1; Oregon, 4.
[4] Typhus fever, week ended May 28, 1938, 26 cases as follows: North Carolina, 1; Georgia, 15; Florida, 3; Tennessee, 1; Alabama, 3; Louisiana, 1; Texas, 2.
[5] Colorado tick fever, week ended May 28, 1938, Colorado, 3 cases.

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	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
April 1938										
California	6	126	163	10	3,211	7	3	815	235	30
Hawaii Territory	0	18	16	----	70	----	0	4	0	4
Kansas	3	7	39	2	2,784	1	1	609	83	----
Louisiana	5	31	35	32	59	2	3	33	2	45
Maine	2	9	44	----	874	----	0	95	0	5
Montana	0	4	101	----	116	----	1	72	29	4
Nevada	1	1	7	----	22	----	0	8	0	1
North Dakota	3	1	89	----	645	----	0	103	43	2
Oregon	2	13	198	----	226	----	----	255	80	1
Puerto Rico	0	32	133	2,099	20	1	0	1	0	38
South Dakota	2	3	17	----	6	----	0	67	68	0
Texas	10	138	1,650	10	1,569	225	5	626	112	73
Virginia	15	49	495	6	2,600	13	2	153	0	12
Washington [1]	1	14	19	----	103	----	1	[1] 141	115	3

[1] The number of cases of scarlet fever in Washington for the month of March 1938 should have been given as 208 instead of 228 as shown in PUBLIC HEALTH REPORTS of May 6, 1938, p. 739.

Summary of monthly reports from States—Continued

April 1938

	Cases
Chickenpox:	
California	4,244
Hawaii Territory	100
Kansas	536
Louisiana	45
Maine	274
Montana	154
Nevada	6
North Dakota	137
Oregon	423
Puerto Rico	165
South Dakota	85
Texas	1,228
Virginia	590
Washington	717
Conjunctivitis, epidemic:	
Hawaii Territory	1
South Dakota	23
Washington	1
Dengue:	
Texas	3
Dysentery:	
California (amoebic)	8
California (bacillary)	22
Kansas (bacillary)	1
Louisiana (amoebic)	1
Montana (bacillary)	1
Oregon (amoebic)	1
Puerto Rico	9
Texas (amoebic)	3
Texas (bacillary)	80
Virginia (amoebic)	2
Virginia (bacillary)	48
Encephalitis, epidemic or lethargic:	
California	2
Louisiana	2
Maine	1
Oregon	3
Texas	6
Virginia	2
Washington	1
Filariasis:	
Puerto Rico	3
Food poisoning:	
California	33
German measles:	
California	179
Kansas	13
Maine	30
Montana	6
North Dakota	4
Washington	9
Granuloma, coccidioidal:	
California	10
Hookworm disease:	
California	1
Hawaii Territory	6
Louisiana	23
Impetigo contagiosa:	
Hawaii Territory	11
Montana	3
Oregon	76
South Dakota	1
Jaundice, epidemic:	
California	80
Oregon	11
Leprosy:	
California	2
Hawaii Territory	5
Mumps:	
California	2,630
Hawaii Territory	53
Kansas	853
Louisiana	5
Maine	159
Montana	108
Nevada	82
North Dakota	21
Oregon	96
South Dakota	37
Texas	353
Virginia	403
Washington	882
Ophthalmia neonatorum:	
Louisiana	2
Puerto Rico	3
Paratyphoid fever:	
California	1
Louisiana	1
Maine	2
Texas	2
Virginia	4
Psittacosis:	
California	1
Puerperal septicemia:	
Puerto Rico	3
Washington	2
Rabies in animals:	
California	167
Louisiana	45
Oregon	7
Texas	7
Washington	22
Rabies in man:	
California	1
Virginia	1
Rocky Mountain spotted fever:	
Montana	2
Scabies:	
Montana	1
Oregon	75
Washington	5
Septic sore throat:	
California	19
Kansas	4
Louisiana	15
Maine	1
Montana	9
Septic sore throat—Con.	
Oregon	11
South Dakota	4
Virginia	46
Washington	9
Tetanus:	
California	7
Hawaii Territory	1
Louisiana	2
Puerto Rico	8
Tetanus, infantile:	
Puerto Rico	3
Trachoma:	
California	11
Hawaii Territory	1
Kansas	1
Montana	33
North Dakota	3
Trichinosis:	
California	4
Tularaemia:	
California	2
Kansas	4
Louisiana	10
Texas	9
Typhus fever:	
California	1
Hawaii Territory	3
Louisiana	3
Texas	12
Undulant fever:	
California	15
Kansas	17
Louisiana	5
Maine	3
Oregon	2
Puerto Rico	1
Texas	8
Virginia	5
Washington	4
Vincent's infection:	
Kansas	42
Maine	6
North Dakota	6
Oregon	13
Puerto Rico	1
Washington	2
Whooping cough:	
California	2,333
Hawaii Territory	142
Kansas	658
Louisiana	63
Maine	223
Montana	187
Nevada	5
North Dakota	121
Oregon	100
Puerto Rico	222
South Dakota	78
Texas	1,536
Virginia	428
Washington	687

PLAGUE INFECTION FOUND IN FLEAS FROM GROUND SQUIRRELS IN SANTA CRUZ COUNTY, CALIF.

Under date of May 18, 1938, Dr. W. M. Dickie, Director of Public Health of California, reported plague infection found in fleas collected from *beecheyi* squirrels in Santa Cruz County, Calif., as follows:

A pool of six lots of fleas from ranches in the vicinity of Watsonville, produced typical plague when inoculated into guinea pigs on April 27.

17 fleas from 2 *beecheyi* squirrels collected April 27, 8 miles east of Watsonville.

60 fleas from 1 *beecheyi* squirrel, found dead, 6 miles east of Watsonville.

PLAGUE INFECTION FOUND IN FLEAS AND LICE FROM GROUND SQUIRRELS IN GRANT COUNTY, OREG.

Under date of May 27, 1938, Senior Surgeon C. R. Eskey reported plague infection found in 42 fleas and 2 lice collected from 88 ground squirrels (*Citellus oregonus*) shot May 12 and 13, 6 to 8 miles east of John Day, Grant County, Oreg.

WEEKLY REPORTS FROM CITIES

City reports for week ended May 21, 1938

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	165	105	40	6,307	620	2,156	16	418	28	1,364	----
Current week [1]	112	90	27	6,191	469	1,562	25	393	21	1,308	----
Maine:											
Portland	0	----	1	10	5	2	0	0	0	12	29
New Hampshire:											
Concord	0	----	0	0	2	0	0	0	0	0	13
Manchester	0	----	0	0	0	3	0	0	0	0	21
Nashua	0	----	0	0	1	0	0	0	1	0	13
Vermont:											
Barre	0	----	0	0	0	0	0	2	0	0	4
Burlington	0	----	0	6	0	2	0	0	3	3	9
Massachusetts:											
Boston	1	----	1	126	18	100	0	5	0	24	218
Fall River	0	----	0	1	4	5	0	2	0	1	41
Springfield	0	----	0	29	3	3	0	2	0	3	29
Worcester	0	----	0	0	7	35	0	0	0	10	55
Rhode Island:											
Pawtucket	0	----	0	0	0	0	0	0	0	0	19
Providence	0	----	0	0	7	12	0	1	0	21	62
Connecticut:											
Bridgeport	0	----	1	3	2	8	0	2	0	1	43
Hartford	0	----	0	2	0	20	0	0	0	4	31
New Haven	0	----	0	5	0	1	0	1	1	11	39
New York:											
Buffalo	0	----	0	6	5	35	0	8	0	7	117
New York	25	7	2	1,988	98	322	0	75	2	245	1,445
Rochester	0	----	0	41	2	21	0	1	0	2	73
Syracuse	0	----	0	60	4	6	0	1	0	6	47
New Jersey:											
Camden	4	1	2	15	2	1	0	0	0	11	25
Newark	0	----	0	5	7	16	0	3	0	35	77
Trenton	0	----	0	0	0	9	0	2	0	7	31
Pennsylvania:											
Philadelphia	2	4	2	642	21	104	0	20	2	47	440
Pittsburgh	10	1	0	58	25	25	0	7	4	9	162
Reading	0	----	0	16	3	2	0	2	0	4	33
Scranton	0	----	----	7	----	2	0	----	0	3	----
Ohio:											
Cincinnati	1	----	1	10	4	8	0	7	0	9	128
Cleveland	2	6	3	252	15	43	0	14	0	61	212
Columbus	0	1	1	24	5	7	0	6	0	3	76
Toledo	1	1	1	79	7	9	0	6	0	15	77
Indiana:											
Anderson	0	----	0	25	1	3	1	0	0	2	10
Fort Wayne	4	----	0	10	3	8	0	1	0	0	26
Indianapolis	1	----	0	190	11	25	2	0	0	6	107
Muncie	0	----	0	2	1	2	0	0	0	0	5
South Bend	0	----	0	48	0	5	0	1	1	0	11
Terre Haute	1	----	0	5	0	8	1	0	0	0	20
Illinois:											
Alton	0	----	0	0	0	4	0	0	0	0	10
Chicago	14	6	1	285	21	205	0	38	2	73	672
Elgin	1	----	1	2	0	2	0	0	0	0	4
Moline	0	----	0	4	1	5	0	0	0	0	12
Springfield	----	----	----	----	----	----	----	----	----	----	----

[1] Figures for Springfield, Ill.; Fargo, N. Dak.; and Little Rock, Ark., estimated; reports not received.

City reports for week ended May 21, 1938—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
Michigan:											
Detroit	3	1	0	349	12	123	0	21	0	132	258
Flint	0	------	0	120	2	32	0	1	0	19	22
Grand Rapids	0	------	0	151	5	10	0	0	0	1	37
Wisconsin:											
Kenosha	0	------	0	81	0	3	0	0	0	4	7
Madison	0	------	0	266	0	10	0	0	0	4	12
Milwaukee	1	------	0	42	10	26	0	4	0	81	104
Racine	0	------	0	224	0	3	0	2	0	11	17
Superior	0	------	0	15	0	3	0	0	0	0	6
Minnesota:											
Duluth	0	------	0	15	2	10	0	0	0	8	19
Minneapolis	1	------	1	284	3	14	5	1	0	3	93
St. Paul	0	------	0	3	3	11	0	1	0	1	63
Iowa:											
Cedar Rapids	0	------	--------	10	-------	2	2	-------	0	2	--------
Davenport	0	------	--------	1	-------	7	0	-------	0	0	--------
Des Moines	0	------	0	41	0	18	0	0	1	2	29
Sioux City	0	------	--------	57	-------	5	0	-------	0	7	--------
Waterloo	0	------	--------	22	-------	14	0	-------	0	0	--------
Missouri:											
Kansas City	2	------	0	11	7	21	1	4	0	1	101
St. Joseph	0	------	0	4	0	0	0	1	0	0	23
St. Louis	5	------	0	2	9	45	1	15	0	2	206
North Dakota:											
Fargo	-------	------	--------	-------	-------	-------	-------	-------	-------	-------	--------
Grand Forks	0	------	--------	37	-------	1	0	-------	0	0	--------
Minot	0	------	0	3	0	0	1	0	0	2	3
South Dakota:											
Aberdeen	0	------	--------	1	-------	0	0	-------	0	4	--------
Nebraska:											
Lincoln	0	------	--------	24	-------	7	0	-------	0	4	--------
Omaha	0	------	0	165	7	2	0	2	0	0	70
Kansas:											
Lawrence	0	------	0	31	2	0	0	0	0	1	7
Topeka	0	------	0	54	2	0	0	0	0	25	16
Wichita	1	------	0	39	1	3	1	1	0	3	24
Delaware:											
Wilmington	2	------	0	3	2	6	0	0	0	2	28
Maryland:											
Baltimore	3	1	0	26	10	58	0	20	0	54	223
Cumberland	0	------	0	0	0	0	0	0	0	0	9
Frederick	0	------	--------	0	-------	0	0	-------	2	0	--------
Dist. of Columbia:											
Washington	3	1	1	14	3	14	0	14	0	3	142
Virginia:											
Lynchburg	0	------	0	2	1	1	0	1	0	4	10
Norfolk	0	1	0	19	1	2	0	3	0	3	29
Richmond	0	------	1	139	4	2	0	2	0	0	55
Roanoke	1	------	0	2	2	1	0	2	0	3	25
West Virginia:											
Charleston	0	------	0	0	0	1	0	1	0	2	6
Huntington	0	------	--------	0	-------	2	0	-------	0	0	--------
Wheeling	0	------	0	28	4	0	0	0	1	15	25
North Carolina:											
Gastonia	0	------	--------	23	-------	0	0	-------	0	2	--------
Raleigh	0	------	0	38	3	0	0	0	0	2	16
Wilmington	1	------	0	7	0	0	0	1	0	25	15
Winston-Salem	0	------	0	37	0	0	0	0	0	12	16
South Carolina:											
Charleston	1	2	0	1	2	0	0	1	0	0	21
Florence	1	------	0	10	0	0	0	0	0	0	11
Greenville	0	------	0	9	0	0	0	2	0	7	14
Georgia:											
Atlanta	1	5	0	8	8	11	0	6	0	25	116
Brunswick	0	------	0	8	1	0	0	0	0	0	2
Savannah	0	4	0	33	2	0	0	3	1	3	39
Florida:											
Miami	0	1	0	7	4	1	0	2	0	5	26
Tampa	1	2	1	32	2	1	0	1	0	2	23
Kentucky:											
Ashland	0	------	0	3	3	0	0	0	0	5	21
Covington	1	------	0	1	3	0	0	2	0	6	15
Lexington	0	------	0	3	0	1	0	1	0	0	24
Louisville	4	1	1	69	5	10	1	2	0	7	59

City reports for week ended May 21, 1938—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								
Tennessee:											
Knoxville	0	------	0	31	2	1	0	0	1	1	28
Memphis	0	------	0	5	0	5	0	7	0	1	53
Nashville	0	17	0	0	0	6	0	1	0	7	58
Alabama:											
Birmingham	0	4	0	9	6	2	0	6	1	0	73
Mobile	0	1	2	0	4	0	0	1	0	0	25
Montgomery	0	------	-------	51	-------	0	0	-------	0	2	-------
Arkansas:											
Fort Smith	0	------	-------	4	-------	0	0	-------	0	0	-------
Little Rock	-------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Louisiana:											
Lake Charles	0	------	0	0	0	0	0	0	0	0	4
New Orleans	3	5	2	11	13	3	0	12	2	44	142
Shreveport	0	------	0	8	5	1	0	1	0	0	43
Oklahoma:											
Muskogee	0	------	-------	0	-------	0	0	-------	0	0	-------
Oklahoma City	0	------	0	4	3	6	0	1	0	0	42
Tulsa	0	------	-------	100	-------	1	0	-------	0	0	-------
Texas:											
Dallas	3	2	2	3	4	11	0	2	1	9	70
Fort Worth	0	------	0	5	2	5	0	1	1	37	31
Galveston	1	------	0	0	1	0	0	2	0	0	12
Houston	1	------	0	1	7	3	3	8	0	2	73
San Antonio	0	1	1	0	0	0	0	5	0	0	47
Montana:											
Billings	0	------	0	0	1	1	0	0	0	3	7
Great Falls	0	------	0	1	3	3	2	0	0	5	13
Helena	0	------	0	1	0	0	0	0	0	0	6
Missoula	0	------	0	0	0	0	0	0	0	0	2
Idaho:											
Boise	0	------	0	0	1	1	2	0	0	1	7
Colorado:											
Colorado Springs	0	------	0	0	1	2	1	1	0	0	8
Denver	3	------	0	57	3	20	0	2	0	5	76
Pueblo	0	------	0	8	1	0	0	0	0	5	3
Utah:											
Salt Lake City	0	------	0	170	3	1	0	5	0	2	35
Washington:											
Seattle	0	------	0	3	4	4	0	2	0	36	97
Spokane	0	------	0	1	3	0	0	0	0	14	29
Tacoma	0	------	0	0	0	4	0	0	0	3	23
Oregon:											
Portland	0	1	0	20	4	7	0	3	0	2	72
Salem	0	------	-------	0	-------	0	0	-------	0	0	-------
California:											
Los Angeles	9	10	0	71	18	44	7	24	0	23	334
Sacramento	0	1	1	43	2	0	0	1	0	33	25
San Francisco	1	7	0	6	6	13	0	7	1	53	165

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				District of Columbia:			
Boston	1	0	0	Washington	1	0	0
Worcester	1	1	0	Georgia:			
New York:				Atlanta	1	1	0
Buffalo	2	1	0	Kentucky:			
New York	3	1	1	Louisville	1	0	0
Pennsylvania:				Alabama:			
Philadelphia	1	0	0	Birmingham	0	1	0
Ohio:				Texas:			
Cleveland	1	0	0	Houston	0	0	1
Illinois:				California:			
Chicago	2	1	0	Sacramento	1	1	0
Maryland:							
Baltimore	2	0	0				

Encephalitis, epidemic or lethargic.—Cases: Trenton, 1.
Pellagra.—Cases: Baltimore, 1; Winston-Salem, 2; Atlanta, 1; Savannah, 6; Louisville, 1; Memphis, 1; Birmingham, 5; Montgomery, 1; San Francisco, 1.
Typhus fever.—Cases: New York, 1; Tampa, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended May 7, 1938.—During the 2 weeks ended May 7, 1938, 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[1]	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis					8				1	9
Chickenpox		3	13	297	466	160	76	8	192	1,215
Diphtheria		9	1	65	2	4	7		2	90
Dysentery					1					1
Erysipelas				14	3		2	1	3	23
Influenza		11		7	42	1			29	90
Measles		31	8	373	1,016	4	15	29	42	1,518
Mumps		5			483	188	8	13	21	718
Paratyphoid fever					1					1
Pneumonia		11			72		1		20	104
Poliomyelitis				3	1		1			5
Scarlet fever		34	19	197	200	65	50	47	68	680
Trachoma						1			1	2
Tuberculosis	2	43	40	146	175	23		3	37	469
Typhoid fever		1	1	36	21	3			4	66
Undulant fever					8				1	9
Whooping cough		23		165	174	44	13		79	498

[1] 2 weeks ended May 11, 1938.

JAMAICA

Communicable diseases—4 weeks ended May 14, 1938.—During the 4 weeks ended May 14, 1938, certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chickenpox	10	25	Puerperal fever		4
Diphtheria		2	Tuberculosis	36	95
Dysentery	14	3	Typhoid fever	9	63
Leprosy	2	1			

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

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for May 27, 1938, pages 880-883. A similar cumulative table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Cholera

India—Bombay.—During the week ended May 7, 1938, 1 imported case of cholera was reported in Bombay, India.

Plague

Hawaii Territory—Island of Hawaii—Hamakua District—Paauhau Sector.—A rat found on May 16 and another rat found on May 18, 1938, in Paauhau Sector, Hamakua District, Island of Hawaii, Hawaii Territory, have been proved positive for plague.

United States.—A report of plague-infected fleas in Santa Cruz County, Calif., and plague-infected fleas and lice in Grant County, Oreg., appears on pages 955 and 956 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Egypt—Alexandria.—During the week ended May 21, 1938, 1 case of smallpox was reported in Alexandria, Egypt.

Typhus Fever

Egypt—Port Said.—During the week ended May 21, 1938, 1 case of typhus fever was reported in Port Said, Egypt.

Yellow Fever

Brazil—Santa Catharina State—Blumenau.—During the period April 19–26, 1938, 4 deaths from yellow fever were reported in Blumenau, Santa Catharina State, Brazil.

Colombia—Santander Department—Contratacion.—On April 6, 1938, 1 death from yellow fever was reported in Contratacion, Santander Department, Colombia.

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