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PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

May 23–June 19, 1937

The accompanying table summarizes the prevalence of 8 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 shows the number of cases reported during the 4-week period May 23–June 19, 1937, and the median number for the corresponding period in the 5 years 1932–36, excepting for influenza, for which only four years, 1933–36, are used.

DISEASES ABOVE MEDIAN PREVALENCE

The number of reported cases of influenza, meningococcus meningitis, poliomyelitis, scarlet fever, and smallpox exceeded the median number reported for the corresponding period during the past 5 years.

Influenza.—The total number of reported cases of influenza was only slightly above the median number for the 4 preceding years. In the West South Central and Pacific regions the incidence was somewhat above the normal expectancy, but all other regions reported about the usual number of cases for this season of the year.

Meningococcus meningitis.—This disease was unusually prevalent in the South Atlantic and South Central regions. States reporting a relatively high incidence were Alabama (37 cases), Virginia (34), Kentucky and Tennessee (21 each), and North Carolina (18). While the number of cases for the country as a whole was considerably above the median number for the 5 preceding years, the reports show a very substantial reduction in the number of cases as compared with the corresponding period in 1936 and 1935.

Poliomyelitis.—The summer rise of poliomyelitis became apparent during the current period, but the incidence was about normal in all sections of the country except the South Central and Pacific. The highest incidence in those regions was reported from Mississippi (38 cases), California (21), Texas (15), and Tennessee (12); more than one half of the total cases occurred in those 4 States. In 1936 and

1935 the numbers of cases reported during this period for the entire reporting area were 89 and 240, respectively.

Smallpox.—The incidence of smallpox continued at a relatively high level. The excess number of cases was still confined to the North Central and Mountain regions. In the West South Central region the incidence dropped considerably below the 5-year median, while in other regions it stood at about the median level.

Scarlet fever.—Scarlet fever remained unusually prevalent in the North Central and West South Central regions; a slight excess in the number of cases over the average for recent years was reported from the Mountain region. Other regions reported about the normal incidence for this season.

Number of reported cases of 8 communicable diseases in the United States during the 4-week period May 23–June 19, 1937, with the median number of cases reported for the corresponding period, 1932–36

Division	Current period	5-year median	Current period	5-year median	Current period	5-year median	Current period	5-year median
	Diphtheria		Influenza [2]		Measles [3]		Meningococcus meningitis	
United States [1]	1,367	1,732	2,206	1,977	45,289	64,142	363	216
New England	46	65	6	12	3,589	6,842	15	12
Middle Atlantic	266	409	42	40	18,292	17,798	64	62
East North Central	297	407	314	362	12,999	27,920	51	79
West North Central	89	205	183	109	482	4,115	11	28
South Atlantic	181	206	402	484	4,157	4,378	95	20
East South Central	92	109	137	213	1,758	955	70	20
West South Central	213	210	704	573	1,738	1,070	33	15
Mountain	41	57	109	112	952	993	5	9
Pacific	142	132	309	174	1,322	4,861	19	14
	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
United States [1]	164	108	17,305	16,187	839	751	804	1,058
New England	5	7	1,425	1,377	0	0	14	29
Middle Atlantic	10	13	4,913	5,119	0	0	74	96
East North Central	13	16	6,567	5,569	166	88	93	133
West North Central	7	5	1,925	906	412	186	45	66
South Atlantic	16	12	472	639	3	4	179	328
East South Central	58	8	194	198	5	7	115	151
West South Central	31	7	508	193	41	92	220	159
Mountain	0	3	387	265	109	51	26	88
Pacific	24	14	914	952	103	123	38	55

[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. The median is for the years 1933–36 only; the data for 1932 are not comparable.
[3] 46 States. Mississippi and Georgia are not included.

DISEASES BELOW MEDIAN PREVALENCE

The number of cases of diphtheria, measles, and typhoid fever for the total reporting area was below the median for the 5 preceding years. A comparison of the distribution of the cases by geographic regions shows, however, that the incidence of diphtheria in the Pacific

region, of measles in the Middle Atlantic and South Central regions, and of typhoid fever in the West South Central region was somewhat above the seasonal expectancy. Most of the other regions showed a relatively low incidence of these diseases.

MORTALITY, ALL CAUSES

The average mortality rate for large cities during the 4-week period ending June 19, based on data received from the Bureau of the Census, was 11.0 per 1,000 inhabitants (annual basis). The current rate was slightly below that for the corresponding period in each of the 2 preceding years, but it was approximately the same as the average rate for the years 1932–36.

SPONTANEOUS MAMMARY TUMORS IN MICE

Factors Influencing the Incidence of Metastases[1]

By L. L. Ashburn, *Passed Assistant Surgeon, United States Public Health Service*

Since 1931 an inbred colony of tumor-bearing white mice has been maintained in the Division of Pharmacology of this Institute. The strain was obtained from the State Institute for the Study of Malignant Disease, Buffalo, N. Y., through the courtesy of Dr. B. T. Simpson and Mr. M. C. Marsh. Rather detailed characteristics of this strain 3 were described by Marsh (1929).

The purpose of this report is to evaluate some of the factors influencing the incidence of metastasis from the spontaneous mammary tumors as shown by the accumulated clinical, autopsy, and histological data of 480 tumor-bearing female mice. The clinical and gross autopsy data were furnished by Medical Director Carl Voegtlin and Associate Pharmacologist J. W. Thompson, and for this help grateful appreciation is expressed.

The tumor-bearing mice were used for many different experimental studies, dealing mainly with tumor physiology. The diet was variously changed or supplemented over the 6-year period. The colony was searched every 5 to 10 days for new tumors, and when found, the mice bearing them were segregated into groups and tumor measurements were made twice weekly until death of the animal. Carefully performed autopsy was done in all cases and histological examinations were made on the tumor, heart, lungs, liver, kidney, spleen, and any enlarged lymph nodes. Very rarely one of the above organs was not present for examination, but no case is included in which tumor and lung were not examined microscopically.

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[1] From the Division of Pathology, National Institute of Health.

Tumor histology and classification.—In the early part of the present century, when spontaneous mammary tumors of mice began to attract widespread interest, and lead to heated arguments over the question of malignancy, J. A. Murray (1908) described the tumor histology in great detail and so well that since that time histological description of these tumors is seldom repeated except in brief review. Marsh (1929), in dealing with this tumor, dismissed the description with little more than " * * * the familiar mammary tumor of a rich literature." Here the tumor will be very briefly described, mainly in reference to classification, in order that some of the data presented will be more readily understood.

The structure in this inbred tumor strain does not vary appreciably from that of other mouse strains. It is basically adenomatous, and the most undifferentiated areas can be traced by easy gradations from the hyperplastic breast lobule. Small, well-differentiated acini, larger and atypical acini or tubules, epithelial cysts of variable size, with or without true papillary proliferation, and solid cellular areas intergrading or well circumscribed are not infrequently seen in a single tumor. It is infrequent to find a tumor entirely glandular or solidly cellular, and for this reason histological classification is rather unsatisfactory. It would appear that an elaborate classification is not justified until more data are present on histogenesis of the tumor. In this study the classification of Apolant as given by Woglom (1913) is substantially followed. Adenoma malignum is used to designate those tumors composed of small acini evenly disposed throughout a loose fibrocellular stroma and lined by cubical epithelium showing only slight nuclear hyperchromasia and infrequent areas of stroma invasion. It is felt that the term adenocarcinoma would imply a degree of malignancy not in keeping with the histological appearance. As it is believed that the clinical malignancy of the tumor is affected little, if any, by the congested or focally hemorrhagic stroma, and, further, that this condition of the stroma is noted fairly frequently in noncystic tumors, Apolant's adenoma cysticum oedematosum s. haemorrhagicum and cysto-carcinoma haemorrhagicum are not used.

The six groups into which these tumors are divided are shown in table 6. Since, as previously stated, pure structure is rarely seen, the modification of the term adenocarcinoma by cyst or papillary does not mean that the tumor is largely cystic or papillary; rather it means the prominence of this structure in scattered or focal areas. There were a few tumors encountered in which acini were very rarely seen, the structure being almost solidly cellular. No especial designation was made for this group, since it is believed that these tumors arise from adenocarcinoma by dedifferentiation and simply represent the more malignant varieties. This theory is not new, but further evidence in support of it will be given under a subsequent heading. Two tumors

showing intimate relations of malignant acini and squamous structures were found. Metastases did not occur in either case.

Metastases.—In early studies of spontaneous mammary carcinoma, metastases were rarely seen. Bashford and Murray (1904), working with the Jensen tumor, failed to discover secondary deposits. The almost complete failure of these tumors to produce metastases furnished one of the strongest points for argument by those who maintained that the tumors were nonmalignant and that any results obtained with this growth could have no possible application to human cancer, and more particularly to human mammary-gland tumors. However, this objection was nullified when the above-mentioned workers, in collaboration with Cramer (1905), described pulmonary metastases in mice inoculated with the Jensen mammary carcinoma. Subsequent investigators found pulmonary metastases to be of common occurrence. Although tumor cells reach the lungs by blood stream, tumor thrombi are found in lymph vessels as well as blood vessels and focally in lung parenchyma without demonstrable relationship to larger vessels. In this series of cases among 45 lungs with secondary deposits in which the location of tumor nodules was noted, the following distribution was shown: Subpleural, 7; focal in pulmonary parenchyma, 7; peribronchial, 6; intravascular, 8; and in 17 cases various combinations of the above locations. The individual nodules vary in number and size and generally closely conform in structure to that of the primary tumor. Of 217 mice showing pulmonary metastases, 38, or 17.5 percent, were bulky, replacing the greater portion of the parenchyma of one or more lobes. This disagrees with the findings of Marsh (1927) that the disseminated pulmonary growths are usually few and small in this strain of mice.

Since it is true that metastases occur in lungs almost to the exclusion of other organs, and since many of the tumor foci are not visible macroscopically, the only way to arrive at a true incidence of metastasis would be to section serially the lungs of all tumor mice. This obviously is impractical, but has been done in a few cases. By this method Murray (1908) showed 8 positive in 16 grossly negative lungs, and Marsh (1927) found 9 positive in 13 grossly negative cases. In many reports the incidence of metastasis is based on gross findings and in some others on gross observation supplemented by microscopic examination of questionable cases. That reliance on gross examination alone leads to erroneous conclusions will be shown by data to be presented subsequently. Murray (1908) reports 39.6 percent pulmonary metastases in 68 tumor mice; Haaland (1911), 38 percent in 273 mice; and Marsh (1929), 39.1 percent in 314 mice.

TABLE 1.—*Metastases in lungs*

	Total number of tumor mice	Metastases—Lung	
		Number	Percent
Reported gross metastases, total	480	178	37.0
Spurious gross metastases	480	31	6.5
Gross metastases, unconfirmed microscopically	480	18	3.8
Metastases, microscopic; not seen in gross	480	70	14.6
Metastases, microscopic, total	480	199	41.5
Metastases, microscopic+unconfirmed gross	480	217	45.2

The incidence of metastasis in 480 tumor-bearing female mice is shown in table 1. Here only pulmonary metastases are considered, since in all cases where tumor masses were present in other locations, the lungs also showed secondary deposits. Macroscopically, 178, or 37.0 percent, were reported as positive. Of this number, some were definitely suspected of being focal lesions other than metastatic deposits but sufficiently suggestive to be reported as positive until proved spurious or confirmed by microscopic examination. On microscopic examination these 178 cases showed 31, or 17.4 percent, to be lung adenomata, lymphoid deposits, nonliquefied abscesses, small subpleural foci of bronchopneumonia, or other circumscribed inflammatory conditions. The 37 percent macroscopic metastases in this series is in close agreement with the findings of Murray, Haaland, and Marsh recorded above. It would not appear unjustifiable to assume that a certain number, possibly in the neighborhood of 17 percent, of reported pulmonary metastases are spurious. This would, of course, vary greatly, since the incidence of lung adenomata and lymphoid deposits in lung varies with different mouse strains; also inflammatory lesions would be affected by environmental factors. Haaland (1911) was fully aware of "false positive" and "false negative" findings when macroscopic examination alone was relied upon. He sectioned the suspicious pulmonary nodules and eliminated many false positives in this way. However, he did not investigate the macroscopically negative lungs.

Of the 178 gross positives, 147 were confirmed in sections. In addition, 70, or 14.6 percent, microscopically positive were found in grossly negative lungs, making a total of 199, or 41.5 percent, proved pulmonary metastases. In a few cases the pulmonary nodules seen in gross were single and quite small, and in sectioning were missed. These cases are shown in the table as unconfirmed gross metastases and are added to the microscopically proved cases so that comparison could be made with other reports based on gross examination alone. There were 18 such lungs, giving a total of 217, or 45.2 percent. It should be stated here that routine microscopic examination of lungs showed 48 (not separately tabulated) cases in which nothing was found

to account for the recorded positives. In these cases the gross material was reblocked and resectioned. In this way 16 positives and 14 spurious nodules were found. Of the latter, lung adenomata formed a considerable number. If the 18 remaining unconfirmed grossly positive cases were similarly divided, the true probable incidence would be 209, or 42.7 percent.

The list of factors influencing the occurrence of metastases is long, undoubtedly incomplete in many respects, and inaccurate in others. It is intended here to analyze the data to determine the effect, if any, of tumor size, tumor duration, tumor growth rate, tumor location, multiple tumors, and histological type on the tendency of the primary tumor to produce secondary deposits. Each will be discussed under appropriate headings.

TABLE 2.—*Relation of multiple primary tumors to incidence of lung metastasis*

	Total number of mice	Metastases	
		Number	Percent
Mice with 1 tumor	185	69	37.3
Mice with 2 tumors	153	71	46.4
Mice with 3 tumors	88	43	48.9
Mice with 4 tumors	34	20	58.8
Mice having 5 to 8 tumors	20	14	70.0

Multiple tumors and metastases.—The occurrence of multiple mammary tumors in mice was recorded by early investigators. The question of whether or not these multiple growths are actually primary and not metastatic is no longer a subject of dispute. The demonstration of Fischer (1919), by ink injection method, that the mouse mammae are independent structures leaves little room for doubt in most cases. The percentage of multiple tumors recorded by various authors is much lower than that observed by Marsh (1929). His figures show for strain 3 a multiple-tumor incidence of 51.7 percent, with 1.84 tumors per mouse. This compares with a 61.5 percent incidence, with 2.08 tumors per mouse in this series. This difference of approximately 10 percent in multiple-tumor incidence observed in two separate colonies of the same strain could be easily explained by the difficulty experienced in determining the presence of two or more tumors in the same breast area. Under these conditions Marsh states that a minimum number was recorded, and he feels that his figure is an understatement of the actual number. It seems probable that the tendency to form multiple tumors would increase with tumor incidence. On this basis the high multiple-tumor percentage could easily be explained for this strain, since over 90 percent of females develop tumors.

The presence of multiple tumors as a factor influencing the incidence of metastasis is shown in table 2. It is noted that mice with 1 tumor showed 37.3 percent metastases; mice with 2 tumors, 46.4 percent; mice with 3 tumors, 48.9 percent; mice with 4 tumors, 58.8 percent; and in mice having from 5 to 8 tumors, metastasis occurred in 70 percent of cases. From these figures the multiple-tumor factor is striking, metastases being approximately twice as frequent in mice with from 5 to 8 tumors as compared with mice with only one tumor. It is not suggested, nor is it to be inferred, that this approximately 100 percent increase in tumor metastases is entirely due to the multiple-tumor effect. It might be argued that, since age and size may be factors influencing metastasis, the multiple-tumor effect is only apparent and not real. When it is borne in mind that most carcinomatous females die of "tumor cachexia", and that this condition would naturally be hastened by increased tumor bulk (multiple tumors), age in this group should have little effect. That growth rate varies in tumors of different animals maintained on a nutritious diet and in multiple tumors of the same animal, but not significantly in an individual tumor, was shown by Voegtlin and Thompson (1936). Since, as a group, the growth rate of multiple tumors is no higher than the growth rate of single tumors, size of a individual tumor as a factor here must be discounted. The means by which the presence of multiple tumors increases the incidence of metastasis cannot be definitely ascertained; however, aggregate tumor bulk immediately suggests itself. Since metastases occur almost entirely by blood stream, the greater number of malignant cells in close association with blood vessels would naturally increase the opportunity for tumor emboli to occur. Again, multiple tumors of the same breast not infrequently lead to massive growths with considerable necrosis. Blood vessels are involved as well as tumor cells, and under this condition the opportunity for tumor cells to gain entrance to the vascular system is naturally enhanced. There are probably many factors concerned, but the statements just presented are suggested as a reasonable explanation.

Duration of tumor and metastases.—The term "tumor age" for many years has been used as meaning that period in the life of the mouse during which the tumor has its inception. Consequently, another term must be used when reference is made to the actual age of the tumor; and to avoid confusion, in this report "tumor duration" is used in that sense. To record the exact date when a tumor becomes palpable or grossly recognizable would require careful inspection of the entire mouse colony every one or two days. Where a large colony is kept, this becomes impractical and unnecessary. The colony furnishing the mice for this report was inspected every 7 to 10 days, the presence of tumors was noted, measurements were taken and the

animals were segregated. Occasionally tumors of moderate size were found, having developed since the last inspection or having been so small that they were missed. In an attempt to establish more accurately the tumor duration, it was decided to assign to each tumor a probable date on which it was of sufficient size to be grossly evident. This was done by establishing a growth rate factor based on a large number of tumors and using this figure in arriving at the date of appearance. Since growth rate varies in individual tumors, it is evident that the date of tumor appearance arrived at in this manner is not entirely accurate. However, since the same scheme was applied to all tumors, and since the number of tumors is fairly large, the error is widely distributed or balanced.

TABLE 3.—*Relation of duration of primary tumor to incidence of lung metastasis*

Duration of oldest tumor, in days	Total number of tumor mice	Metastases		Duration of oldest tumor, in days	Total number of tumor mice	Metastases	
		Number	Percent			Number	Percent
Under 10	2	0	0	61 to 70	56	34	60.7
11 to 20	29	6	20.7	71 to 80	37	22	59.5
21 to 30	69	20	29.0	81 to 90	30	19	63.3
31 to 40	68	26	38.2	91 to 100	13	9	69.2
41 to 50	81	28	34.6	Over 100	17	13	76.5
51 to 60	78	40	51.3				

That long duration of malignant growths greatly increases the incidence of metastasis is an opinion that must be as old as oncology itself. Yet in human tumors this is difficult to prove statistically, since it is quite difficult to rule out or evaluate other factors such as the intervention of treatment, surgical or otherwise. That the spontaneous mammary tumors of mice showed a much higher metastasis incidence when the mouse had kept these tumors for a long time was quite evident to Haaland (1911), and this knowledge was used by Pybus and Miller (1934) to explain the very small number of metastases in their mice, the majority of which had had surgical removal of the tumor in order that breeding might be continued. To show statistically this tumor duration effect, the animals of this series are divided into 11 groups (table 3). It is seen that the percent of metastases varies from 0, where the tumor duration was 10 days or less, to 76.5 percent in the group of mice having carried their tumors for 100 days or more. It is also evident that this metastasis incidence increases fairly regularly, corresponding to the increased tumor duration. It would be purely coincidence if in this table the cause and effect were more nearly correlated, for it is impossible completely to eliminate multiple-tumor and tumor-size factors and still have sufficient number of animals to be of significance. When more detailed analysis of the oldest tumor group (over 100 days) is compared with a similarly analyzed group of multiple tumors, the independent metas-

tasis-producing effect of tumor duration will be obvious. This is done under the following heading.

Tumor size and metastases.—The accurate determination of tumor size (bulk) can be determined only by careful dissection of the tumor at autopsy and weighing. Generally this procedure is unnecessary, since by making two dimensional measurements a quite satisfactory estimation of size is obtained. In a fairly large number of cases the tumor was weighed as well as measured. Comparison of the results showed that quite accurate size estimation was obtained by measurement, except in few instances where the tumor exhibited unusual shape. Where tumor size is referred to in this analysis, the figure given is the square root of the product of the two longest dimensions, in millimeters. Table 4 shows the mice divided into 7 groups according to size of the largest tumor. It is seen that the incidence of metastasis varies from 6.4 percent in mice with tumors 10 mm or less to 69 percent in cases where the tumors were from 30.1 to 35 mm. The progressive increase in metastasis incidence is fairly regular in the intervening groups according to the increased tumor size. In the last size group, namely, those mice which had tumors over 35.1 mm, metastases occurred in only 50 percent, as compared to 69 percent for the next smaller size group. It is to be shown later that the size of old tumors has less relationship to incidence of metastasis than does the age. It is suggested that the multiple-tumor and age factors are partially responsible for the higher percentage shown by the mice with tumors ranging in size from 25.1 to 35 mm.

TABLE 4.—*Relation of size of primary tumor to incidence of lung metastasis*

Size of largest tumor expressed as square root of product of two dimensions in mm	Total number of mice	Metastases	
		Number	Percent
10 or less	47	3	6.4
10.1 to 15	80	26	32.5
15.1 to 20	97	40	41.2
20.1 to 25	109	54	49.5
25.1 to 30	67	43	64.2
30.1 to 35	58	40	69.0
35.1 and over	22	11	50.0

That the higher incidence of metastasis in the last group of tables 2 and 3 is largely due to the independent factors stated, is evident when these groups are compared with reference to average number of tumors, average duration, and average size.

TABLE 5.—*Comparison of last group in tables 2, 3, and 4*

Group no.	Number of mice	Percent of metastases	Average number of tumors per mouse	Average duration of tumor, in days	Average tumor size
1 (mice with 5 to 8 tumors)	20	70.0	*5.30*	55.3	24.6
2 (mice with tumors of 100 or more days' duration)	17	76.5	2.53	*118.0*	25.4
3 (mice with tumor size of 35.1 or above)	22	50.0	2.46	61.6	*37.7*

Table 5 shows that in groups 1 and 2 the tumor size is approximately the same; group 1 has about twice as many tumors per mouse, and the tumor duration is less than half of that of group 2, yet in each group metastasis occurs in 70 percent or more of all mice. In comparing groups 2 and 3 it is seen that the number of tumors per mouse is approximately the same, and that in group 3 tumor duration is less than half that in group 2 and the tumors are almost twice as large. This shows first, that size *per se* has slight influence on metastasis incidence, giving 50 percent in this selected group whereas the entire 480 mice showed 45 percent metastases. Also from this comparison it is seen that large tumors are not included in groups 1 and 2, and that the high metastasis rate is due in the first group to the multiple tumors and in the second to long tumor duration.

Growth rate and metastases.—In this analysis, multiple tumor effect is eliminated by considering only mice with one tumor. There are 185 such mice, and in figure 1 each mouse is plotted according to duration of tumor in days and size, as indicated in graph. Mice having metastases are indicated by $\times$, and 0 represents mice without metastases. It is seen that the median growth rate of tumors in mice with metastases is generally well above that of tumors which produce no metastases, except in those mice which had carried their tumors for 70 days or longer.

For further analysis the median tumor growth rate for all 185 mice was established (curve not shown), and comparison was made with reference to metastases in the mice above and below this median growth rate curve. This shows 41, or 49.4 percent, metastases in 83 mice with tumors above, and 28, or 30.4 percent, metastases in 92 mice with tumors below this median growth rate. Further division of this group according to tumor duration shows that, in mice having had their tumors less than 50 days, metastases occurred in 36.6 percent of 41 mice with tumors above the mean and in only 18 percent of 50 mice below the mean. In those mice having had their tumors for 50 days or more, metastases occurred in 61.9 percent of 42 mice with tumors above the mean and in 45.2 percent of 42 mice with tumors below the mean growth rate. It is evident from these figures that, as a group, the higher the growth rate the higher the incidence of metastases, and that this is particularly true in younger tumors

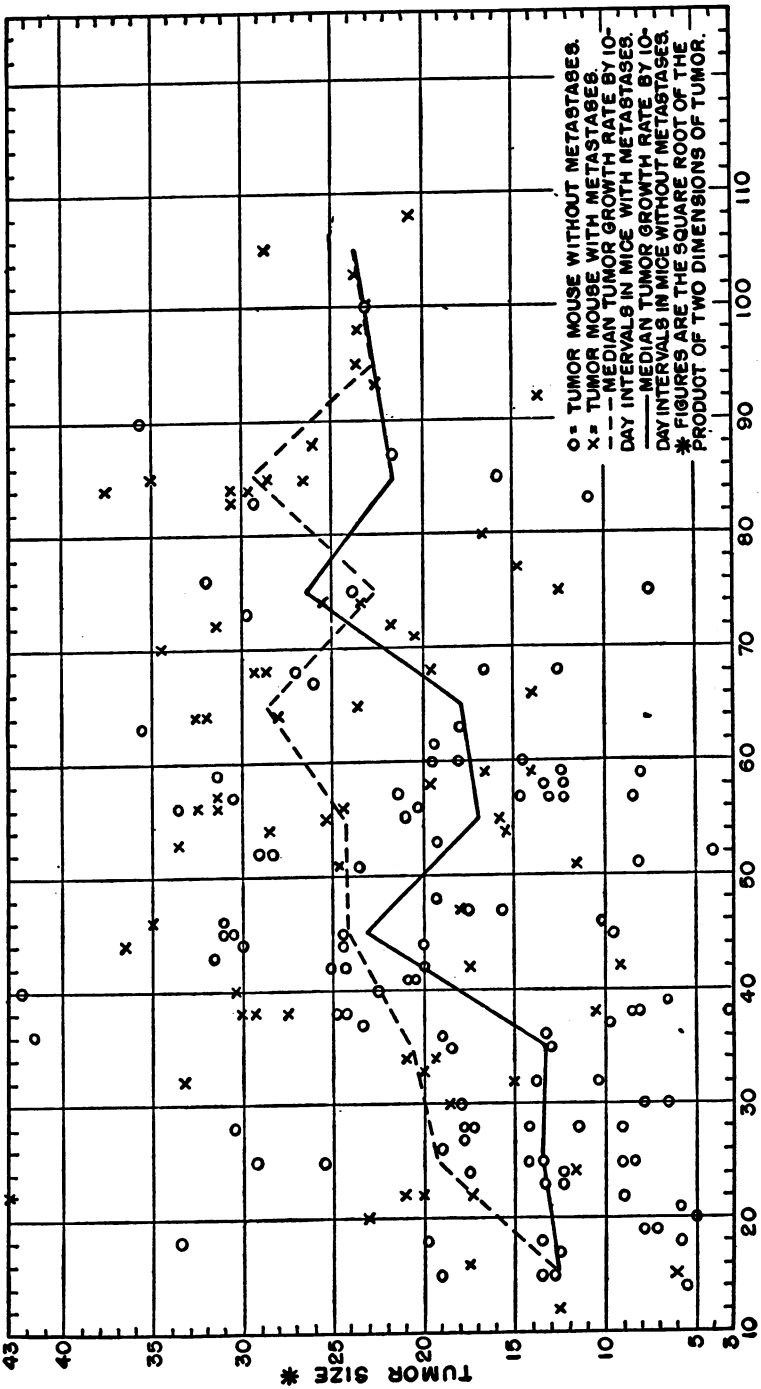

FIGURE 1.—Comparison of median tumor growth rates in mice showing metastases with rates in those without metastases (all with one tumor).

(less than 50 days). The effect of age of the tumor is quite clear, since in the older tumors (50 days or more) metastases were only slightly less frequent in the small tumor group (below mean).

TABLE 6.—*Number and percentage of lung metastases by histologic classification of tumors*

Tumor type	Total number of single tumor mice	Metastases	
		Number	Percent
Adenoma	7	[1] 2	----------
Cystadenoma	2	0	0
Adenoma malignum	10	1	10
Papillary cystadenocarcinoma	33	8	24.2
Adenocarcinoma	102	42	41.2
Cystadenocarcinoma	31	16	51.6

[1] Gross, not found microscopically.

Metastases and histological classification.—As previously stated, and shown in table 6, the tumors are divided into 6 groups histologically. The basis for such separation was discussed under tumor histology. Of the 185 single-tumor mice shown, metastases occurred in 51.6 percent, 41.2 percent, 24.2 percent, and 10 percent in cystadenocarcinoma, adenocarcinoma, papillary cystadenocarcinoma, and adenoma malignum groups, respectively. This table indicates that the cystadenocarcinomas are clinically more malignant than the adenocarcinomas and the papillary tumors. This is contrary to the opinion held by some investigators. Haaland (1911) points out that histological evidence of malignancy is not always in keeping with the clinical evidence. One gains this impression by seeing many histologically quite malignant tumors which fail to produce metastases and other tumors of rather benign appearance producing secondary deposits. The last observation may be explained by the fact that a single section may pass through a benign adenomatous area, whereas quite active proliferation may be present in other portions of the tumor. As previously stated, these tumors are basically the same growth, and classification is often difficult and unsatisfactory. The mere presence of short papillae in one or few cysts probably does not justify placing the tumor in a separate group, for papillary proliferation is usually seen in a limited area and is rarely complex. If in table 6 the two groups of cystic tumors are combined, then metastases occur in 37.5 percent of the 64 mice, which is not materially different from that found in the noncystic but otherwise similar tumors. The writer feels that this latter grouping is justified and that no real difference in clinical malignancy exists by this classification, except, of course, between the obviously malignant, the borderline, and the benign groups.

That the diffusely cellular (solid) areas that occur in many of these tumors is an indication of increased malignancy is evident histologically. The cells are large, polygonal, nuclei are increased in size, are more hyperchromatic and show many more mitotic figures than seen in the adenomatous structures. This is in agreement with the findings in human tumors of glandular origin, namely, that when tumor cells fail to produce structures similar to those from which they arose, the clinical malignancy progresses inversely as this differentiating ability is lost. To find out whether this were true in spontaneous mammary tumors of mice, 185 single-tumor mice were divided into two groups. In 126 mice with tumors of relatively pure glandular structure, metastases occurred in 29, or 23 percent, whereas in 59 mice whose tumors showed solidly cellular areas of varying extent, metastases occurred in 24, or 40.7 percent. This 77 percent increase in tumor metastases is, of course, too great to be explained on any coincidental factors. Further division of the 59 mice according to degree of diffuse cellularity resulted in groups too small to be of significance. The argument favoring the origin of the solid areas from adenomatous structures, rather than the reverse, would appear to be greatly strengthened by the above findings.

Tumor location and metastases.—Williams, Silcox, and Halpert (1935), in working with tumor mice from the "Albino A stock," of Strong, found no correlation between tumor location and incidence of metastasis. This finding is confirmed in this study of a different mouse strain (strain 3, Marsh, 1929). In 87 mice with single tumors of the cephalic half of the body, metastases occurred in 35, or 40.2 percent, and in 98 mice with tumors of caudal half, metastases were found in 35, or 35.7 percent.

Metastases to organs other than lungs.—All investigators are agreed that secondary deposits in organs other than the lung occur quite infrequently. In 68 tumor mice, Murray (1908) records metastatic tumor nodules once in liver and three times in lymph nodes, two of which were found as a result of serially sectioning five mice. In 273 mice, Haaland (1911), found other than pulmonary metastases 14 times in the following locations: Liver, 4; on peritoneum, 3; lymph node, 2; and one each in kidney, ovary, retroperitoneum, under diaphragm, and in spleen. Just how many mice were involved was not stated. In many reports no statement is made that would indicate the occurrence of nonpulmonary metastases.

In 480 mice here reviewed, 5 showed 10 nonpulmonary metastases. Heart and kidney were involved once; liver, spleen, and kidney once; heart twice; spleen and kidney once; and liver alone once. All of the 5 mice also had secondary deposits in lungs. In addition, there were 4 other mice that showed tumor thrombi of the right ventricle, and in 1 a large tumor mass was present just distal to the pulmonary valve.

Of the 4 cardiac thrombi, the largest was approximately 1.5 by 3 mm, and was much more malignant histologically than the primary tumor. In 1 case the thrombus was attached to the endocardium by a slender fibrocellular connective tissue strand. In the other 3 cases the tumor masses appeared to lie free in the ventricle cavity. The main reason for considering the tumor masses as thrombi rather than emboli is their large size in comparison with the relatively small efferent vessels of the tumor. A single section of heart could quite easily fail to pass through the area of attachment. Pearce and Brown (1923), in reporting on metastases of a transplantable rabbit carcinoma, stated: "In few instances masses of tumor cells were found in the right auricle or ventricle apparently free, or attached to the walls of the heart by a slender pedicle." Warren and Gates (1936), working with transplantable rat carcinoma, found 2 cases in which tumor was growing free in chambers of the heart and extending into cardiac muscle. In reviewing the literature on tumor metastases in mammary carcinoma of mice, Haaland's case (1911) of cardiac involvement was the only one found; and in this, tumor cells from a lung metastasis grew through the vessels into the heart and floated free in the blood stream.

Tumors or tumorlike diseases other than mammary carcinoma.—Marsh (1929), in giving the general characteristics of this mouse strain states: "* * * the progeny is rather narrowly restricted in cancer tendency and produces little else than the epithelial tumor of the mammary gland in the female." Figures showing the actual occurrence of other tumors were not given. Pybus and Miller (1934), working with the same mouse strain, are in agreement with this statement by Marsh. They found 26 primary lung tumors in 587 mice, 4 occurring among 168 carcinomatous females. Eight sarcomata and one hemangioma were also found. Fifty-eight mice showed "leukemia" involving the lymphatic system, and of this number 37 were females, 9 of which had mammary tumors.

In this series of 480 carcinomatous females, lung adenomata were found in 6. All of these were discovered on reembedded and resectioned material of 48 mice, nothing having been found in the original sections. This would indicate that the primary lung tumors are much more frequent than shown by the above figure, the usually small size of the tumor being responsible for the error. The only other tumor conditions found were those involving the lymphatic system. Six carcinomatous females, 2 noncarcinomatous females, and 1 male were affected. Leukemic infiltration of lung, liver, and spleen occurred twice; similar infiltration of the same organs and the heart in addition, once; retroperitoneal lymphosarcoma occurred once; generalized lymphosarcoma twice; mediastinal lymphosarcoma once and pseudoleukemia once. The classification of the lymphatic diseases used

above is admittedly unsatisfactory and may not indicate the true picture of the disease in each case. This is due to the fact that inadequate material was present for examination in many of these cases and blood smears were examined in only one.

DISCUSSION AND SUMMARY

The data showing the influence of certain factors on incidence of metastasis were discussed under the individual headings in order that it might be followed more readily. In most cases the conclusions drawn are not new, but the evidence presented places them on a sound statistical basis. The following is a brief summary:

1. Material furnishing the basis of this report represents the clinical, autopsy, and histologic data from 480 female mice with spontaneous mammary carcinoma. The mice belong to strain 3 developed at the State Institute for the Study of Malignant Disease in Buffalo, N. Y.

2. Tumor histology is briefly described, mainly with reference to classification.

3. Metastases occurred in 217 (45.2 percent) of 480 mice.

4. Multiple tumors occurred in 61.5 percent of mice, with an average of 2.08 tumors per mouse.

5. The incidence of metastasis is higher in mice having multiple tumors and in mice with tumors of long duration than in mice with single or small tumors.

6. Tumor size *per se* has little effect on the incidence of metastasis; this is especially true with reference to tumors of long duration. Rapidly growing tumors metastasize early and frequently.

7. Tumors showing diffuse, undifferentiated cellular areas metastasize more frequently than those of relatively pure glandular structure.

8. Very little, if any, difference in clinical malignancy is seen between the histological groups usually used to subdivide these mammary carcinomas.

9. Location of primary growth has little, if any, effect on tendency to produce metastases.

10. Nonpulmonary metastases are infrequent; location and number are given.

11. Tumors other than those of mammary origin are relatively infrequent. Those found were lung adenomata and tumors of lymphatic apparatus.

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TYPHOID OUTBREAK TRACED TO A SPORADIC CARRIER WITHOUT CLINICAL HISTORY OF THE DISEASE

Dr. John L. Lavan, health officer of Grand Rapids, Mich., has recently issued an interesting epidemiological report on an outbreak of typhoid fever in Grand Rapids which was traced to the eating of cream puffs from a bakery in which a temporary carrier of typhoid bacilli was discovered.

Between December 9, 1936, and January 4, 1937, 9 cases of typhoid fever were reported in the city, 4 cases in nearby territory, and at least 1 case in a town 21 miles distant. In the latter case the patient reported that she had eaten cream puffs from the bakery in which the carrier was found.

Doctor Lavan states that the city had been remarkably free from typhoid fever for the past 5 or 6 years, and that an epidemiological investigation was begun immediately after the first cases were reported. The occurrence of several cases within a period of two weeks pointed to a common origin. The milk used by the patients was found to have been supplied by five different dairies, although in the case of two dairies two patients were taking milk from the same dairy and one other dairy had supplied three of the patients. All of the dairies had pasteurizing plants and none sold raw milk. The results of the investigations of the pasteurizing methods and personnel were negative. The water supply was also found to be entirely safe.

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After eliminating the milk and water supplies, attention was turned to other possible common sources of infection, and it was found that all of the patients in the city and some in the country had patronized the same bakery and that each of them had eaten cream puffs purchased therefrom. All of the employees, some 250 in number, were examined, their past history with reference to typhoid was obtained, cultures were made from stool samples, and the sanitary methods of certain employees were investigated. Cultures of stool specimens were made daily on the employees under suspicion, and on the seventh day a positive culture was obtained from an individual employed in filling the cream puffs with custard and whipped cream. Suspicion had been centered on this part of the industry early in the investigation, and production had been curtailed before finding the carrier.

The carrier is evidently of the temporary or sporadic type, as the organisms were not found to be present continuously in the stools, and she was without clinical history of having had the disease.

PREVENTING TYPHOID AND BACTERIAL FOOD POISONING FROM CREAM-FILLED PASTRY

In an outbreak of typhoid fever like that reported in the preceding brief note, or an outbreak of food poisoning such as that recently reported by Dr. J. C. Geiger,[1] director of public health of San Francisco, the immediate problem is to determine the source of infection. In both of these outbreaks the health officer, through prompt and persistent epidemiological inquiry, soon located the origin, and, in the case of the typhoid epidemic, eliminated the responsible factor and prevented further spread of the disease. The important permanent problem is the prevention of future outbreaks.

With reference to bacterial food poisoning from cream-filled pies and cakes, the following is taken from the Weekly Bulletin of the California Department of Public Health for August 15, 1936 (quoted from the San Diego Health Department Bulletin):

"During the months of June, July, August, and September, there occur many outbreaks of bacterial food poisoning in localities scattered over the entire United States. Several outbreaks have occurred in California and some in San Diego during the past years.

"The poisoning is caused by an excessive growth of bacteria in cream fillings and decorations, cream cakes, cold mixed custards, whipped cream products, eclairs, and other foods of this kind. In the hot months the temperature produces rapid multiplication of bacteria in foods which have become infected through production, handling, or distribution.

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[1] Public Health Reports, June 11, 1937, p. 765.

"The health department is endeavoring to stamp out this needless sickness by requiring the proper refrigeration and care of this type of bakery product from the time of production until it is ultimately consumed.

"The consumer and the public can be of valuable assistance to the health department by insisting upon the proper refrigeration and care of the foods they purchase and by refusing to buy or to be served with any cream- or custard-filled or decorated products unless they are at the time under proper refrigeration and care.

"The purchaser who buys such food to be consumed at home or elsewhere should place the goods under refrigeration at once. This kind of food should not be transported in an automobile for any considerable distance, such as to picnics, trips to the back country, and the like, unless adequate refrigeration is provided. The temperature in the automobile will incubate bacteria. An otherwise harmless pie may be the cause of serious illness.

"Report at once to the health department any case of food poisoning or so-called 'ptomaine' that may occur in your family or among your friends. Immediate investigation will be made to determine the causative agent and eliminate the possibility of further danger from the same source.

"Several localities, including San Francisco, Madera County, and others, have decreed that this class of merchandise may not be manufactured or sold during the summer months. San Diego has not taken such drastic action. With the cooperation of the baking industry, the general public, and merchants dealing in these products a satisfactory control may be established. Such cooperation must be close and wholehearted.

"The San Diego Health Department has established rules and regulations for the proper manufacture and care of cream and custard food products, copies of which have been freely distributed and explained to the trade. Any person desiring a copy of these regulations for their own guidance and information may obtain it by calling at the office of the local health department."

Under date of April 10, 1936, the following regulations governing custard fillings for pastries were promulgated by the California State Board of Health:

"WHEREAS poisoning with the toxins of staphylococci and colon group present in foods is becoming more common, the protection of the public health requires that products subject to such contamination be prepared with due regard to the prevention of such accident; therefore, be it

"*Resolved* that:

"1. All commercially prepared custards or cream fillings of pastries shall be made under conditions of cleanliness involving all stages of its manufacture.

"2. Only efficiently pasteurized milk may be used.

"3. The temperature and time of heating the mix shall be, as a maximum, the equivalent of a temperature of 140° F. for a period of one hour, provided, however, that other temperatures and times may be used when specifically approved by the Director of Public Health.

"4. Upon completion of the cooking of the custard when used for filling of eclairs or cream puffs or closed shell, that same should be put into shallow sterilized containers and chilled without delay to 50° F. When custard fillings are used in open shells, that the pie and the shell must be cooled likewise to 50° F.

"5. Custards must be kept in the cooling room until used in making pastries.

"6. The filling apparatus which shall be wholly of metal or rubber, cleaned with boiling water and sterilized brushes, or with a jet of live steam under pressure.

"7. Before use, filling apparatus shall be sterilized bv either boiling for 10 minutes, or steaming in a steam sterilizer for 1 hour.

"8. The manufacturer of custard-filled pastry shall prohibit any person suffering from a skin infection from preparing or handling in any manner such pastry or the custard mix used therein.

"9. Only freshly made cream filling shall be used in each batch.

"10. During the process of distribution, all pastries containing cream fillers shall be maintained at a temperature that will not produce spoilage. (For its information value, it may be stated that scientific investigation has shown 50° F. to be the maximum temperature.)"

DEATHS DURING WEEK ENDED JUNE 19, 1937

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

	Week ended June 19, 1937	Corresponding week, 1936
Data from 86 large cities of the United States:		
Total deaths	7,517	7,736
Average for 3 prior years	7,696	
Total deaths, first 24 weeks of year	226,409	222,964
Deaths under 1 year of age	458	506
Average for 3 prior years	537	
Deaths under 1 year of age, first 24 weeks of year	13,951	13,878
Data from industrial insurance companies:		
Policies in force	69,874,140	68,692,630
Number of death claims	12,579	12,132
Death claims per 1,000 policies in force, annual rate	9.4	9.2
Death claims per 1,000 policies, first 24 weeks of year, annual rate	10.8	10.7

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

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 26, 1937, and June 27, 1936

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936
New England States:								
Maine	1				21	218	0	0
New Hampshire					27	26	0	0
Vermont	1				2	146	0	0
Massachusetts	6	5			417	582	3	2
Rhode Island	1	1			43	3	1	0
Connecticut	9		1	2	65	49	2	0
Middle Atlantic States:								
New York	45	34	[1] 2	[1] 4	1,020	1,476	7	15
New Jersey	6	7	3	6	700	364	3	1
Pennsylvania	17	25			1,362	1,134	15	5
East North Central States:								
Ohio	18	20	8	6	1,634	459	4	3
Indiana	5	5	3	8	301	10	1	3
Illinois	42	39	9	28	438	28	1	7
Michigan	23	12			288	50	2	1
Wisconsin	7	2	15	11	40	159	1	0
West North Central States:								
Minnesota	1	5	1	1	2	123	0	3
Iowa [2]	3	2	1		11	3	0	2
Missouri	6	15	23	8	26	20	0	1
North Dakota	2		219			6	1	0
South Dakota	1				2		0	0
Nebraska		2			8	8	0	0
Kansas	14	2	1	9	13	7	2	1
South Atlantic States:								
Delaware		3			3	9	0	1
Maryland [2 3]	5	5		1	93	211	1	2
District of Columbia	7	5			43	133	1	0
Virginia [2]	5	4			117	46	2	9
West Virginia	3	7	5	11	43	12	1	3
North Carolina [2]	15	13		8	378	5	2	4
South Carolina [4]		4	52	41	63	11	0	0
Georgia [4]	3	7					0	3
Florida [4]	7		1	2		7	1	2

See footnotes at end of each table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 26, 1937, and June 27, 1936—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936
East South Central States:								
Kentucky [4]	3	10	3	3	301	21	3	9
Tennessee	3	1	13	17	75	13	1	2
Alabama [4]	10	8	6	7	36	7	10	2
Mississippi [3]	5	5					0	0
West South Central States:								
Arkansas		4	4	3	7		1	0
Louisiana	12	4	26	14	3	3	1	2
Oklahoma [3]	2	4	27	8	20	4	0	1
Texas [4]	32	20	66	59	273	100	0	4
Mountain States:								
Montana [3]		2		12	11	4	0	1
Idaho	2		1		20	13	0	0
Wyoming [3]	2				2	1	0	0
Colorado		3			46	10	1	5
New Mexico	5	1		1	31	39	0	0
Arizona	2	2	15			97	0	1
Utah [3]					65	3	0	0
Pacific States:								
Washington	1			1	74	133	1	1
Oregon [3]	1	1	6	10	2	14	0	0
California	31	20	10	466	162	1,201	4	8
Total	364	309	521	747	8,288	6,968	73	104
First 25 weeks of year	11,359	12,398	272,576	137,897	218,508	250,647	3,648	5,328

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936
New England States:								
Maine	0	0	7	11	0	0	0	1
New Hampshire	0	0	5	1	0	0	0	0
Vermont	0	0	1	4	0	0	0	0
Massachusetts	1	0	152	143	0	0	2	5
Rhode Island	0	0	24	27	0	0	0	0
Connecticut	0	0	64	22	0	0	2	2
Middle Atlantic States:								
New York	3	3	272	292	0	2	12	13
New Jersey	0	0	58	106	0	0	0	7
Pennsylvania	0	1	709	223	0	0	12	13
East North Central States:								
Ohio	2	1	169	121	4	0	10	7
Indiana	1	0	32	37	6	3	4	5
Illinois	1	3	247	262	9	27	7	2
Michigan	0	1	431	228	1	1	1	6
Wisconsin	1	0	143	173	2	6	4	2
West North Central States:								
Minnesota	1	0	58	122	10	11	0	0
Iowa [3]	0	0	55	61	18	8	0	1
Missouri	1	0	22	67	3	11	0	18
North Dakota	0	0	43	13	11	5	1	0
South Dakota	0	0	6	11	1	3	2	0
Nebraska	0	0	5	26	8	24	0	0
Kansas	1	1	34	63	3	11	3	1
South Atlantic States:								
Delaware	0	0	1	2	0	0	0	0
Maryland [2 3]	0	0	14	19	0	0	4	2
District of Columbia	0	0	9	6	0	0	3	0
Virginia [3]	3	0	2	12	0	1	13	8
West Virginia	0	0	28	8	1	0	2	4
North Carolina [3]	6	1	9	11	0	1	7	12
South Carolina [4]	1	1	2		0	0	26	10
Georgia [4]	1	0	8	4	0	0	30	23
Florida [4]	1	2	2	1	0	0	1	1

See footnotes at end of each table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 26, 1937, and June 27, 1936—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936	Week ended June 26, 1937	Week ended June 27, 1936
East South Central States:								
Kentucky [4]	2	0	15	12	0	0	20	11
Tennessee	[6] 7	0	3	5	0	2	16	18
Alabama [4]	5	7	4	3	0	0	8	20
Mississippi [2]	18	0	5	6	0	0	11	21
West South Central States:								
Arkansas	7	0	8	--------	0	0	27	8
Louisiana	2	1	5	--------	0	0	9	20
Oklahoma [5]	8	0	9	--------	2	1	12	6
Texas [4]	0	2	59	32	3	0	26	15
Mountain States:								
Montana [2]	0	0	13	22	23	47	3	1
Idaho	0	0	13	5	4	3	1	3
Wyoming [2]	0	0	2	3	1	1	0	0
Colorado	0	0	8	13	1	0	2	3
New Mexico	0	0	11	13	0	1	2	10
Arizona	0	0	5	8	0	0	5	6
Utah [2]	0	0	12	6	0	0	1	0
Pacific States:								
Washington	0	1	25	30	1	3	0	3
Oregon [2]	0	0	23	26	3	2	2	5
California	9	7	100	199	26	1	10	17
Total	82	32	2,937	2,464	141	175	301	310
First 25 weeks of year	657	462	155,134	168,642	7,219	5,410	3,370	3,430

[1] New York City only
[2] Rocky Mountain spotted fever, week ended June 26, 1937, 18 cases, as follows: Iowa, 3; Maryland, 1; Virginia, 4; North Carolina, 4; Montana, 1; Wyoming, 4; Oregon, 1.
[3] Week ended earlier than Saturday.
[4] Typhus fever, week ended June 29, 1937, 65 cases, as follows: South Carolina, 1; Georgia, 31; Florida, 6; Kentucky, 1; Alabama, 18; Texas, 8.
[5] Figures for 1936 are exclusive of Oklahoma City and Tulsa.
[6] One nonparalytic case included.

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
March 1937										
California	36	117	9,024	7	781	9	7	1,241	77	22
May 1937										
Georgia	10	22	198	526	33	51	1	48	1	26
Hawaii Territory	2	14	20	[1] 2	2,126	--------	0	--------	0	0
Illinois	17	141	169	10	1,454	--------	4	2,596	95	15
Kansas	4	23	17	--------	140	1	0	718	41	7
Louisiana	5	49	52	79	32	19	2	61	0	53
Nebraska	9	5	2	--------	117	--------	0	248	17	0
Oklahoma	9	42	158	39	333	20	4	137	21	23
Rhode Island	4	2	--------	--------	660	--------	0	249	0	1
South Carolina	--------	108	760	977	384	189	1	10	1	11
Tennessee	22	37	272	55	495	57	3	71	0	20
Texas	28	200	1,504	2,448	4,253	279	6	705	42	79
Washington	5	14	6	--------	241	--------	3	142	24	6

[1] Off shipping.

March 1937

	Cases
California:	
Chicken pox	5,340
Dysentery (amoebic)	8
Dysentery (bacillary)	22
Encephalitis, epidemic or lethargic	1
Food poisoning	84
German measles	153
Granuloma, coccidioidal	6
Jaundice, epidemic	10
Leprosy	3
Mumps	3,848
Ophthalmia neonatorum	2
Paratyphoid fever	4
Rabies in animals	235
Septic sore throat	9
Tetanus	6
Trachoma	14
Trichinosis	1
Tularaemia	2
Typhus fever	2
Undulant fever	14
Whooping cough	2,716

May 1937

Actinomycosis:	
Hawaii Territory	1
Anthrax:	
Louisiana	1
Chicken pox:	
Georgia	220
Hawaii Territory	77
Illinois	1,903
Kansas	281
Louisiana	22
Nebraska	156
Oklahoma	170
Rhode Island	87
South Carolina	119
Tennessee	238
Texas	2,020
Washington	644
Conjunctivitis:	
Georgia	1
Hawaii Territory	3
Oklahoma	1
Washington	6
Dengue:	
Texas	6
Diarrhea:	
South Carolina	736
Dysentery:	
Georgia (amoebic)	19
Georgia (bacillary)	35
Hawaii Territory (amoebic)	3
Hawaii Territory (bacillary)	2
Illinois (amoebic)	4
Illinois (amoebic carriers)	17
Illinois (bacillary)	26
Kansas (bacillary)	2
Louisiana (amoebic)	6
Oklahoma	13
South Carolina	2
Tennessee (amoebic)	2

May 1937—Continued

	Cases
Dysentery—Continued	
Tennessee (bacillary)	13
Texas (amoebic)	6
Texas (bacillary)	125
Encephalitis, epidemic or lethargic:	
Illinois	5
Kansas	4
Louisiana	1
Tennessee	1
Texas	8
Washington	2
German measles:	
Illinois	68
Kansas	13
Rhode Island	43
Tennessee	66
Washington	21
Hookworm disease:	
Georgia	1,292
Hawaii Territory	17
Louisiana	39
Oklahoma	2
South Carolina	70
Impetigo contagiosa:	
Hawaii Territory	6
Kansas	1
Oklahoma	2
Tennessee	1
Jaundice, infectious:	
Hawaii Territory	6
Leprosy:	
Hawaii Territory	7
Louisiana	1
Mumps:	
Georgia	223
Hawaii Territory	65
Illinois	1,085
Kansas	704
Louisiana	2
Nebraska	59
Oklahoma	53
Rhode Island	14
South Carolina	66
Tennessee	233
Texas	1,316
Washington	530
Ophthalmia neonatorum:	
Illinois	4
Kansas	1
South Carolina	7
Tennessee	4
Paratyphoid fever:	
Hawaii Territory	1
Illinois	2
Louisiana	3
South Carolina	1
Texas	4
Puerperal septicemia:	
Georgia	3
Tennessee	3
Washington	1
Rabies in animals:	
Illinois	46
Louisiana	22
Rhode Island	4
South Carolina	47

May 1937—Continued

	Cases
Rabies in animals—Con.	
Texas	14
Washington	32
Scabies:	
Oklahoma	3
Septic sore throat:	
Georgia	27
Illinois	13
Kansas	2
Louisiana	1
Nebraska	1
Oklahoma	64
Rhode Island	4
Tennessee	11
Washington	1
Tetanus:	
Hawaii Territory	2
Illinois	3
Kansas	3
Louisiana	2
Oklahoma	1
Tennessee	2
Trachoma:	
Hawaii Territory	7
Illinois	26
Oklahoma	5
Tennessee	32
Trichinosis:	
Georgia	1
Tularaemia:	
Georgia	3
Illinois	2
Kansas	4
Louisiana	1
Oklahoma	2
Tennessee	2
Texas	5
Typhus fever:	
Georgia	57
Hawaii Territory	1
Texas	42
Undulant fever:	
Georgia	8
Illinois	12
Kansas	7
Louisiana	3
Oklahoma	32
Rhode Island	2
Tennessee	1
Texas	16
Washington	2
Vincent's infection:	
Illinois	26
Kansas	3
Oklahoma	1
Tennessee	15
Whooping cough:	
Georgia	209
Hawaii Territory	17
Illinois	764
Kansas	315
Louisiana	50
Nebraska	63
Oklahoma	53
Rhode Island	142
South Carolina	248
Tennessee	460
Texas	2,092
Washington	384

PLAGUE INFECTION IN FLEAS TAKEN FROM CHIPMUNKS NEAR LAKE TAHOE, CALIF.

Under date of June 28, 1937, Dr. W. M. Dickie, director of public health, California, reported that a guinea pig, inoculated June 17 with a suspension prepared from 70 fleas collected on June 10 from 107 chipmunks (*Eutamias* sp.) from the eastern region of Carnelian Bay, Lake Tahoe, Calif., died on June 22 with typical lesions of plague. This locality is near that in which a patient developed plague last year.[6]

WEEKLY REPORTS FROM CITIES

City reports for week ended June 19, 1937

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. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	179	68	24	4,325	433	1,380	12	404	49	1,294	--------
Current week [1]	140	37	21	3,072	356	1,265	20	384	32	1,284	--------
Maine:											
Portland	0	------	0	0	2	1	0	1	0	1	25
New Hampshire:											
Concord	0	------	0	0	1	1	0	0	0	0	7
Manchester	0	------	0	0	1	2	0	0	0	0	20
Nashua	0	------	0	0	0	2	0	0	0	0	--------
Vermont:											
Barre	0	------	0	0	0	0	0	1	0	0	2
Burlington	0	------	0	0	0	0	0	0	0	0	10
Rutland	0	------	0	0	0	0	0	0	0	0	4
Massachusetts:											
Boston	0	------	1	22	16	24	0	10	1	18	186
Fall River	0	------	0	37	2	1	0	1	0	6	29
Springfield	0	------	0	3	0	2	0	2	0	11	42
Worcester	0	------	0	14	2	1	0	1	0	17	36
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	14
Providence	0	------	0	33	3	13	0	4	0	36	68
Connecticut:											
Bridgeport	0	------	0	0	0	40	0	0	0	0	29
Hartford	0	------	0	18	1	3	0	3	0	3	--------
New Haven	0	------	0	1	3	2	0	0	0	4	40
New York:											
Buffalo	0	------	0	46	10	17	0	8	1	37	128
New York	40	9	4	623	64	154	0	84	5	62	1,251
Rochester	0	1	0	5	2	5	0	1	0	17	56
Syracuse	0	------	0	43	4	4	0	0	1	33	51
New Jersey:											
Camden	3	2	1	9	2	0	0	1	0	2	28
Newark	0	------	0	21	1	8	0	6	0	15	101
Trenton	0	------	0	37	0	3	0	1	0	0	25
Pennsylvania:											
Philadelphia	3	1	1	36	12	75	0	23	4	38	391
Pittsburgh	2	1	1	225	16	38	0	10	0	49	146
Reading	0	------	0	65	0	4	0	2	0	0	30
Scranton	0	------	0	0	--------	8	0	--------	0	0	--------

[1] Figures for Grand Rapids, St. Joseph, and Tampa estimated; reports not received.

[6] Public Health Reports, Oct. 2, 1936, p 1392.

City reports for week ended June 19, 1937—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								
Ohio:											
Cincinnati	1	1	0	37	1	9	0	5	1	20	97
Cleveland	1	2	0	503	6	47	0	6	1	53	175
Columbus	0	------	0	17	2	3	0	0	0	17	98
Toledo	0	------	0	204	3	4	0	5	0	44	58
Indiana:											
Anderson	0	------	0	16	0	1	0	0	0	7	7
Fort Wayne	0	------	0	1	2	2	0	0	0	1	19
Indianapolis	0	------	0	156	4	3	1	1	1	19	78
Muncie	3	------	0	12	2	0	0	0	0	0	14
South Bend	0	------	0	0	1	1	1	0	0	0	16
Terre Haute	0	------	0	0	1	1	2	1	0	0	13
Illinois:											
Alton	0	------	0	0	0	0	0	0	0	0	9
Chicago	20	4	4	334	35	200	0	46	1	43	654
Elgin	0	------	0	0	0	1	0	0	0	2	8
Moline	0	------	0	1	0	0	3	0	0	7	5
Springfield	0	1	0	7	1	0	0	0	2	3	24
Michigan:											
Detroit	14	0	0	101	20	292	0	19	0	52	277
Flint	2	0	0	17	2	8	0	0	0	4	20
Grand Rapids	------	------	------	------	------	------	------	------	------	------	------
Wisconsin:											
Kenosha	0	------	0	0	0	3	0	0	1	0	6
Madison	0	------	0	0	0	1	0	0	0	10	13
Milwaukee	0	------	0	26	2	47	6	1	0	37	88
Racine	0	------	0	0	0	12	0	1	0	0	13
Superior	0	------	0	0	0	0	0	0	0	5	4
Minnesota:											
Duluth	0	------	0	0	1	15	0	2	0	0	15
Minneapolis	0	------	2	0	2	27	0	3	0	9	96
St. Paul	0	------	0	0	4	1	0	1	0	106	50
Iowa:											
Cedar Rapids	0	------	------	1	------	1	0	------	0	1	------
Davenport	0	------	------	0	------	0	0	------	0	0	------
Des Moines	0	------	------	0	------	14	0	------	0	0	20
Sioux City	1	------	------	0	------	5	1	------	0	2	------
Waterloo	0	------	------	2	------	4	0	------	0	3	------
Missouri:											
Kansas City	0	------	0	5	3	23	0	6	0	4	75
St. Joseph	------	------	------	------	------	------	------	------	------	------	------
St. Louis	6	------	0	37	6	46	1	5	0	29	187
North Dakota:											
Fargo	0	------	1	0	0	1	0	0	0	7	11
Grand Forks	0	------	------	0	------	0	0	------	0	10	------
Minot	0	------	0	0	0	0	1	0	0	0	6
South Dakota:											
Aberdeen	0	------	------	0	------	0	0	------	0	0	------
Sioux Falls	0	------	0	0	0	0	0	0	0	0	8
Nebraska:											
Omaha	0	------	0	0	1	2	0	2	0	11	50
Kansas:											
Lawrence	0	------	0	3	0	0	0	0	0	5	3
Topeka	0	------	1	0	3	1	0	0	0	9	17
Wichita	0	------	0	8	1	2	0	1	0	14	19
Delaware:											
Wilmington	0	------	0	0	2	1	0	0	0	0	32
Maryland:											
Baltimore	0	------	0	79	13	8	0	13	1	67	208
Cumberland	0	------	0	0	0	2	0	0	0	2	11
Frederick	0	------	0	0	0	0	0	0	0	0	6
Dist. of Col.:											
Washington	3	------	0	93	4	7	0	12	0	23	137
Virginia:											
Lynchburg	1	------	0	6	0	0	0	0	0	4	12
Norfolk	0	------	0	0	5	0	0	1	1	1	29
Richmond	0	------	0	9	2	1	0	0	0	0	44
Roanoke	0	------	0	24	0	0	0	0	0	3	16
West Virginia:											
Charleston	0	------	0	1	2	1	0	0	0	0	6
Huntington	0	------	------	1	------	1	0	------	0	0	------
Wheeling	0	------	0	0	1	1	0	1	0	6	15
North Carolina:											
Gastonia	1	------	------	1	------	0	0	------	0	0	------
Raleigh	0	------	0	1	0	0	0	1	0	3	11
Wilmington	1	------	0	0	0	0	0	1	0	0	10
Winston-Salem	0	------	0	1	0	1	0	1	0	14	7

City reports for week ended June 19, 1937—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								
South Carolina:											
Charleston	0	1	0	0	2	0	0	2	0	1	22
Florence	0	------	0	0	1	0	0	0	0	0	7
Greenville	0	------	0	0	0	0	0	0	0	0	7
Georgia:											
Atlanta	0	3	1	0	4	0	0	8	0	18	102
Brunswick	0	------	0	0	2	0	0	0	0	0	3
Savannah	1	------	0	0	3	0	0	2	1	5	29
Florida:											
Miami	0	2	0	0	3	0	0	6	1	0	36
Tampa	------	------	------	------	------	------	------	------	------	------	------
Kentucky:											
Ashland	0	------	1	0	4	0	0	2	0	0	41
Covington	0	------	0	32	2	2	0	0	0	5	18
Lexington	0	------	0	0	2	0	0	2	0	10	22
Louisville	0	------	0	45	6	3	0	8	0	68	71
Tennessee:											
Knoxville	0	------	0	2	0	0	0	1	0	0	22
Memphis	0	------	0	59	2	0	0	6	0	16	77
Nashville	0	------	1	6	3	0	0	3	0	5	49
Alabama:											
Birmingham	1	3	0	16	3	1	0	0	2	4	60
Mobile	0	------	0	0	1	0	0	0	0	0	21
Montgomery	0	------	------	0	------	2	0	------	0	2	------
Arkansas:											
Fort Smith	0	------	------	0	------	1	0	------	0	0	------
Little Rock	0	------	0	0	3	0	0	2	0	0	5
Louisiana:											
Lake Charles	0	------	0	2	1	0	0	0	0	0	4
New Orleans	3	------	0	2	9	6	0	18	3	10	129
Shreveport	0	------	0	0	3	0	0	4	0	0	45
Oklahoma:											
Muskogee	1	------	0	2	0	0	0	0	0	0	------
Oklahoma City	0	------	0	3	3	3	0	3	0	2	42
Tulsa	0	------	------	9	------	0	0	------	1	37	------
Texas:											
Dallas	3	------	0	16	3	2	0	2	0	18	67
Fort Worth	0	------	0	3	0	2	0	3	0	2	30
Galveston	0	------	0	0	1	1	0	1	0	0	15
Houston	13	------	0	5	4	1	0	4	0	7	88
San Antonio	0	------	1	0	5	0	0	7	0	1	63
Montana:											
Billings	0	------	0	0	0	0	0	0	0	0	6
Great Falls	0	------	0	0	2	3	2	0	0	6	9
Helena	0	------	0	0	0	2	0	0	0	0	2
Missoula	0	------	0	0	0	0	5	0	0	0	5
Idaho:											
Boise	0	------	0	0	0	0	0	0	0	0	1
Colorado:											
Colorado Springs	0	------	0	0	1	6	0	0	0	0	14
Denver	3	------	0	36	3	9	0	5	1	24	73
Pueblo	0	------	0	0	0	0	0	0	0	0	7
New Mexico:											
Albuquerque	0	------	0	8	1	0	0	4	0	0	8
Utah:											
Salt Lake City	0	------	1	70	2	8	0	0	0	15	37
Washington:											
Seattle	1	------	0	13	4	2	0	4	0	30	77
Spokane	0	------	0	35	1	4	0	1	0	10	31
Tacoma	0	------	0	0	2	0	0	0	0	6	29
Oregon:											
Portland	0	1	0	2	4	6	0	2	0	1	84
Salem	0	------	------	0	------	2	0	------	0	1	------
California:											
Los Angeles	9	7	0	14	19	32	0	16	3	93	318
Sacramento	2	------	0	22	1	2	0	2	2	20	23
San Francisco	5	1	0	10	6	12	0	6	0	48	161

City reports for week ended June 19, 1937—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Fall River	0	0	1
Worcester	1	0	0
Rhode Island:			
Pawtucket	2	1	0
New York:			
New York	3	1	0
Pennsylvania:			
Philadelphia	2	1	0
Pittsburgh	2	0	0
Indiana:			
Indianapolis	1	1	0
Illinois:			
Chicago	1	0	0
Elgin	0	0	1
Wisconsin:			
Milwaukee	1	0	0
District of Columbia:			
Washington	3	0	0
Virginia:			
Richmond	0	0	1
Kentucky:			
Ashland	0	1	0
Louisville	1	0	0
Tennessee:			
Memphis	0	0	1
Alabama:			
Birmingham	1	0	0
Texas:			
Dallas	0	1	0
Houston	0	1	0
California:			
Los Angeles	2	1	0

Encephalitis, epidemic or lethargic.—Cases: New York, 2; Philadelphia, 1; Dallas, 1; San Francisco, 1.
Pellagra.—Cases: Baltimore, 1; Wilmington, N. C., 2; Charleston, S. C., 1; Savannah, 6; Los Angeles, 3.
Rabies in man.—Deaths: Lynchburg, 1.
Typhus fever.—Cases: Savannah, 2. Deaths: Savannah, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended June 5, 1937.—During the 2 weeks ended June 5, 1937, 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				4					5
Chicken pox		6	16		603	50	133	16	125	949
Diphtheria			7		21	1	3	1		33
Erysipelas					3	7	2	4	5	21
Influenza	1				2	9			12	24
Lethargic encephalitis					1					1
Measles	10	170	8		1,626	274	150	181	192	2,611
Mumps		7	19		503	14	4	32	89	668
Paratyphoid fever								2		2
Pneumonia	13	1			12		6		4	36
Poliomyelitis					3	1				4
Scarlet fever	1	10	2		282	50	40	147	35	567
Smallpox								1		1
Tuberculosis	13	19	30		113	23	33	1	44	276
Typhoid fever			11		4	1	8		3	27
Undulant fever					7				1	8
Whooping cough		3	2		240	120	54	1	18	438

NOTE.—No report was received from Quebec for the 2 weeks ended June 5, 1937.

Vital statistics—Fourth quarter 1936.—The Bureau of Statistics of the Dominion of Canada has published the accompanying preliminary statistics for the fourth quarter of 1936. The rates are computed on an annual basis. There were 18.1 live births per 1,000 population during the fourth quarter of 1936 and 18.8 per 1,000 population for the same quarter of 1935. The death rate was 9.4 per 1,000 population for the fourth quarter of 1936 and 9.2 per 1,000 population for the fourth quarter of 1935. The infant mortality rate for the fourth quarter of 1936 was 75 per 1,000 live births and 66 per 1,000 live births in the corresponding quarter of 1935. The maternal death rate was 5.5 per 1,000 live births for the fourth quarter of 1936 and 4.5 per 1,000 live births for the same quarter of 1935.

The accompanying tables give the numbers of births, deaths, and marriages by Provinces for the fourth quarter of 1936, and deaths from certain causes in Canada for the fourth quarter of 1936 and the corresponding quarter of 1935.

Number of births, deaths, and marriages, fourth quarter 1936

Province	Live births	Deaths (exclusive of still-births)	Deaths under 1 year of age	Maternal deaths	Marriages
Canada [1]	50,261	26,226	3,765	274	22,854
Prince Edward Island	414	239	34	2	177
Nova Scotia	2,591	1,399	177	3	1,177
New Brunswick	2,416	1,209	194	16	1,038
Quebec	17,229	8,114	1,709	103	5,019
Ontario	14,333	9,211	902	80	7,391
Manitoba	2,951	1,407	182	18	1,923
Saskatchewan	4,383	1,559	258	26	2,657
Alberta	3,477	1,280	190	17	1,908
British Columbia	2,467	1,808	119	9	1,564

Cause of death	Canada [1] (fourth quarter)		Province, fourth quarter 1936			
	1935	1936	Prince Edward Island	Nova Scotia	New Brunswick	Quebec
Automobile accidents	394	405	2	21	13	106
Cancer	2,747	2,930	28	167	105	766
Diarrhea and enteritis	557	631	4	21	19	315
Diphtheria	111	97		4	1	64
Diseases of the arteries	2,216	2,241	19	149	102	425
Diseases of the heart	4,102	4,151	24	184	166	1,020
Homicides	31	24				4
Influenza	559	679	4	29	20	312
Measles	95	76		1		24
Nephritis	1,485	1,590	13	66	55	713
Pneumonia	1,852	1,989	22	102	100	624
Poliomyelitis	9	42				8
Puerperal causes	230	274	2	3	16	103
Scarlet fever	60	67		3	1	28
Smallpox	3					
Suicides	225	219		10	10	20
Tuberculosis	1,451	1,437	15	107	80	620
Typhoid fever and paratyphoid fever	79	56			4	23
Whooping cough	162	145	3	24	9	65
Other violent deaths	1,014	1,000	10	60	43	207

Cause of death	Province, fourth quarter 1936				
	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Automobile accidents	184	13	16	23	27
Cancer	1,126	195	169	126	248
Diarrhea and enteritis	157	35	42	22	16
Diphtheria	16	3	5	3	1
Diseases of the arteries	1,090	103	105	105	143
Diseases of the heart	1,813	210	225	189	320
Homicides	9	3	1	2	5
Influenza	173	29	36	45	31
Measles	9	4	19	8	11
Nephritis	488	64	66	40	85
Pneumonia	665	123	124	99	130
Poliomyelitis	9	12	5	2	6
Puerperal causes	80	18	26	17	9
Scarlet fever	12	2	7	13	1
Smallpox					
Suicides	101	12	19	13	34
Tuberculosis	253	96	57	84	125
Typhoid fever and paratyphoid fever	15	4	7	3	
Whooping cough	25	1	9	6	3
Other violent deaths	377	63	66	48	126

[1] Exclusive of Yukon and the Northwest Territories.

Vital statistics—Year 1936—Comparative.—Following are vital statistics for Canada for the year 1936 compared with 1935:

	1935	1936
Number of live births	221,451	219,464
Births per 1,000 population	20.3	19.9
Deaths	105,567	106,617
Deaths per 1,000 population	9.7	9.7
Deaths under 1 year of age	15,730	14,508
Deaths under 1 year per 1,000 live births	71	66
Maternal deaths	1,093	1,229
Maternal deaths per 1,000 live births	4.9	5.6
Deaths from—		
Automobile accidents	1,224	1,309
Cancer	11,156	11,652
Diarrhea and enteritis	2,767	2,374
Diphtheria	264	258
Diseases of the arteries	8,302	9,088
Diseases of the heart	16,069	16,361
Homicides	153	129
Influenza	3,392	3,096
Measles	490	372
Nephritis	6,176	6,390
Pneumonia	7,411	7,266
Poliomyelitis	64	99
Puerperal causes	1,093	1,229
Scarlet fever	242	244
Smallpox	4	2
Suicides	905	919
Tuberculosis	6,597	6,745
Typhoid fever and paratyphoid fever	273	256
Whooping cough	892	591
Other violent deaths	4,616	5,058

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 June 25, 1937, pages 858-871. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued July 30, 1937, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Ceylon—Central Province—Nuwara Eliya District.—On June 6, 1937, 1 fatal case of plague was reported in Nuwara Eliya District, Central Province, Ceylon.

Hawaii Territory—Island of Hawaii—Hamakua District—Paauhua Sector.—Four rats found June 24, 1937, in Paauhau Sector, Hamakua District, Island of Hawaii, Hawaii Territory, have been proved plague-infected.

Syria.—Under date of June 12, 1937, the American Consulate General at Baghdad, Iraq, reported that, owing to the occurrence of pneumonic plague in Syria, the frontiers of Iraq and Turkey bordering on Syria had been closed. It was stated that no cases had been reported either in Iraq or Turkey, and none in Syria since June 1, prior to which date 12 cases had been reported. The Director General of Health Services of Iraq stated that there was some doubt as to whether the diagnosis of plague was correct.

Typhus fever

Egypt.—During the week ended June 19, 1937, 1 case of typhus fever was reported in Port Said, and 1 case in Suez, Egypt.

Yellow fever

Dahomey—Bohicon.—On June 22, 1937, 1 suspected case of yellow fever was reported in Bohicon, Dahomey.

Gold Coast—Prestea.—On June 11, 1937, 1 fatal case of yellow fever was reported in Prestea, Gold Coast.

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