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PREVALENCE OF POLIOMYELITIS

During the week ended August 26, 391 cases of poliomyelitis were reported in the United States, as compared with 343 during the preceding week and a median of 289 cases for the corresponding week of the years 1934–38. The number of cases reported for the current week is approximately 36 percent in excess of the median for the preceding 5 years.

The States reporting the largest numbers of cases were as follows: Michigan 115 cases (with 72 in Detroit); New York 60 (of which 11 cases were reported in Buffalo and 19 in New York City); California 50 (with 9 cases in Los Angeles); Minnesota 38 (of which 9 were in Minneapolis); New Jersey 20; South Carolina 16; Illinois 14; and Pennsylvania and Texas 10 cases each. Approximately 80 percent of the cases were reported from these 9 States. Twelve States reported no cases and 13 States reported only 1 case.

In the following article and accompanying table, a summary of poliomyelitis incidence, by geographic regions, is given for the 4 weeks ended August 12.

PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

July 16–August 12, 1939

The accompanying table summarizes the prevalence of eight important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the PUBLIC HEALTH REPORTS under the section "Prevalence of Disease." The table gives the number of cases of these diseases for the 4-week period ended August 12, 1939, the number reported for the corresponding period in 1938, and the median number for the years 1934–38.

DISEASES ABOVE MEDIAN PREVALENCE

Influenza.—The influenza incidence was lower during the 4 weeks ended August 12 than it was during the corresponding period in 1938,

but it was about 10 percent above the 1934–38 median incidence for this period. The South Atlantic and East South Central regions reported a larger number of cases than might normally be expected; the North Atlantic and Mountain States reported about the normal seasonal incidence, while in other regions the incidence was relatively low.

Number of reported cases of 8 communicable diseases in the United States during the 4-week period July 16–Aug. 12, 1939, the number for the corresponding period in 1938, and the median number of cases reported for the corresponding period 1934–38 [1]

Division	Current period	1938	5-year median	Current period	1938	5-year median	Current period	1938	5-year median	Current period	1938	5-year median
	Diphtheria			Influenza [2]			Measles [3]			Meningococcus meningitis		
United States [1]	1,030	1,288	1,288	1,069	1,322	987	5,600	8,591	8,591	122	151	250
New England	16	21	52	1	38	3	899	596	596	5	6	9
Middle Atlantic	129	138	177	20	12	21	1,384	2,480	3,152	31	30	49
East North Central	136	240	216	91	90	128	600	2,328	2,571	11	21	45
West North Central	46	69	91	14	97	97	265	543	518	7	6	14
South Atlantic	284	304	230	554	324	317	409	800	677	19	29	48
East South Central	156	161	155	106	108	76	90	210	210	24	24	24
West South Central	107	217	209	177	492	212	231	184	184	16	15	14
Mountain	70	65	33	64	79	66	238	473	413	4	6	7
Pacific	86	73	83	42	82	70	1,484	977	763	5	14	15
	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
United States [1]	783	232	1,035	3,117	3,508	3,992	178	394	239	2,001	2,322	2,704
New England	16	11	33	185	252	259	0	0	0	40	32	35
Middle Atlantic	71	34	69	637	613	1,015	0	0	0	140	171	174
East North Central	214	45	76	921	1,156	1,404	66	67	60	220	258	276
West North Central	69	28	28	359	397	419	57	99	81	128	118	203
South Atlantic	113	41	43	320	249	286	1	0	2	493	542	613
East South Central	28	28	83	176	158	158	2	14	1	337	436	488
West South Central	42	21	25	112	205	180	9	31	15	541	615	615
Mountain	22	6	13	152	163	163	12	36	40	51	84	81
Pacific	208	18	97	255	315	389	31	147	45	51	66	70

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

DISEASES BELOW MEDIAN PREVALENCE

Poliomyelitis.—The number of cases of poliomyelitis rose from 390 for the 4 weeks ended July 15 to 783 for the current 4-week period. Of the total number of cases, California reported 205, Michigan 170, South Carolina 55, New York 42, and Minnesota and Texas 32 cases each; approximately 500 of the reported cases occurred in those 6 States. Since there was no epidemic of this disease in any section of the country during 1938, that year was the lowest year of poliomyelitis incidence in the 11 years for which these data are available; therefore, the comparison with that year is not very favorable. However, there were approximately 1,600 cases reported for this

period in 1937, and the 1934–38 average incidence (1,035 cases) is more than 1.3 times the current figure.

Considering the situation in broad geographic regions, there were 208 cases in the Pacific region (including California), as compared with an average of 97 cases during the preceding 5 years; the incidence there was the highest for this period since the outbreak in California in 1934.

In the East North Central region (including Michigan) the number of cases (214) was more than 2½ times the seasonal average. In 1937 there was a minor outbreak in this region, and 357 cases were reported during the period corresponding to the present one.

In the South Atlantic region the high incidence has been confined largely to South Carolina, but the disease appears to be on a decline there, and also in Georgia where a few more cases than normally occur have been reported.

The West South Central and Mountain States reported about twice the average number of cases, and the West North Central States reported about 2½ times the 1934–38 median incidence for this period.

In the New England and East South Central regions the incidence was relatively low, and the Middle Atlantic region reported about the normal seasonal incidence.

The summer rise in the incidence of poliomyelitis has, during recent years, reached its peak by about the third week in September. If the current incidence follows the same pattern a further increase of the disease may be expected within the next few weeks.

Diphtheria.—The favorable record of diphtheria continued during the current period. The reports showed 1,030 cases, which marks a new low for this season of the year. The South Atlantic and Mountain regions reported slight increases over the normal seasonal incidence, and the East South Central and Pacific regions reported approximately the 1934–38 average incidence for this period, but in all other regions the number of cases was relatively low.

Measles.—The incidence of measles was comparatively low. For the 4 weeks ended August 12 there were 5,600 cases reported, as compared with approximately 8,600 during 1938, which figure also represents the 1934–38 average incidence for this period. The incidence was especially high for this season of the year in the Pacific region, and slightly above normal in the New England and West South Central regions, but in all other regions the numbers of cases fell considerably below the preceding 5-year average incidence for the corresponding period.

Meningococcus meningitis.—The incidence of this disease remained at a very satisfactory level in all sections of the country. For the current 4-week period there were 122 cases reported, which was only

about 80 percent of the number reported for the corresponding period in 1938, and less than 50 percent of the 1934–38 median figure for this period. The nearest approach to the current figure in the 11 years for which data are available was in 1934, when 130 cases were reported for the period corresponding to the current one.

Scarlet fever.—This disease continues at a favorable level. The number of cases (3,117) reported for the current period represents the lowest incidence for this disease during recent years. A few more cases than might normally be expected were reported from the South Central regions, but in all other regions the incidence was considerably below the seasonal average for this period.

Smallpox.—After a period of relatively high incidence the number of cases of smallpox has dropped considerably below the normal seasonal level. With the exception of the year 1934, when 113 cases were reported for this period, the current incidence (178 cases) is the lowest for this period in the 11 years for which these data are available. In 1935 smallpox became unusually prevalent in the Pacific and Mountain regions and later spread into the North and South Central regions, to which it has remained largely confined. The incidence in the Atlantic Coast region, with the exception of a few scattered cases, has remained at about the normal average level.

Typhoid fever.—During the current 4-week period 2,001 cases of typhoid fever were reported, as compared with 2,322, 2,704, and 2,058 for the corresponding period in 1938, 1937, and 1936, respectively. Each section of the country except the New England reported a relatively low incidence, and for the country as a whole the number of cases was about 75 percent of the 1934–38 average incidence for this period.

MORTALITY, ALL CAUSES

The average mortality rate in large cities for the 4 weeks ended August 12, based on data received from the Bureau of the Census, was 9.7 per 1,000 population (annual basis). The current rate is the lowest for this period since 1932, when the rate was also 9.7.

"INFLUENCES" OF BREAST-CANCER DEVELOPMENT IN MICE [1]

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It has been apparent for several years that at least two factors must be considered in the etiology of breast cancer in mice, heredity and ovarian secretion. Before considering any experiment let us judge

[1] This work has been assisted by a grant in aid from the National Cancer Institute.

the results on the basis of a theory of breast-cancer etiology on the assumption that three "influences" must be present for the transmission of this type of neoplasm.

These may be:

1. A "breast-cancer-producing influence" which is transmitted in the milk of potentially cancerous females. The nature of the "influence" has not been determined; that it acts as a "catalyst" and occurs in many if not all of the organs seems probable.

2. A breast-cancer susceptibility which is transmitted as a dominant complex. The evidence is in accord with the theory that only one factor is involved, but other explanations may be possible. Further work is under way to test this point.

3. A hormonal influence stimulating the mammary tissue may or may not result from the production of young, depending on the strain of mice studied. Strains having a high cancer incidence in virgin females obviously have this "influence" in sufficient amount to stimulate the growth of the mammary gland tissue to a point necessary for the cancerous change to take place in the presence of the other essential influences.

The experiments of Loeb (*48*, *49*), Cori (*44*), and Murray (*52–54*) on castration have demonstrated the part played by the ovarian hormones; a reduction in the amount of secretion resulted in a reduction in the breast-tumor incidence. The earlier the animals were spayed the more significant was the reduction in the proportion of animals showing tumors.

The amount of estrogenic hormones needed to stimulate mammary gland development in normal virgin female mice apparently depends on the strain. Some strains have a high incidence of breast tumors in virgin females; other strains have a very low ratio (*31*, *39–42*, *44*, *45*, *46*, *48*, *49*, *50*, *54*). It has not been determined whether the amount of hormones secreted by the virgin females of a stock which shows a high incidence in such animals is excessive, or whether the amount of stimulation required by the mammary gland is reduced to a minimum. The dba line is such a strain. The breast-tumor incidence was reduced to a very low percentage by Murray (*26*, *53*), following the castration of females; whereas Little (*38*), by transplanting fertilized ova into low-cancer females, with the complete elimination of nursing by the high-tumor mothers, showed that the females which survived and were used as normal breeders did not develop breast tumors. In the first group the hormonal stimulation would be lacking, and in the second series the milk influence was not present, but similar results were obtained. The conformity between Little's results (*38*) and the foster-nursing experiment of Andervont and McEleney (*31*) for C_3H mice is significant when it is considered that

in the latter work the young were permitted to nurse their high-tumor stock mothers for a short time before being transferred. A similar decrease in the breast-tumor ratio of "A" stock breeding females was obtained following the foster nursing of one generation of young by low-cancer strain females (*32–38*). Of special interest is the fact that when breast tumors developed in the progeny of tested noncancerous fostered females they were not transmitted.

When estrogenic hormones are injected in large amounts over a long period of time, Lacassagne (*5*) and others [2] have found that breast tumors could be produced in males and females of strains which normally gave rise to this type of tumor. Strains showing a "medium" incidence of tumors in breeding females showed a lower ratio in the injected mice than did the high-tumor strains; in one experiment only the females developed tumors (Bonser, *1*, *2*).

The carcinogenic action of estrogenic hormones was not specific, however, for the development of mammary carcinoma only. Cori (*44*), Gardner, Smith, Strong, and Allen (*4*), Loeb, Burns, Suntzeff, and Moskop (*9*) and Lacassagne (*7*, *8*) have observed the development of sarcoma and other types of neoplasms not characteristic of the stock tested. Such tumors were usually observed in strains which showed a low or medium breast-tumor ratio. Mice of high breast-tumor stocks as a rule developed breast tumors at an early age, but Gardner and his associates (*4*) recorded the development of spindle-cell sarcoma in C_3H males.

Stagnation of milk, observed by Bagg (*11*) and Bogen (*15*) to be responsible for cancer development in some animals, was demonstrated by Fekete and Green (*16*) to hasten the development of tumors in the dba ("D") high-tumor line, but was unable to overcome the resistance of the C57 black ("B") low-cancer strain mice. By subjecting the C57 black mice to a "functional test"—rapid production with the elimination of nursing—Bagg (*12–14*) found that some females developed breast tumors. This work was repeated by Little and Pearsons (*17*) with no increase in the cancer ratio over that recorded for the control animals. When "B" stock animals are fostered to high-cancer strain females there may (*35*) or may not (*31*) be a slight increase in the breast-tumor ratio. As different sublines of this strain were used in the forced breeding and foster-nursing experiments, this may offer an explanation for the small number of tumors which were recorded. One spontaneous breast tumor had been observed in the control line for the foster-nursing work in which tumors were noted (*47*). A strain of low-cancer mice, such as the C57 black stock, which apparently lacks the susceptibility factor, does not give an increase over the normal breast-tumor ratio when

[2] For a review of this subject see Gardner (*3*).

injected with an extensive amount of estrogenic hormones, as stated by Suntzeff, Burns, Moskop, and Loeb (*10*). (See Lacassagne (*6*) for the injection of other "refractory" strains.)

Thus, a reduction in the breast-tumor incidence in *virgin* mice of high-tumor strains may be secured by the removal of the glands secreting the estrogenic hormones; a similar reduction may be obtained in *breeding* females of the same or other high-cancer stocks by controlled nursing. The injection of a large amount of estrogenic hormones will produce breast cancer in strains, males and females in some lines, which develop them spontaneously. Similar injections have not as yet broken down the resistance or nonsusceptibility of low-cancer (refractory) stock mice. By the injection of a sufficient amount of estrogenic material it may yet be possible to overcome the lack of the cancer constitution in low-tumor strain individuals, at least in some sublines of a strain such as the C57 black stock. Likewise, an excessive amount may cause the development of mammary carcinoma in high-cancer strain animals which lack the milk influence as the result of foster nursing, especially in lines which show a high ratio in virgin females.

Reciprocal crosses between high and low breast-cancer strains of mice have given conclusive data that the maternal parent from the high-cancer strain contributed more than the paternal parent in the development of breast cancer (*18–30*). Murray and Little (*28*) and Korteweg (*23*, *24*) have assumed that the cytoplasmic difference of the ova of the high and low breast-tumor females might explain the results. The foster-nursing work on pure-strain animals indicated that some "influence" was transmitted through the milk of high-cancer mothers which was absent from low-cancer females (*32–38*). Confirmatory evidence was obtained by Andervont and McEleney (*31*). There is no reason to believe that the composition of the milk which the animals obtained while nursing changed in any way the composition of the estrogenic hormones secreted by the individuals. It was determined by using first-generation animals that the chromosomal contribution of the high-tumor male and female parents was probably identical; only the contents of the milk of the high and low breast-tumor mice differed (*35*, *37*). As tumors were observed in the F_1 mice it was probable that the breast-cancer susceptibility was transmitted as a dominant complex by mice of both sexes of the high-tumor stock.

First generation mice obtained by crossing the high tumor "A" and the low tumor "B" or C57 black strains would inherit the breast-cancer susceptibility from the "A" stock parent (males as well as females). As the "A" stock virgin females (*41*, *42*) show a low breast-tumor ratio, the hybrids must be used as breeders to insure the stimulating effects of the hormonal influence. Hybrids which had

either "A" or "B" stock maternal parents and were nursed by "A" stock females showed high tumor ratios. Hybrids which were nursed by "B" stock females had low tumor ratios regardless of their maternal parent. Thus, the breast-tumor ratio in hybrids, as well as pure stock animals, having the cancer susceptibility complex and the hormonal influence may be increased or decreased as the result of foster nursing.

This theory of breast-cancer etiology would not account for growths which are not inherited, such as those occasionally observed in low-cancer strains. They apparently result from other causes. Likewise, the tumors which develop in the descendants of noncancerous fostered high-tumor stock females are not transmitted to their progeny.

To summarize, it may be said that in high breast-tumor strains which have the breast-cancer susceptibility, the relationship between the milk and the hormonal influences varies with the strain of mice studied. In some stocks the hormonal stimulation may apparently be lacking (as in virgin females) yet cancer develops, but at a later age than in breeding females. Other strains require the production of young before a high-tumor percentage is attained. Both types of high-tumor strains may be changed to low-tumor strains by foster nursing and by reversing this phase the original ratio may be restored. The injection of estrogenic hormones may produce breast tumors in males and females of high breast-tumor strains but growths may develop only in females of strains with a medium tumor incidence. No increase was noted when low-tumor stock mice were tested. The slight difference in the forced breeding and foster-nursing experiments when low-tumor mice were used might have resulted from the use of different sublines of the same strains. The use of hybrid females in high×low tumor crosses has given evidence which indicates that the breast-cancer susceptibility is inherited as a dominant complex and may be transmitted by males and females of the high-tumor stock.

Equations expressing the results in accordance with this hypothesis for breast cancer (milk influence, inherited susceptibility, and hormonal influence) for the various experiments would be as follows:

1. High-tumor strains with high virgin tumor incidence: [8]

Milk×susceptibility×hormonal (virgin)=High ratio (*53*, *26*, *31*).
Milk×susceptibility×hormonal (breeding)=High ratio (*54*, *31*).
Milk×susceptibility×injected hormones=High ratio (*10*).
Milk×susceptibility×castration=Low ratio (*52*, *53*).
Nonmilk×susceptibility×hormonal (breeding)=Low ratio (*38*, *31*).
Nonmilk×susceptibility×injected hormones=??

[8] References are limited to the same stocks.

2. High-tumor strains with low virgin tumor incidence:
   Milk × susceptibility × hormonal (virgin) = Low ratio (*41*, *42*).
   Milk × susceptibility × hormonal (breeding) = High ratio (*39*, *42*).
   Milk × susceptibility × injected hormones = High ratio (*10*).
   Milk × susceptibility × castration = ??
   Nonmilk × susceptibility × hormonal (breeding) = Low ratio (*32–38*).
   Nonmilk × susceptibility × injected hormones = ??
3. Low-tumor (refractory (?)) strains:
   Nonmilk × nonsusceptibility × hormonal (virgin) = Low ratio (*26*, *47*).
   Nonmilk × nonsusceptibility × hormonal (breeding) = Low ratio (*47*).
   Nonmilk × nonsusceptibility × injected hormones = Low ratio (*10*).
   Milk × nonsusceptibility × hormonal (breeding) = Low ratio (*35*, *31*).
   Milk × nonsusceptibility × injected hormones = ??
4. Hybrids: "A" stock ♀♀ × "B" stock ♂♂ (*43*, *37*):
   First generation:
   Milk × susceptibility × hormonal (virgin) = 4.5 percent.
   Milk × susceptibility × hormonal (breeding) = 94.9 percent.
   Nonmilk × susceptibility × hormonal (breeding) = 0.7 percent.
   Second generation:
   Milk × 3+:1− × hormonal (virgin) = 1.7 percent.
   Milk × 3+:1− × hormonal (breeding) = 71.4 percent.
5. Hybrids: "B" stock ♀♀ × "A" stock ♂♂:
   First generation:
   Nonmilk × susceptibility × hormonal (virgin) = 0.0 percent.
   Nonmilk × susceptibility × hormonal (breeding) = 1.9 percent.
   Milk × susceptibility × hormonal (breeding) = 89.8 percent.
   Second generation:
   Nonmilk × 3+:1− × hormonal (virgin) = 0.0 percent.
   Nonmilk × 3+:1− × hormonal (breeding) = 0.0 percent.

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THE INFLUENCE OF FOSTER NURSING UPON THE INCIDENCE OF SPONTANEOUS BREAST CANCER IN STRAIN C_3H MICE[1]

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Studies in genetics made during the past few years have shown that the occurrence of spontaneous breast tumors in mice is dependent upon influences transmitted through the mother, and that at least some of these influences are extrachromosomal. When mice of high and of low incidence of mammary cancer were crossed, the incidence

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

of breast tumors in the resultant hybrids was high if the mother came from the high-tumor strain, but low if the mother was of the low-tumor strain. These observations, calling attention to the presence of an extrachromosomal factor, were first published in preliminary form by the staff of the Jackson Memorial Laboratory (*17*) and independently by Korteweg (*12*), and later detailed reports were presented by Murray and Little (*14, 15, 16*) and by Korteweg (*13*). The results have been confirmed by other investigators (*4, 5, 10*).

Efforts to elucidate the problem led to the interesting investigations of Bittner (*3, 6, 7*), who found that when newborn mice of a strain with a high incidence of breast tumors were removed from their mothers and suckled by foster mothers belonging to a strain with a low incidence of mammary tumors, the resultant foster-nursed animals had a low occurrence of spontaneous breast cancer. Bittner (*8, 9*) has confirmed his earlier observations by using hybrid mice derived by reciprocal crossing of high-tumor strains and low-tumor strains. Apparently there is some agent (or agents) in the mother's milk which exerts a profound influence upon the occurrence of spontaneous breast tumors in mice.

In a previous preliminary publication (*2*) confirmation of Bittner's work was reported. The experiment has been concluded and is now presented in full.

Mice of strains C_3H and C57 black were used as the high and the low-tumor line. Breeding females of strain C_3H have a breast-tumor incidence of virtually 100 percent at an average age of 8 to 9 months (*1*) while, according to publications from the Jackson Memorial Laboratory (*6, 7, 11, 15, 16*), breeding females of the C57 black strain have less than 1.0 percent incidence of this type of cancer.

Brother-sister mating of both strains was started in December 1936, and gestation occurred 3 to 5 weeks later. The pregnant mice were examined twice daily to see whether they had given birth to litters. As the C_3H young were born, they were transferred to C57 black mothers, and as the C57 black mice were born, they were transferred to the C_3H mothers; 51 foster-nursed C_3H females and 44 foster-nursed C57 black females were thus obtained. Each of these foster-nursed females was bred and was permitted to raise one litter.

At the time of the earlier report (*2*) the mice were 13 to 13.5 months of age, and 11, or 21.5 percent, of the C_3H mice and none of the C57 blacks had developed breast tumors. The experiment was terminated on December 28, 1938, when 16 surviving strain C_3H mice were from 22.5 to 23 months of age and all were free from mammary cancer; all of the C57 black mice had died by this time.

Of the 51 strain C_3H mice foster-nursed by C57 black mice, 23, or 46 percent, developed spontaneous breast tumors at an average

age of 13.3 months. Since practically all breeding females of the C_3H strain develop breast tumors at an average age of 8 to 9 months, it is apparent that foster nursing by C57 black mice had a decided influence upon the occurrence of breast cancer in C_3H animals.

TABLE 1.—*Summary of an experiment in which C_3H mice were foster nursed by C57 black mice and vice versa*

Strain	Strain of foster mother	Number of mice	Longest possible time with mother (hours)	Number of mice developing spontaneous breast tumor	Tumor incidence (percent)	Average tumor age (months)	Number which died or were killed without breast tumor	Average age of mice dying or killed without breast tumor (months)
C_3H	C57 black	12	7	3	25.0	13.1	9	21.5
C_3H	C57 black	16	17	4	25.0	15.9	12	21.3
C_3H	C57 black	19	24	12	63.1	13.2	7	22.8
C_3H	C57 black	4	48	4	100.0	11.2	0	
C57 black	C_3H	19	17	1	5.3	20.5	18	[1] 15.6
C57 black	C_3H	15	24	2	13.3	17.7	13	[1] 17.0
C57 black	C_3H	10	48	1	10.0	20.0	9	[1] 16.6

[1] 29 of the animals in these groups were alive when the first spontaneous breast tumor arose in a C57 black female 16 months old, and 16 were alive when the last breast tumor occurred in a 20.5-month old mouse.

Of the 44 strain C57 black mice foster nursed by C_3H animals, 4, or 9 percent, developed breast tumors at an average age of 19 months. This incidence is higher than the 1.0 percent incidence reported for this strain.

Analysis of the final results reveals that the occurrence of breast tumors in foster-nursed C_3H mice depends to a large extent upon the time the newborn mice remain with their mothers. Throughout the original phase of the experiment, pregnant mice were examined twice each day, at 9 a. m. and 4 p. m. This procedure limited the time most of the young were with their mothers to 17 hours or less, and some of the mice, born between 9 a. m. and 4 p. m., were removed from their mothers within 7 hours. On Sundays or holidays the pregnant animals were examined once daily, but always within 24 hours after the last examination; thus, this group of mice may have been with their mothers for any length of time up to 24 hours after birth. A few mice were with their mothers for 48 hours because foster mothers of the desired strains were not available when they were born. The results, compiled according to the maximum time the young may have been with their mothers, are summarized in table 1.

It is seen that of 28 C_3H mice remaining with their mothers for less than 17 hours before foster nursing by C57 black mice, 7, or 25 percent, developed breast tumors, while of 19 mice remaining with their mothers for less than 24 hours, 12, or 63 percent, developed tumors. All 4 mice kept with their mothers for 48 hours developed mammary tumors. Hence, it may be concluded that regardless of milk obtained

from C57 black foster mothers a considerable number of C_3H females developed breast tumor after obtaining a small amount of milk from their own mothers.

The average tumor age of 13.3 months in the fostered C_3H mice, when compared with the average tumor age of 8 to 9 months in unfostered C_3H mice, suggests that the amount of milk obtained from the C_3H mothers may have had some influence upon the time of appearance of breast tumors in the females of this strain. Attention is directed to the 25 percent incidence of tumors even in the two groups of fostered C_3H mice remaining with their mothers for less than 17 hours. This observation suggests that a few C_3H mice may develop spontaneous breast tumors even if no milk from their own mothers is obtained. This problem is now under investigation.

Having found that the ingestion of a relatively small amount of mother's milk results in the occurrence of breast tumors in C_3H mice, experiments were designed to answer the following questions: (1) Is the causative agent present in the first milk only? (2) Does the amount of milk ingested from the C_3H mothers determine the time of appearance of breast tumor? (3) If the first milk is not essential for tumor production, is the agent present in the mother's milk in equal quantity throughout the period of lactation? The elucidation of these questions is essential before taking steps to ascertain the chemical nature of the causative factor.

In the following experiments the mice were bred and bore one litter which was killed within 24 hours after birth.

Experiment 1.—To answer the first question, C_3H young were removed from their mothers within 1 hour after birth and given to C_3H foster mothers which had nursed their own litters for at least 5 days. There were 9 mice used in this experiment and all developed breast tumors at an average age of 8.8 months. This demonstrates that the first milk is not essential for the development of breast tumors in C_3H mice.

Experiment 2.—To obtain an answer to the second question, young C_3H mice were kept with their mothers for definite periods of time (2 to 8 days) before being foster nursed by C57 black animals. If the amount of mother's milk determines the time breast tumors occur, the mice kept with their mothers for 8 days should develop tumor earlier than those remaining with their mothers for 2 days.

TABLE 2.—*Summary of experiments 2 and 3 in which C_3H young were foster nursed by C57 black or C_3H mice*

Experiment No.	Strain of foster mother	Number of mice	Time with mother	Number which developed spontaneous breast tumor	Tumor incidence (percent)	Average tumor age (months)	Number dying without breast tumor	Average age of mice dying without breast tumor (months)
2	C57 black	15	2 to 3 days	11	74.0	9.1	4	9.1
2	C57 black	23	6 to 8 days	22	95.6	9.1	1	7.0
3	C_3H	18	Less than 17 hours.	16	88.8	8.7	2	8.2
3	C_3H	8	5 to 6 days	8	100.0	9.8		
3	C_3H	15	7 to 8 days	14	93.3	9.6	1	9.0
3	C_3H	9	16 to 18 days	9	100.0	8.9		

As shown in table 2, both groups of C_3H young which were foster nursed by C57 black mice developed tumors at an average age of 9.1 months. This indicates that the effect of strain C_3H milk was obtained when the young C_3H animals were nursed by their mothers for 2 or 3 days. The results of experiment 2, together with those presented in table 1, suggest a relationship between the amount of C_3H milk ingested and the time of appearance of breast tumor when the young are nursed by their mothers for varying periods of time up to 48 hours, as mice remaining with their mothers for less than 17 hours developed tumors at an average age of 15.9 months while those kept with their mothers for 48 to 72 hours developed tumors at an average age of 9.1 months.

Experiment 3.—To answer the third question, C_3H mice were kept with their mothers for varying periods of time (less than 17 hours to 18 days) and then foster nursed by C_3H females which had borne litters during the preceding 17 hours. If the agent is present in the milk of C_3H mice during the entire period of lactation and without any pronounced variation in amount, the fostered mice should develop tumors at approximately the same average age.

The findings, as given in table 2, suggest that the causative agent in the milk of C_3H mice is constant in amount throughout the lactation period. Tumors arose later on the average in mice kept with their mothers for 5 to 8 days, but the number of animals in the different groups is too small to attach much significance to these averages. Mice kept with their mothers for less than 17 hours or for more than 16 days suckled but one mother for the greater part of the nursing period, while those fostered at the end of 5 to 8 days of life undoubtedly obtained milk from two C_3H females. This may account for the differences in the average tumor ages in these groups of mice, but there is no definite evidence to support this postulation. It may be concluded that C_3H young, when nursed by C_3H foster mothers, develop spontaneous breast tumors at approximately the same

average age as when nursed by their own mothers only. Hence the agent in milk responsible for the occurrence of breast tumors in C_3H mice is, in all probability, present in the milk throughout the entire period of lactation.

SUMMARY

Foster nursing of C_3H female mice (high breast-tumor line) by C57 black mice (low breast-tumor line), when the C_3H young had been with their own mothers for 17 hours or less, lowered the incidence of spontaneous breast tumors in the C_3H mice from 100 percent to 25 percent. When the foster-nursed C_3H young remained with their own mothers for 24 hours or less, 63 percent developed spontaneous breast cancer. The fostered C_3H mice were permitted to raise one litter.

Foster nursing of C57 black females by C_3H mice raised the incidence of spontaneous breast tumors in the C57 black females from 1 percent, as reported in the literature, to 9 percent. The fostered C57 blacks were permitted to raise one litter.

The first milk is not essential for breast tumor production in C_3H females and the factor is apparently present in the C_3H milk throughout the period of lactation. There is some evidence that mammary tumors appear earlier in C_3H females when larger quantities of C_3H milk are ingested during the early part of the nursing period.

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EFFECTS OF OX BILE AND ESTRIN ON THE DEVELOPMENT OF TUMORS IN MICE [1]

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The purpose of the experiment reported here was to acquire information regarding the roles of two biologically formed substances, bile and estrin, in relation to the development of malignant tumors in mice.

There are reasons for suspecting that bile or bile derivatives may have a role in the genesis of cancer. Brodin and his associates (*3*), for example, found that bile pigments accumulate in aged persons, that is, in those of the age in which cancer most frequently occurs. Methylcholanthrene, one of the most potent cancer-producing chemical compounds, has been prepared from desoxycholic acid, which is a constituent of bile. Cook and coworkers (*4*) have described the work of several investigators in this connection. Neufach and Shabad (*7*) state that when benzene extracts of bile of patients with malignant tumors were injected into mice, 6 of 35 animals developed tumors, "adenocancroids" of mammary glands, lymphosarcoma of the thymus, cancer of the oral cavity, and three lung tumors; no tumors, however, arose at the site of injection of the bile extract. Previously, however, Shabad (*11*) reported that 2 sarcomas arose at the site of injection of benzene extracts of the liver of a patient with carcinoma of the stomach. Bile is also involved in the excretion of certain cancerigenic hydrocarbons, as evidenced by the finding of Peacock (*8*) that after intravenous injections of colloidal anthracene and benzpyrene, there occurred changes in the fluorescence of the bile of rabbits, guinea pigs, and fowls.

The reasons for suspecting estrogens of playing a role in the causation of certain types of cancer are manifold. Lacassagne was the first to produce tumors in mice by the administration of estrin benzoate, and since that time a large number of investigators have explored the field. Gardner (*5*) has recently published a comprehensive review of the rapidly accumulating literature. Of interest to the experiment presented here was the finding of Schockaert (*10*)

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who reported that skin cancers developed more rapidly in tarred mice which had received 20 international units of estradiol in oil weekly, than in tarred mice which had received injections of oil without estradiol. Gilmour (*6*) found that papillomas and carcinomas developed earlier in mice painted with benzpyrene and estrin than in similar mice painted with benzpyrene only. Perry and Ginzton (*9*) encountered tumors of skin, colon, cervix, lung, and breast in female mice treated with 1:2:5:6-dibenzanthracene and theelin.

The experiment presented here was designed to obtain information not only on bile alone and estrin alone, but to determine the combined effects of both substances in relation to the occurrence of tumors in mice.

EXPERIMENTAL

Experimental animals.—One hundred and twenty-six mice were used; 65 were strain C_3H and 61 were strain I. The mice were separated into groups according to sex. All mice were from 2 to 2½ months of age when the experiment was started on December 23, 1937.

The C_3H mice have been inbred in this laboratory for more than 25 generations. The females have a high (95 to 100 percent) incidence of spontaneous breast tumors and both sexes have a tendency to develop spontaneous lung tumors late in life. Observations of 165 C_3H male mice by Andervont (*1*) suggest that the males over 15 months of age probably have an incidence of about 22 percent of spontaneous hepatomas; the incidence of this type of tumor appears to be less in the females.

The I strain of mice was originated by Strong in 1927 and has been inbred in this laboratory since 1933. Breeding females have a low (less than 5 percent) incidence of spontaneous breast tumors and a medium susceptibility to spontaneous lung tumors. Most of this strain, when 12 to 14 months of age, die of an unusual hyperplasia of gastric mucosa (*12*) and many develop rectal prolapse.

Materials and methods.—The bile used was ox gall manufactured for utilization in connection with bacterial culture medium. One gram of ox gall in 10 cc. of sterile distilled water was the solution used for injection. The solution was slightly alkaline (pH 7.3).

The ketohydroxy-estratriene, hereafter referred to as estrin, was dissolved in peanut oil. This was further diluted with olive oil so that 5 international units were contained in a volume of 0.025 cc.

The compounds were administered to the animals as follows:

Group 1 (hereafter referred to as the "bile only" mice) consisted of 11 male and 10 female C_3H mice and 10 male and 10 female strain I mice. Each received a subcutaneous injection of 0.02 cc. of the bile solution in the left inguinal region twice weekly for 34 weeks. The

total amount of bile received by each animal was, therefore, 0.136 gram. The treatments were discontinued because of ulcerations at the sites of the injections.

Group 2 (hereafter referred to as the "bile and estrin" mice) consisted of 11 male and 11 female C_3H mice and 11 male and 11 female strain I mice. Each received 0.02 cc. of the bile solution subcutaneously in the left inguinal region, and at the same time a subcutaneous injection in the right axilla of 0.025 cc. of the estrin in oil. The injections were made twice weekly for 34 weeks; the total amount of estrin received by each mouse was 340 international units.

Group 3 (hereafter referred to as the "estrin only" mice) consisted of 11 male and 11 female C_3H mice and 10 male and 9 female strain I mice. Each mouse was injected subcutaneously in the right axilla with 0.025 cc. of estrin in oil, twice weekly, for 34 weeks. The total dosage of estrin given to each mouse was 340 international units.

RESULTS

At the end of the 34-week period, when the injections were discontinued, several of the mice had died. In the "bile only" group, 1 C_3H female mouse had developed mammary tumor and died, while 1 C_3H male mouse, without tumor, had been killed accidentally. Five males and 1 female of the I strain had died, probably from the combined effects of the gastric hyperplasia and ulceration due to the bile injections. In the "bile and estrin" group, 2 male strain I mice had succumbed, without tumors. In the "estrin only" group 2 female C_3H mice had developed mammary tumors and died.

The surviving mice were kept under observation until the sixtieth week after the date of the initial injection. At the termination of the experiment, less than one-third of the mice were alive. The female C_3H mice had died of mammary tumors, while most of the strain I mice had died of the effects of the gastric mucosal hyperplasia. The number of survivors is shown in the last column of table 1.

TABLE 1.—*Onset of malignancies following administration of (a) bile only, (b) bile and estrin, and (c) estrin only, twice weekly for 34 weeks, to 2 strains of mice, one of which (C_3H) has a high incidence, the other (strain I) a low incidence of spontaneous mammary tumors*

Material injected and strain of mice	Number of mice	Sex	Time of onset, in weeks, of tumors (mammary unless otherwise indicated)											Total number of tumors (all types)	Number of mice living at end of test without tumors	Number of mice killed at end of test
			31	33	37	40	43	45	47	49	53	57	59			
Bile only (total dose 0.136 gram ox bile):																
C_3H	11	M	0	0	0	0	0	0	0	0	0	0	[1] 7, [2] 1	8	1	7
C_3H	10	F	1	0	1	2	2	0	1	0	0	0	1	8	2	3
I	10	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	10	F	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Bile and estrin (total dose 0.136 gram bile and 340 international units estrin):																
C_3H	11	M	0	0	[3] 1	0	0	0	0	0	0	0	[1] 6	7	4	10
C_3H	11	F	5	2	3	0	0	0	0	0	0	1	0	11	0	1
I	11	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	11	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estrin only (total dose 340 international units):																
C_3H	11	M	0	0	0	1	0	0	0	0	0	[4] 1, [5] 1	[1] 4	7	4	9
C_3H	11	F	4	2	1	1	1	0	0	0	1	0	1	11	0	0
I	10	M	0	[6] 1	0	0	0	0	[1] 1	0	0	0	[3] 1	3	1	1
I	9	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] Hepatoma (total, 18).
[2] Sarcoma at site of injection of bile (total, 1).
[3] Lymphoma (total, 2).
[4] Carcinoma of skin (total, 1).
[5] Adenoma of lung (total, 1).
[6] Myeloid liver (total, 1).

Seven types of malignancies occurred: (*a*) lymphomas (2); (*b*) myeloid liver (1); (*c*) hepatomas (18); (*d*) pulmonary adenomas (1); (*e*) carcinoma of the skin (1); (*f*) sarcoma at the site of the bile injection (1); and (*g*) mammary carcinomas (31). There was a total of 55 malignancies.[2]

Of the 65 C_3H strain mice, 52, or 80 percent, had tumors. Of the 61 strain I mice, only 3 developed tumors; all of these were males in the "estrin only" group.

Hepatomas.—This type of tumor occurred in 18 mice. All were males, 17 of strain C_3H, 1 of strain I. The first hepatoma, in the strain I mouse, was found in the forty-seventh week of the experiment. All hepatomas in the C_3H mice were found at necropsy of the survivors on termination of the experiment, at which time the mice were 16 months of age. Of these mice, 7 out of 9, or 77 percent, of the "bile only" group had hepatomas. Of the "bile and estrin" group, 7 out of 10, or 70 percent, had hepatomas, while in the "estrin only" group, 5 out of 10, or 50 percent, had hepatomas.

[2] All pathological diagnoses were made by Pathologists Stewart and Grady, of this laboratory, to whom I am indebted for this service.

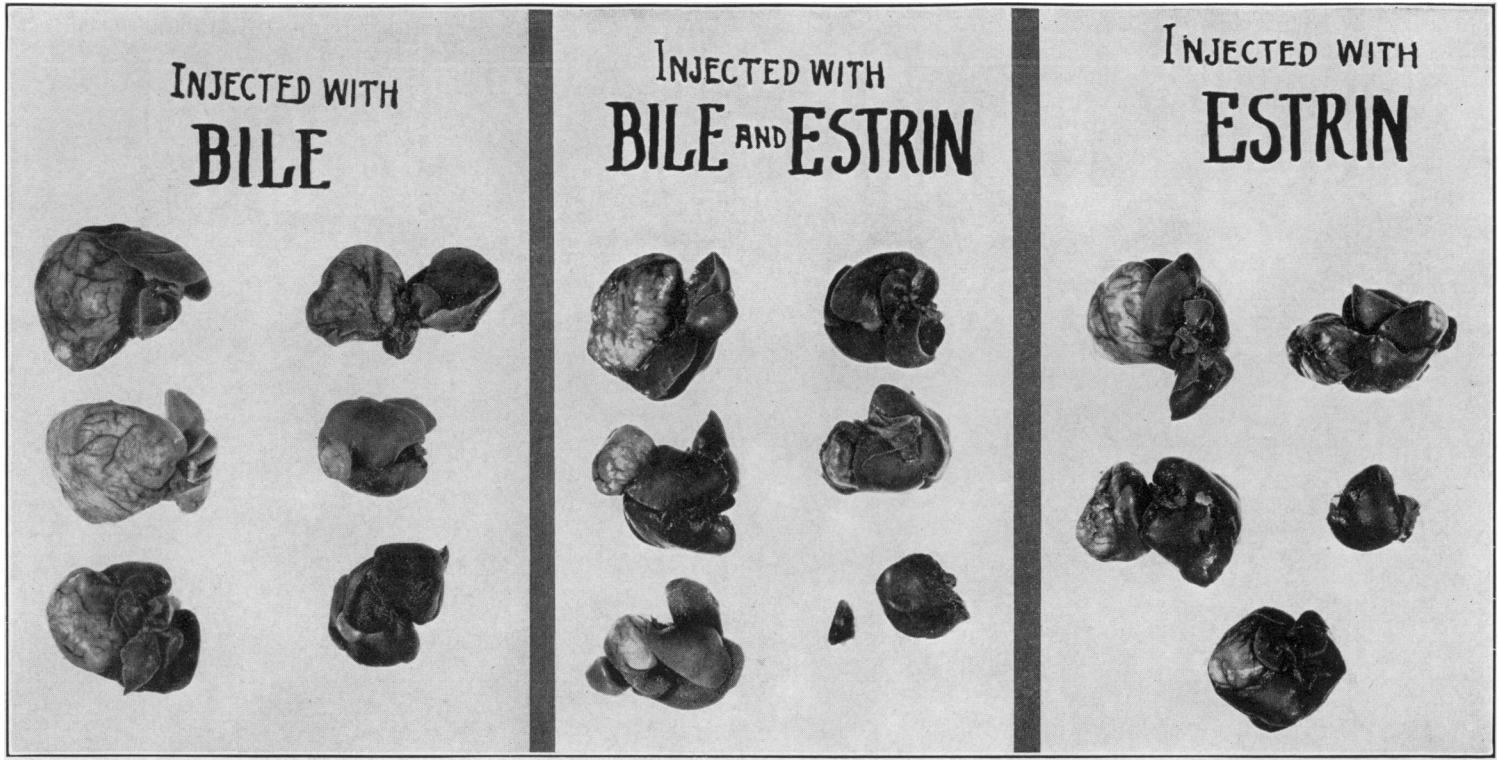

FIGURE 1.—Occurrence of hepatomas in strain C_3H male mice which had received subcutaneous injections of (*a*) bile, (*b*) bile and estrin, and (*c*) estrin.

To determine the incidence of hepatomas in normal C_3H male mice, 19 untreated control mice were kept under the same conditions until they were 16 months old. At necropsy, 5 of the 19 mice, or 26 percent, had hepatomas. None of the mice of this control group had any tumors other than hepatomas. The results are summarized in table 2.

TABLE 2.—*Hepatomas found in C_3H male mice at termination of the experiment*

Material injected semiweekly for 34 weeks	Mice living to 16 months of age		
	Number of mice	Number of mice with hepatomas	Percent of mice having hepatomas
Ox bile	9	7	77
Ox bile and estrin	10	7	70
Estrin	10	5	50
Untreated controls	19	5	26

The fact that none of the C_3H male mice, either in the experimental groups or in the control group, had died of the effects of hepatomas in 16 months is indicative of a low malignancy.

The results suggest that injections of bile into C_3H male mice have a tendency to increase the incidence of hepatomas.

Mammary carcinomas.—Ninety-four percent of the C_3H females died of mammary carcinomas. All of the female C_3H mice which had received estrin died of mammary cancers. None of the strain I females developed any tumors, but only 4 of the original 30 survived the duration of the test.

Nearly all of the C_3H females developed breast tumors but none developed hepatomas, while most of the surviving males had hepatomas. This strain of mice has an inherited tendency to develop both types of tumors, but the females develop breast cancers and succumb before reaching the age at which hepatomas occur.

It is of interest to note that, while untreated virgin C_3H female mice (*2*) develop spontaneous breast tumors at an average age of 11.5 months, the "bile and estrin" C_3H female mice in this experiment developed tumors at an average age of 8.2 months. Also, in the thirty-fourth week of the test, when the treatments were stopped, the mice which had received "bile and estrin" had four times as many mammary tumors as the "bile only" group. This suggests that 340 international units of estrin, alone or when combined with 0.136 gm. of bile, lower the average age at which breast tumors occur in virgin C_3H females. However, the number of mice is too small to permit definite conclusions in this regard.

Mammary carcinoma in male mouse.—A male C_3H mouse in the "estrin only" group developed a mammary tumor in the fortieth week, after having received only 340 international units of estrin.

This tumor is of interest since it occurred earlier and with a lower estrin dosage than usual (*5*).

Sarcoma at the site of the injections of bile.—A spindle cell sarcoma arose at the site of the subcutaneous injections of bile in one C_3H male mouse, in the fifty-ninth week. Gardner (*5*) mentions the occurrence of local tumors at the site of injections of estrogens and in one animal which had been injected with sesame oil. This raises the question as to whether such tumors, including the one mentioned here, were caused by the injected substances or whether they arose as a result of some nonspecific reaction.

Other tumors.—In the fifty-seventh week a carcinoma of the skin was found in a C_3H male mouse which had received injections of

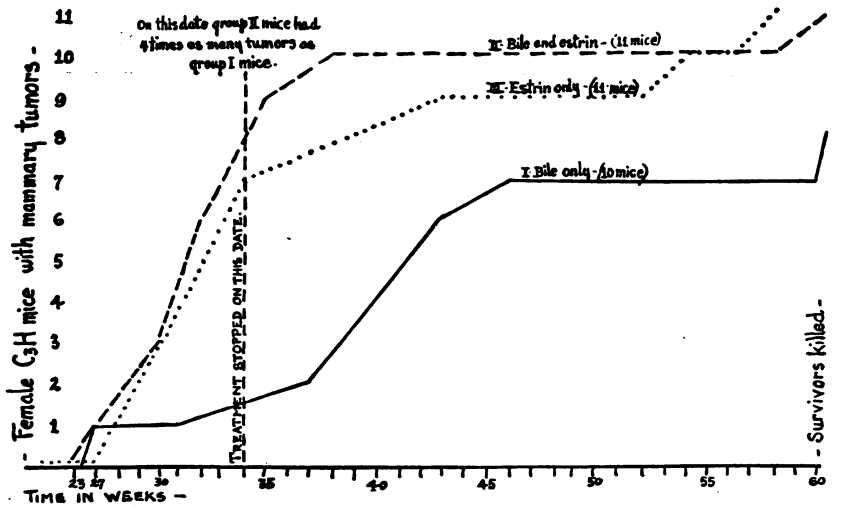

FIGURE 2.—Onset of mammary tumors in C_3H female mice given (I) bile, (II) bile and estrin, and (III) estrin in semiweekly injections for 34 weeks.

estrin only. The tumor was on the side opposite the site of injection of the estrin. One adenoma of the lung was encountered in a C_3H male mouse during the fifty-seventh week. Two lymphomas, one in a C_3H male mouse at 37 weeks, the other in a strain I male at 47 weeks, were also encountered. Table 1 shows the chronological onset of all the tumors in the test groups.

Of some interest is the finding that in 33 C_3H male experimental animals there arose six types of malignancies, while in 19 untreated control C_3H males, there arose but one type of tumor. In the experimental animals the following types of tumors were found: (1) Lymphoma, (2) subcutaneous sarcoma, (3) skin carcinoma, (4) mammary carcinoma, (5) pulmonary adenoma, and (6) hepatomas. In the control group only hepatomas developed.

SUMMARY

This experiment was designed to provide information on the roles of two biologically formed substances in the genesis of cancer.

One hundred and twenty-six males and females of two strains of mice were tested. One strain, C_3H, has a high incidence of spontaneous mammary cancer; the other, strain I, has a low incidence of this type of tumor. Semiweekly subcutaneous injections of (*a*) bile only, (*b*) bile and estrin, and (*c*) estrin only, were administered for 34 weeks.

The results suggest that the time of onset of spontaneous breast tumors in C_3H females was altered by the test procedure. Also, the injections of bile appeared to have increased the incidence of hepatomas in C_3H male mice.

Two other interesting findings were the occurrence of a mammary cancer in a male mouse which had received but 340 international units of estrin, and a subcutaneous sarcoma at the site of the injections of bile.

ACKNOWLEDGMENT

The author is indebted to Mrs. Theresa Shovelton for technical assistance.

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COURT DECISION ON PUBLIC HEALTH

Ordinance regarding keeping of meat in stores or markets upheld.— (Florida Supreme Court, Division A; *State ex rel. Hogan* v. *Spencer*, 190 So. 506; decided July 11, 1939.) An ordinance of the city of Ocala prohibited the keeping of any meat in a store or market in the city or within a mile thereof unless it "has been passed on and bears the stamp of inspection provided by the laws of the United States of America governing interstate shipments of meats or has been passed on and bears the stamp of the city meat inspector of the city of Ocala." Another and earlier ordinance, dealing generally with the inspection and sale of meats, contained a provision for examination of carcasses offered for sale in the city and fixed charges therefor but did not specify that it applied to the area without the city limits. The principal distinction between them was that the earlier ordinance referred to meats "on hand for the purpose of sale" while the later ordinance referred to "meat in any store" whether kept for sale or not. Also, the earlier ordinance provided that "Carcasses * * * to be offered for sale in the city * * * shall be brought for inspection to such inspection station as designated * * * by the city council * * * and the * * * inspector shall charge" certain fees.

In a habeas corpus proceeding the petitioner, who operated a market within 1 mile of the city limits, conceded the municipality's right to regulate the sale of meat in the city and the territory within 1 mile of the corporate limits under the charter but claimed that the later ordinance was discriminatory because of the provision in the earlier ordinance for examination of carcasses offered for sale in the city and fixing charges therefor but not specifying that it applied to the area without the city limits. It was asserted that "because of this construction consumers in the outside territory would not be given the same protection as those within the city for the reason that peddlers could sell their products to the former without the precaution necessary to sales to the latter and that there is no duty to inspect the meat of the butcher who does not maintain his shop in the city." The supreme court stated that it could not follow this line of reasoning and that "Perusal of the two ordinances leads us to the definite conclusion that they were intended to establish the very wise policy of preventing sale of impure food in the territory affected." Concluding, the court said that "there is nothing in the record to convince us that petitioner may not present his meat for inspection and keep it in his market without interference by the authorities precisely as he could do were his business situated in the center of the city."

DEATHS DURING WEEK ENDED AUGUST 12, 1939

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

	Week ended Aug. 12, 1939	Corresponding week, 1938
Data from 88 large cities of the United States:		
Total deaths	7,199	7,381
Average for 3 prior years	[1] 7,334	
Total deaths, first 32 weeks of year	272,978	265,902
Deaths under 1 year of age	477	495
Average for 3 prior years	[1] 513	
Deaths under 1 year of age, first 32 weeks of year	16,273	16,987
Data from industrial insurance companies:		
Policies in force	66,792,520	68,447,846
Number of death claims	10,821	10,549
Death claims per 1,000 policies in force, annual rate	8.4	8.0
Death claims per 1,000 policies, first 32 weeks of year, annual rate	10.6	9.4

[1] Data for 86 cities.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

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

Cases of certain diseases reported by telegraph by State health officers for the week ended Aug. 19, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median

Division and State	Diphtheria				Influenza				Measles			
	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median
NEW ENG.												
Maine	0	0	0	0	18	3	----	----	18	3	13	6
New Hampshire	0	0	0	0	----	----	----	----	0	0	1	3
Vermont	0	0	1	0	----	----	----	----	121	9	11	2
Massachusetts	5	4	2	3	----	----	----	----	76	65	50	27
Rhode Island	0	0	0	0	----	----	----	----	122	16	0	0
Connecticut	0	0	0	2	----	----	1	1	50	17	3	10
MID. ATL.												
New York	4	9	17	17	[1]4	[1]6	(1)	[1]1	26	65	138	127
New Jersey	4	3	5	5	2	2	3	4	18	15	15	36
Pennsylvania	4	8	19	19	----	----	----	----	9	18	51	77
E. NO. CEN.												
Ohio	5	7	15	15	----	----	----	5	8	10	11	63
Indiana	9	6	5	7	4	3	----	5	12	8	5	5
Illinois	7	11	12	17	1	2	2	3	7	10	20	52
Michigan [2]	7	7	6	7	2	2	----	----	27	26	102	36
Wisconsin	0	0	1	1	40	23	3	15	62	35	84	84
W. NO. CEN.												
Minnesota	6	3	8	2	6	3	1	----	21	11	26	11
Iowa	10	5	3	3	----	----	2	----	57	28	4	4
Missouri	3	2	9	12	----	----	30	30	1	1	8	10
North Dakota	0	0	0	0	----	----	9	1	22	3	12	8
South Dakota	0	0	0	1	----	----	----	----	0	0	----	0
Nebraska	23	6	1	2	----	----	----	----	8	2	5	5
Kansas	6	2	2	6	----	----	----	----	8	3	7	6

For footnotes see end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Aug. 19, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Diphtheria				Influenza				Measles			
	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median
SO. ATL.												
Delaware	0	0	0	0	------	------	------	------	20	1	------	1
Maryland [2 3]	15	5	5	5	------	------	4	2	3	1	6	6
Dist. of Col	0	0	1	3	------	------	------	------	49	6	2	4
Virginia [3]	24	13	15	17	77	41	------	------	39	21	45	43
West Virginia	13	5	8	10	30	11	11	11	8	3	3	8
North Carolina [3]	39	27	31	21	------	------	------	1	7	5	33	27
South Carolina [3]	25	9	5	5	382	140	38	50	3	1	2	5
Georgia [3]	33	20	50	25	18	11	------	------	8	5	------	------
Florida [3]	9	3	10	5	3	1	------	------	3	1	6	6
E. SO. CEN.												
Kentucky	14	8	6	8	9	5	1	1	2	1	5	22
Tennessee	19	11	9	13	7	4	13	5	7	4	27	9
Alabama [3]	26	15	34	19	32	18	17	5	11	6	4	5
Mississippi [2 3]	46	18	20	9	------	------	------	------	------	------	------	0
W. SO. CEN.												
Arkansas [3]	37	15	11	8	17	7	4	4	0	0	9	1
Louisiana [3]	22	9	19	13	12	5	4	11	22	9	2	5
Oklahoma	16	8	10	6	18	9	46	7	16	8	3	2
Texas [3]	8	10	41	39	22	27	97	40	5	6	14	14
MOUNTAIN												
Montana	0	0	0	1	19	2	7	------	84	9	18	9
Idaho	0	0	0	0	------	------	------	------	20	2	1	2
Wyoming	22	1	0	0	------	------	------	------	196	9	------	1
Colorado	10	2	6	3	5	1	------	------	19	4	5	6
New Mexico	12	1	0	2	------	------	------	------	25	2	4	8
Arizona [3]	61	5	16	1	86	7	12	5	12	1	8	6
Utah [3]	0	0	1	1	20	2	------	------	89	9	13	8
PACIFIC												
Washington	0	0	2	1	------	------	------	------	157	51	7	11
Oregon	0	0	1	1	10	2	9	8	35	7	12	3
California [3]	11	14	19	19	11	14	10	9	66	81	144	55
Total	11	272	426	401	17	351	324	319	24	598	939	939
33 weeks	15	12,061	14,515	15,112	217	151,650	46,058	104,11	427	348,447	760,580	668,262

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median
NEW ENG.												
Maine	0	0	0	0	0	0	2	4	12	2	2	4
New Hampshire	0	0	0	0	0	0	0	1	10	1	1	2
Vermont	0	0	0	0	0	0	0	0	13	1	4	4
Massachusetts	0	0	3	1	7	6	1	1	18	15	34	37
Rhode Island	0	0	0	0	0	0	0	0	8	1	0	1
Connecticut	0	0	0	0	9	3	0	1	15	5	6	7
MID. ATL.												
New York	2.8	7	7	7	16	39	9	9	20	50	55	82
New Jersey	1.2	1	0	0	14	12	4	7	18	15	20	18
Pennsylvania	2.5	5	4	4	8	15	5	5	34	66	49	75

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Aug. 19, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–19, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median
E. NO. CEN.												
Ohio	0	0	1	1	2.3	3	0	11	25	32	40	62
Indiana	0	0	0	0	3	2	0	3	28	19	14	14
Illinois	0.7	1	1	3	9	13	7	13	31	48	64	66
Michigan [3]	1.1	1	1	1	92	87	0	13	69	65	54	57
Wisconsin	0	0	0	0	0	0	1	1	60	34	37	37
W. NO. CEN.												
Minnesota	0	0	1	0	76	39	5	5	33	17	20	21
Iowa	2	1	2	1	0	0	2	2	24	12	7	13
Missouri	0	0	1	1	1.3	1	1	1	17	13	11	20
North Dakota	0	0	1	0	0	0	0	0	15	2	4	4
South Dakota	0	0	0	0	0	0	1	1	53	7	4	9
Nebraska	4	1	0	0	0	0	1	0	19	5	4	8
Kansas	0	0	1	1	8	3	0	2	56	20	24	18
SO. ATL.												
Delaware	0	0	0	0	39	2	0	0	0	0	1	1
Maryland [2] [3]	3	1	0	3	3	1	2	5	28	9	2	9
Dist. of Col.	0	0	0	3	32	4	3	3	40	5	4	3
Virginia [3]	1.9	1	0	2	0	0.	1	6	13	7	5	10
West Virginia	5	2	1	1	0	0	1	3	51	19	9	11
North Carolina [3]	1.5	1	1	1	10	7	4	5	31	21	24	17
South Carolina [3]	8	3	0	0	41	15	0	0	16	6	1	1
Georgia [3]	0	0	1	0	7	4	1	1	17	10	8	8
Florida [3]	0	0	0	0	9	3	0	1	0	0	0	3
E. SO. CEN.												
Kentucky	3	2	0	2	5	3	1	6	36	21	21	21
Tennessee	0	0	7	2	5	3	1	3	39	22	19	10
Alabama [3]	0	0	1	1	0	0	4	2	37	21	12	7
Mississippi [2] [3]	0	0	1	1	2.5	1	2	2	5	2	6	5
W. SO. CEN.												
Arkansas [3]	0	0	0	0	2.5	1	1	1	10	4	13	6
Louisiana [3]	0	0	3	2	2.4	1	2	2	12	5	11	9
Oklahoma	2	1	1	1	2	1	1	0	12	6	5	7
Texas [3]	1.7	2	2	1	9	11	2	2	8	10	30	29
MOUNTAIN												
Montana	0	0	1	1	0	0	0	0	94	10	8	8
Idaho	10	1	0	0	0	0	0	0	10	1	2	2
Wyoming	0	0	0	0	0	0	0	0	0	0	0	3
Colorado	0	0	1	1	14	3	0	2	48	10	10	10
New Mexico	0	0	0	0	12	1	0	0	49	4	1	4
Arizona [3]	25	2	1	1	12	1	0	0	12	1	1	2
Utah [3]	0	0	0	0	0	0	0	0	30	3	8	8
PACIFIC												
Washington	0	0	1	0	3	1	0	3	25	8	6	11
Oregon	0	0	0	0	10	2	0	1	40	8	14	11
California [3]	0.8	1	4	3	45	55	11	25	39	47	57	57
Total	1.4	34	49	56	14	343	76	335	27	690	732	910
33 weeks	1.7	1,387	2,163	4,165	2.6	2,148	933	3,432	140	116,482	137,185	164.859

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Aug. 19, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Smallpox				Typhoid and paratyphoid fever				Whooping cough		
	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases	1934–38, median	Aug. 19, 1939, rate	Aug. 19, 1939, cases	Aug. 20, 1938, cases
NEW ENG.											
Maine	0	0	0	0	0	0	4	4	181	30	15
New Hampshire	0	0	0	0	0	0	0	0	20	2	------
Vermont	0	0	0	0	0	0	0	0	603	45	9
Massachusetts	0	0	0	0	4	3	2	2	106	90	71
Rhode Island	0	0	0	0	0	0	2	1	107	14	13
Connecticut	0	0	0	0	3	1	2	2	142	48	42
MID. ATL.											
New York	0	0	0	0	3	8	44	28	147	368	654
New Jersey	0	0	0	0	10	8	3	9	174	146	264
Pennsylvania	0	0	0	0	6	12	19	19	199	392	303
E. NO. CEN.											
Ohio	0	0	1	1	8	11	23	23	64	83	90
Indiana	4	3	2	0	19	13	15	9	85	57	7
Illinois	2	3	2	2	9	14	19	24	176	268	548
Michigan [3]	1	1	4	1	16	15	7	14	167	158	349
Wisconsin	5	3	0	1	0	0	4	4	251	143	427
W. NO. CEN.											
Minnesota	0	0	0	0	0	0	0	2	91	47	55
Iowa	10	5	0	0	6	3	8	8	18	9	12
Missouri	1	1	3	2	31	24	22	22	1	1	18
North Dakota	0	0	1	1	7	1	0	0	51	7	43
South Dakota	0	0	0	0	8	1	1	1	23	3	2
Nebraska	0	0	0	0	0	0	1	1	50	13	18
Kansas	0	0	1	0	8	3	11	13	45	16	44
SO. ATL.											
Delaware	0	0	0	0	20	1	1	1	197	10	4
Maryland [2] [3]	0	0	0	0	31	10	9	12	167	54	34
District of Columbia	0	0	0	0	24	3	3	3	315	39	7
Virginia [3]	0	0	0	0	52	28	18	25	94	50	43
West Virginia	13	5	0	0	40	15	35	21	27	10	20
North Carolina [3]	0	0	0	0	32	22	15	26	104	71	212
South Carolina [3]	0	0	0	0	30	11	15	18	74	27	21
Georgia [3]	0	0	0	0	53	32	24	37	37	22	22
Florida [3]	0	0	0	0	3	1	3	3	48	16	19
E. SO. CEN.											
Kentucky	0	0	0	0	87	50	48	48	76	44	49
Tennessee	0	0	0	0	49	28	30	56	97	55	50
Alabama [3]	0	0	0	0	35	20	17	17	62	35	38
Mississippi [2] [3]	0	0	0	0	18	7	6	6	------	------	------
W. SO. CEN.											
Arkansas [3]	2	1	0	0	62	25	18	18	12	5	5
Louisiana [3]	0	0	0	0	51	21	15	18	24	10	28
Oklahoma	6	3	0	0	64	32	17	24	2	1	12
Texas [3]	0	0	0	0	29	35	56	56	40	48	178
MOUNTAIN											
Montana	0	0	0	1	19	2	0	5	56	6	71
Idaho	0	0	0	0	31	3	4	2	10	1	2
Wyoming	0	0	0	0	22	1	0	1	22	1	4
Colorado	0	0	1	0	24	5	1	1	39	8	58
New Mexico	0	0	1	0	37	3	9	10	62	5	29
Arizona [3]	0	0	2	0	61	5	2	2	466	38	24
Utah [3]	0	0	0	0	0	0	0	0	477	48	33
PACIFIC											
Washington	0	0	9	1	19	6	9	3	34	11	27
Oregon	0	0	0	0	20	4	1	3	65	13	22
California [3]	0	0	3	2	13	16	11	11	86	105	185
Total	1	25	30	30	20	503	554	642	108	2,673	4,181
33 weeks	10	8,657	12,693	6,067	9	7,105	8,142	8,125	155	126,631	144,015

[1] New York City only.
[2] Period ended earlier than Saturday.
[3] Typhus fever, week ended August 19, 1939, 110 cases as follows: Maryland, 2; Virginia, 1; North Carolina, 2; South Carolina, 7; Georgia, 47; Florida, 3; Alabama, 23; Mississippi, 1; Arkansas, 1; Louisiana, 2; Texas, 18; Arizona, 1; California, 2.

ROCKY MOUNTAIN SPOTTED FEVER

Cases reported by States, Feb. 26 to Aug. 26, 1939

State	Feb. 26 to Mar. 25	Mar. 26 to Apr. 22	Apr. 23 to May 20	May 21 to June 17	June 18 to July 15	July 16 to Aug. 12	Week ended Aug. 19	Week ended Aug. 26
Eastern:								
New York				3	3	1		
New Jersey				4	3	7	6	1
Pennsylvania				6	3	4		1
Delaware				3			1	
Maryland			7	13	11	23	2	6
District of Columbia			2	2	2	3	1	1
Virginia			1	13	10	11	2	1
West Virginia						1		
North Carolina				3	13	13	3	2
Georgia					1	1		
Central:								
Ohio				3	2	4		3
Indiana				2	1	3	2	1
Illinois			1	1	5	7	1	
Kentucky							3	2
Tennessee					5	5	4	2
Iowa			1	10	9	6	1	
Missouri				1		4		1
Western:								
Montana	[1] 2	2	8	5	1	2		
Idaho		4	7	4	5			
Wyoming		3	14	16	5	5		
Colorado		2	3	9	4			
Arizona								1
Utah		2	5	5	6	2		1
Washington		2	3	2				
Oregon		9	16	7	2	1		

[1] 1 other case was reported in Montana as occurring in February, exact date not given.

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	Meningitis, meningococcus	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid and paratyphoid fever
July 1939										
Alabama	6	41	28	1,039	138	31	7	54	0	56
Arkansas	3	14	26	879	60	72	3	11	3	85
Colorado	1	41	19		63		3	43	4	19
Indiana	5	30	38	9	29		1	103	36	31
Louisiana	1	23	62	70	416	7	2	21	0	145
Maryland	2	7	10	1	66	3	0	41	0	17
Michigan	4	21	1	12	361		84	341	27	8
Minnesota	1	8	9	10	106		13	72	24	7
Mississippi	6	44	824	7,377	306	556	3	16	0	43
New Jersey	1	21	5	1	73		6	115	0	21
New York	9	37		15	2,448		30	359	0	37
Tennessee	3	13	49	319	89	35	8	64	2	119
Vermont	0	1			255		0	6	0	20

Summary of monthly reports from States—Continued

July 1939

	Cases
Actinomycosis:	
Michigan	1
Anthrax in man:	
New York	2
Chickenpox:	
Alabama	25
Arkansas	19
Colorado	39
Indiana	43
Louisiana	3
Maryland	22
Michigan	279
Minnesota	88
Mississippi	178
New Jersey	189
New York	854
Tennessee	29
Vermont	23
Dengue:	
Mississippi	1
Diarrhea:	
Maryland	83
Michigan (infant)	1
Dysentery:	
Alabama (amoebic)	2
Arkansas (amoebic)	15
Arkansas (bacillary)	125
Colorado (amoebic)	2
Colorado (bacillary)	6
Louisiana (amoebic)	3
Louisiana (bacillary)	4
Maryland (unspecified)	21
Maryland (amoebic)	5
Maryland (bacillary)	15
Michigan (amoebic)	5
Michigan (bacillary)	13
Michigan (unspecified)	5
Minnesota (amoebic)	3
Minnesota (bacillary)	1
Mississippi (amoebic)	205
Mississippi (bacillary)	1,522
New Jersey (amoebic)	1
New Jersey (bacillary)	2
New York (amoebic)	8
New York (bacillary)	37
Tennessee (amoebic)	3
Tennessee (bacillary)	150
Encephalitis, epidemic or lethargic:	
Alabama	6
Colorado	1
Louisiana	1
Michigan	3
Minnesota	2
New Jersey	3
New York	8
Tennessee	3
German measles:	
Arkansas	1
Maryland	6
Michigan	33
New Jersey	23
New York	70

July 1939—Continued

	Cases
Hookworm disease:	
Arkansas	1
Louisiana	31
Mississippi	618
Impetigo contagiosa:	
Maryland	13
Tennessee	28
Jaundice:	
Maryland	1
Leprosy:	
Louisiana	1
Mumps:	
Alabama	76
Arkansas	11
Colorado	18
Indiana	40
Louisiana	2
Maryland	50
Mississippi	154
New Jersey	221
Tennessee	18
Vermont	59
Ophthalmia neonatorum:	
Alabama	2
Arkansas	1
Maryland	1
Mississippi	10
New Jersey	15
New York	14
Tennessee	3
Puerperal septicemia:	
Arkansas	1
Louisiana	7
Mississippi	34
Tennessee	1
Rabies in animals:	
Alabama	15
Arkansas	17
Indiana	41
Louisiana	4
Michigan	1
Mississippi	6
New Jersey	49
New York	[1] 16
Vermont	1
Rabies in man:	
Mississippi	1
Rocky Mountain spotted fever:	
Colorado	1
Maryland	12
Minnesota	1
New Jersey	7
New York	1
Tennessee	8
Septic sore throat:	
Arkansas	27
Colorado	9
Louisiana	2
Maryland	6
Michigan	21
Minnesota	17
New Jersey	7
New York	78
Tennessee	10

July 1939—Continued

	Cases
Tetanus:	
Alabama	3
Louisiana	3
Maryland	3
Michigan	6
Minnesota	1
New Jersey	1
New York	11
Tennessee	1
Trachoma:	
Arkansas	3
Louisiana	3
Michigan	1
Mississippi	2
Trichinosis:	
New York	7
Tularaemia:	
Alabama	1
Arkansas	15
Colorado	2
Louisiana	1
Michigan	1
Minnesota	1
Tennessee	2
Typhus fever:	
Alabama	70
Louisiana	12
Maryland	1
Mississippi	2
New York	2
Tennessee	1
Undulant fever:	
Alabama	10
Arkansas	3
Colorado	1
Indiana	4
Louisiana	6
Maryland	2
Michigan	15
Minnesota	15
Mississippi	1
New Jersey	10
New York	11
Tennessee	4
Vermont	3
Vincent's infection:	
Maryland	12
Michigan	20
New York	40
Tennessee	16
Whooping cough:	
Alabama	231
Arkansas	76
Colorado	172
Indiana	568
Louisiana	289
Maryland	237
Michigan	836
Minnesota	165
Mississippi	665
New Jersey	1,086
New York	1,748
Tennessee	460
Vermont	152

[1] New York City only.

WEEKLY REPORTS FROM CITIES

City reports for week ended August 12, 1939

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

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	89	33	11	356	283	258	4	352	83	1,366	------
Current week [1]	59	21	11	218	194	171	1	346	51	1,247	------
Maine:											
Portland	0	------	0	0	1	0	0	0	0	0	15
New Hampshire:											
Concord	0	------	0	0	0	0	0	0	0	0	4
Manchester	0	------	0	0	0	0	0	1	0	0	18
Nashua	0	------	0	0	0	0	0	0	0	0	9
Vermont:											
Barre	------	------	------	------	------	------	------	------	------	------	------
Burlington	0	------	0	0	0	0	0	0	0	0	10
Rutland	0	------	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	1	------	1	13	3	0	0	6	0	23	157
Fall River	1	------	0	1	1	0	0	1	0	1	26
Springfield	0	------	0	0	0	0	0	0	0	1	21
Worcester	0	------	0	0	1	0	0	1	0	13	45
Rhode Island:											
Pawtucket	0	------	0	0	0	0	0	0	0	0	13
Providence	0	------	0	23	0	0	0	2	1	11	35
Connecticut											
Bridgeport	0	------	0	7	0	0	0	2	0	0	------
Hartford	1	------	0	0	0	1	0	0	0	24	39
New Haven	0	------	0	6	1	0	0	0	1	12	32
New York:											
Buffalo	1	------	0	2	2	5	0	5	0	13	94
New York	7	4	1	27	37	20	0	78	10	121	1,275
Rochester	0	------	0	4	2	0	0	2	0	3	51
Syracuse	0	------	0	6	0	2	0	2	0	92	39
New Jersey:											
Camden	0	------	0	0	0	1	0	0	0	3	28
Newark	0	------	0	5	2	1	0	7	0	45	100
Trenton	0	------	0	0	2	2	0	2	0	5	50
Pennsylvania:											
Philadelphia	1	------	0	7	12	8	0	24	3	135	366
Pittsburgh	1	4	1	1	3	7	0	8	2	32	131
Reading	0	------	0	0	0	0	0	1	0	2	21
Scranton	0	------	------	0	------	1	0	------	1	7	------
Ohio:											
Cincinnati	1	------	0	0	3	2	0	6	1	10	99
Cleveland	0	2	0	5	3	9	0	5	1	47	166
Columbus	------	------	------	------	------	------	------	------	------	------	------
Toledo	0	------	0	1	2	2	0	2	0	23	53
Indiana:											
Anderson	2	------	0	0	0	2	0	0	0	3	10
Fort Wayne	0	------	0	0	0	3	0	2	0	0	26
Indianapolis	1	------	0	0	2	4	0	5	1	35	100
Muncie	0	------	0	0	0	0	0	0	0	0	8
South Bend	0	------	0	0	0	1	0	0	0	1	21
Terre Haute	0	------	0	0	2	1	0	1	0	0	15
Illinois:											
Alton	0	------	0	0	0	0	0	0	1	0	10
Chicago	12	1	0	10	13	20	0	31	1	141	598
Elgin	0	------	0	0	0	0	0	0	0	5	9
Moline	0	------	0	0	0	0	0	0	0	1	10
Springfield	0	------	0	0	0	0	0	0	0	2	19
Michigan:											
Detroit	2	------	0	5	4	16	0	16	4	89	228
Flint	0	------	0	0	4	0	0	0	0	9	22
Grand Rapids	0	------	0	0	1	1	0	0	0	5	30
Wisconsin:											
Kenosha	0	------	0	0	0	0	0	0	0	4	7
Madison	0	------	0	0	0	0	0	0	0	11	4
Milwaukee	0	------	0	1	3	9	0	5	0	32	79
Racine	0	------	0	0	0	0	0	0	0	6	12
Superior	0	------	0	0	0	0	0	0	0	0	8

[1] Figures for Barre and Columbus estimated; reports not received.

City reports for week ended August 12, 1939—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth	0	------	0	3	1	1	0	1	1	0	23
Minneapolis	0	------	0	1	3	5	0	1	0	6	77
St. Paul	0	------	0	0	2	1	0	0	0	21	38
Iowa:											
Cedar Rapids	0	------	--------	0	-------	0	0	-------	0	0	--------
Davenport	0	------	--------	0	-------	2	0	-------	0	0	--------
Des Moines	2	------	0	0	0	2	0	0	0	0	28
Sioux City	0	------	--------	0	-------	1	0	-------	0	3	--------
Waterloo	3	------	--------	1	-------	1	0	-------	0	2	--------
Missouri:											
Kansas City	0	------	0	0	3	4	0	5	0	2	83
St. Joseph	0	------	0	0	2	0	0	1	1	0	25
St. Louis	1	------	0	1	3	4	0	9	7	24	170
North Dakota:											
Fargo	0	------	0	0	0	0	0	0	0	0	6
Grand Forks	0	------	--------	1	-------	0	0	-------	0	0	--------
Minot	0	------	0	0	0	0	0	0	0	0	7
South Dakota:											
Aberdeen	0	------	--------	0	-------	0	0	-------	0	0	--------
Sioux Falls	0	------	0	0	0	1	0	0	0	0	9
Nebraska:											
Lincoln	1	------	--------	0	-------	0	0	-------	0	5	--------
Omaha	0	------	0	0	2	0	1	1	0	3	57
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	0	2
Topeka	0	------	0	0	0	3	0	0	0	1	4
Wichita	0	------	0	0	1	0	0	0	0	1	20
Delaware:											
Wilmington	0	------	0	0	2	0	0	0	0	4	14
Maryland:											
Baltimore	0	------	1	2	6	2	0	14	1	42	175
Cumberland	0	------	0	0	1	1	0	0	0	0	10
Frederick	0	------	0	0	1	0	0	0	0	0	3
Dist. of Col.:											
Washington	2	1	1	8	7	5	0	12	2	45	137
Virginia:											
Lynchburg	0	------	0	3	2	1	0	1	0	22	9
Norfolk	1	------	0	0	3	0	0	2	7	0	28
Richmond	1	------	0	2	1	2	0	0	1	2	67
Roanoke	0	------	0	5	1	0	0	0	0	2	19
West Virginia:											
Charleston	0	------	0	0	1	0	0	0	1	0	14
Huntington	1	------	--------	0	-------	0	0	-------	0	0	--------
Wheeling	0	------	0	1	0	0	0	0	1	1	23
North Carolina:											
Gastonia	0	------	--------	0	-------	0	0	-------	0	0	--------
Raleigh	2	------	0	0	0	0	0	0	0	4	6
Wilmington	0	------	0	0	0	0	0	1	0	0	9
Winston-Salem	0	------	0	0	3	0	0	0	0	12	17
South Carolina:											
Charleston	1	1	0	0	2	0	0	1	2	1	24
Florence	0	------	0	0	1	0	0	0	0	0	10
Greenville	0	------	0	0	0	0	0	0	0	1	6
Georgia:											
Atlanta	0	------	0	0	3	4	0	5	2	1	73
Brunswick	0	------	0	0	0	0	0	0	0	0	5
Savannah	1	1	0	1	0	0	0	2	0	0	23
Florida:											
Miami	1	------	0	0	2	0	0	2	2	0	29
Tampa	0	------	0	1	0	1	0	2	0	0	26
Kentucky:											
Ashland	0	------	0	0	0	0	0	0	0	0	5
Covington	0	------	0	0	1	0	0	3	0	2	12
Lexington	0	------	0	0	1	1	0	2	1	0	19
Louisville	1	------	1	0	4	4	0	3	1	22	69
Tennessee:											
Knoxville	1	------	0	0	1	1	0	1	0	0	27
Memphis	0	------	0	0	0	0	0	7	2	9	76
Nashville	2	------	1	0	0	0	0	1	0	1	42
Alabama:											
Birmingham	1	2	0	1	3	2	0	4	1	1	50
Mobile	1	------	0	0	1	0	0	2	0	1	15
Montgomery	0	11	--------	0	-------	2	0	-------	0	4	--------
Arkansas:											
Fort Smith	0	------	--------	0	-------	1	0	-------	0	0	--------
Little Rock	0	2	0	0	1	0	0	1	0	7	3

City reports for week ended August 12, 1939—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Louisiana:											
Lake Charles	0	------	0	0	0	0	0	0	0	0	6
New Orleans	1	------	1	2	13	1	0	11	0	41	181
Shreveport	0	------	0	0	4	1	0	1	0	2	33
Oklahoma:											
Oklahoma City	0	------	0	2	3	1	0	0	0	0	38
Texas:											
Dallas	1	------	0	0	1	0	0	4	0	1	62
Forth Worth	0	------	0	0	4	1	0	2	2	2	37
Galveston	0	------	0	0	0	0	0	0	0	0	13
Houston	0	------	0	0	1	0	0	12	3	0	74
San Antonio	0	------	1	1	6	0	0	5	0	0	48
Montana:											
Billings	0	------	0	0	0	0	0	0	0	2	5
Great Falls	0	------	0	2	0	0	0	0	0	0	8
Helena	0	------	0	0	0	0	0	0	0	0	3
Missoula	0	------	0	0	1	0	0	0	0	0	4
Idaho:											
Boise	0	------	0	0	0	0	0	0	0	0	11
Colorado:											
Colorado Springs	0	------	0	0	1	2	0	0	0	1	10
Denver	6	------	0	2	3	7	0	1	0	9	78
Pueblo	0	------	0	0	1	0	0	0	0	7	9
New Mexico:											
Albuquerque	0	------	0	0	0	1	0	1	0	0	9
Utah:											
Salt Lake City	0	------	0	5	0	0	0	0	0	19	26
Washington:											
Seattle	1	------	0	22	1	0	0	4	0	3	75
Spokane	0	------	0	3	0	3	0	0	0	0	25
Tacoma	0	------	0	11	0	0	0	1	0	0	23
Oregon:											
Portland	0	------	0	4	0	0	0	1	1	0	79
Salem	0	------	------	1	------	0	0	------	0	0	------
California:											
Los Angeles	8	3	2	11	4	7	0	19	0	8	298
Sacramento	0	------	0	2	0	1	0	2	1	2	31
San Francisco	1	------	0	3	2	2	0	2	0	4	148

State and city	Meningitis, meningococcus		Poliomyelitis cases	State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Vermont:				Minnesota:			
Burlington	0	0	1	Minneapolis	0	0	5
Massachusetts:				St. Paul	0	0	2
Boston	0	0	2	North Dakota:			
Worcester	1	2	2	Fargo	0	0	1
Rhode Island:				Nebraska:			
Providence	0	0	1	Omaha	0	0	2
New York:				Maryland:			
Buffalo	0	0	4	Baltimore	1	0	0
New York	1	2	6	South Carolina:			
New Jersey:				Charleston	0	0	4
Camden	0	0	4	Kentucky:			
Pennsylvania:				Lexington	0	0	1
Philadelphia	0	0	10	Alabama:			
Pittsburgh	0	0	4	Birmingham	1	0	0
Ohio:				Texas:			
Cleveland	0	0	2	San Antonio	0	0	1
Illinois:				Colorado:			
Chicago	0	0	2	Denver	0	0	2
Michigan:				Oregon:			
Detroit	0	0	65	Portland	1	0	0
Flint	0	0	1	California:			
Wisconsin:				Los Angeles	0	0	14
Milwaukee	0	0	2				

Encephalitis, epidemic or lethargic.—Cases: New York, 1; Scranton, 1.
Pellagra.—Cases: Boston, 1; Atlanta, 1; Savannah, 5; Tampa, 1; Montgomery, 1; New Orleans, 1; Dallas, 1.
Typhus fever.—Cases: New York, 1; Washington, 1; Charleston, S. C., 1; Greenville, 1; Tampa, 1; Montgomery, 2; Lake Charles, 1; Shreveport, 1; Dallas, 1; Fort Worth, 1; Houston, 1; San Antonio, 2. Death: San Antonio, 1.

FOREIGN REPORTS

CUBA

Habana—Communicable diseases—4 weeks ended July 1, 1939.—During the 4 weeks ended July 1, 1939, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	11	3	Scarlet fever	2	
Malaria	10	3	Tuberculosis		2
Poliomyelitis	2	1	Typhoid fever	19	

ITALY

Communicable diseases—4 weeks ended May 21, 1939.—During the 4 weeks ended May 21, 1939, cases of certain communicable diseases were reported in Italy as follows:

Disease	Apr. 24-30	May 1-7	May 8-14	May 15-21
Anthrax	2	13	12	10
Cerebrospinal meningitis	36	44	32	29
Chickenpox	620	550	588	529
Diphtheria	494	443	369	419
Dysentery (amoebic)	19	5	15	26
Dysentery (bacillary)	3	1	2	4
Hookworm disease	29	64	45	54
Lethargic encephalitis		2	1	
Measles	2,086	2,021	2,123	2,054
Mumps	289	313	264	307
Paratyphoid fever	47	46	48	58
Pellagra	93	26	24	22
Poliomyelitis	32	38	41	74
Puerperal fever	21	25	21	25
Rabies			1	
Scarlet fever	293	289	247	284
Typhoid fever	254	212	242	252
Undulant fever	157	133	159	167
Whooping cough	586	537	590	413

JAMAICA

Communicable diseases—4 weeks ended August 5, 1939.—During the 4 weeks ended August 5, 1939, cases of 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
Cerebrospinal meningitis	1	1	Leprosy		3
Chickenpox	10	18	Puerperal sepsis		2
Diphtheria	11	10	Scarlet fever		1
Dysentery	5	5	Tuberculosis	24	62
Erysipelas		2	Typhoid fever	6	48

PANAMA CANAL ZONE

Notifiable diseases—April-June 1939.—During the months of April, May, and June 1939, certain notifiable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	April		May		June	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	36		13		16	
Diphtheria	2		16	1	7	
Dysentery (amoebic)	6	3	10		10	
Dysentery (bacillary)	5	1	5	1	6	2
Leprosy	1		1		3	
Malaria	29	1	32	1	150	6
Measles	7		7		3	
Meningococcus meningitis		3	1	1		
Mumps	2		2		1	
Paratyphoid fever					2	
Pneumonia		20		22		17
Relapsing fever					1	
Tuberculosis		26		36		32
Typhoid fever	4		1		2	1
Typhus fever			1			1
Whooping cough	[1] 2					

[1] In the Canal Zone only.

SWITZERLAND

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

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	5	Poliomyelitis	2
Chickenpox	127	Scarlet fever	398
Diphtheria	78	Trachoma	1
German measles	17	Tuberculosis	301
Influenza	46	Typhoid fever	3
Measles	30	Undulant fever	12
Mumps	89	Whooping cough	187
Paratyphoid fever	8		

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—A cumulative table giving current information regarding the world prevalence of quarantinable diseases for a six-month period appeared in the PUBLIC HEALTH REPORTS of August 25, 1939 pages 1573-1585. A similar cumulative table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Plague

Java—Batavia Residency.—An outbreak of pneumonic plague appeared in the Segalaherang District of the Batavia Residency, an inland region, in June 1939, according to recent information received from the American Consulate General at Batavia. Up to July 6 there had been 84 deaths, and on that date 16 known cases were present.

The case fatality rate in this outbreak is reported to be practically 100 percent.

A large number of deaths from plague are reported annually in Java, principally from the bubonic form, pneumonic plague being reported there only infrequently. The following mortality figures indicate that unusually high mortality appears in cycles:

Deaths from plague in Java

1925	14, 484	1932	6, 442	1936	6, 187
1929	4, 095	1933	16, 881	1937	3, 834
1930	3, 980	1934	23, 239	1938	2, 107
1931	4, 539	1935	12, 995		

The decrease shown in mortality from plague since 1935 is attributed to the adoption of antiplague vaccination, by the Otten method, the vaccination material being supplied by the Pasteur Institute of Java.

It was stated that plague has been endemic in Java since it was introduced from abroad about 40 years ago, and later spread from the ports to the interior. It has been successfully controlled in the coastal towns, where preventive measures can easily be applied, but persists in endemic form in certain interior foci where control is more difficult, principally in the Preanger Regencies, toward the south coast, in the north coast of the Pekalongan Residency, on the eastern slope of Mount Slamet, the south slope of Mount Prahu in middle Java, and in a small area south of Surabaya.

The Division of Plague Prevention of the Java Health Service is reported to have instituted intensive preventive measures to control the present epidemic.

Peru—Lima Department.—During the month of July 1939, 7 cases of plague with 2 deaths were reported in Lima Department, Peru.

Smallpox

Dominican Republic.—During the week ended August 5, 1939, 1 case of smallpox was reported in the Dominican Republic.

Yellow Fever

Brazil—Para State—Capanema.—On July 7, 1939, 1 death from yellow fever was reported in Capanema, Para State, Brazil.

Colombia—Department of Antioquia—Caracoli.—Between May and July 1939, four fatal cases of yellow fever (jungle type) were reported in the rural district back of Caracoli, not far from Cabanas, in the Department of Antioquia, along the Puerto Berrío-Medellin line of the Antioquian Railway. Cabanas is situated 25 miles southwest of Puerto Berrío, the terminal of the Antioquian Railway on the Magdalena River, approximately 447 miles from Barranquilla.

Although yellow fever cases are reported to have occurred from 1925 to 1938 in the Departments of Santander and Boyaca, on the east side of the Magdalena River, these four cases are stated to be the first reported from the west side of the river.

Nigeria—Yola.—On August 1, 1939, 1 fatal case of suspected yellow fever was reported in Yola, Nigeria.

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