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A CASE OF TYPHUS-LIKE FEVER FOLLOWING TICK BITE

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Following is the report of a case of typhus-like fever following a tick bite, investigated by the writer, who was detailed for the purpose by the United States Public Health Service on August 16, 1926:

S. P., age 35, wife of a butcher in Norfolk, Va., was bitten on the inner left thigh, the left buttock, and the lower right abdomen by a tick which came from a calf hide shipped from North Carolina or Virginia.

At each point of the tick bite, swelling, redness, and a small ulcer developed. The tick was destroyed. Similar ticks had often been noticed by the butcher and his family; and occasionally a tick had bitten one of them, but never before had any illness followed.

On July 15, 10 days after the tick bite, the patient had a chill, fever, severe headache, and muscular and joint pains all over the body. Two days later, fever and prostration being marked, she called her physician, and on the 20th was removed to a hospital. On the same day, the attending physician noted a faint, pinkish rash over the chest and abdomen. The rash faded and reappeared on Sunday, July 25, becoming more definite and purplish and at that time covering all parts of the body except the face. Upon admission the patient showed extreme prostration and registered a temperature of 105° F.

Physical examination.—(July 28) the patient was a stout woman. The face was flushed, the conjunctivae were congested and watery, the expression was anxious, and the mental condition dull. Questions were answered slowly; mental concentration was obviously difficult. The tongue was very dry and coated. There were no nits or evidence of lice in the head or clothing. Lice had been carefully looked for upon admission.

Over the chest, back, and extremities, including palms and soles, there was a fine petechial rash appearing in discrete, irregular macules, some of which would disappear upon pressure. The majority were distinctly hemorrhagic in type and did not disappear upon pressure.

The heart and lungs were apparently normal.

The abdomen was large and flabby and a distinct movable mass could be felt in the lower right quadrant. There was no indication that this mass was in any way connected with the present illness.

The spleen was not readily palpable because of the excessive abdominal fat.

The inguinal glands on both sides were palpable and slightly tender. Small healing ulcers were still present on the lower right abdomen, left inner thigh, and left buttock, at the points of the tick bite.

Laboratory findings.—Urine examinations of catherized specimens, made on July 21, 24, and 26, showed some albumin, fine granular casts, and a few pus cells.

The blood picture on July 20 showed white blood cells 5,600; a normal differential count, and smears were negative for blood parasites.

On July 21, the Widal was negative and a blood culture was negative.

On July 22, stool was negative for parasites.

On July 24, white blood cells, 8,800; small mononuclears 10 per cent; large mononuclears 10 per cent; polymorphonuclears 89 per cent. Blood serum taken from the patient on July 25 and 28 and August 6 did not agglutinate *B. proteus* X_{19} or *B. tularense*. The sample taken on July 28 also gave negative agglutination for *B. eberthi* and *B. abortus*.

On July 28, the 13th day of fever, six guinea pigs were injected intraperitoneally with whole citrated blood of the patient, each animal receiving 2 c. c. Only one of these guinea pigs developed fever, which began on the 13th day after injection. Transfer of blood from this pig to other guinea pigs and to a monkey were made with entirely negative results.

The patient's fever continued for three weeks. There was no definite crisis; convalescence was slow and there were no sequelae.

Discussion.—The clinical aspects of this case, in nearly every detail, suggested typhus fever, although it was not supported by the laboratory findings. Failure of the serum to agglutinate *B. proteus* X_{19} and the negative results of animal inoculation do not, however, exclude typhus fever.

Rocky Mountain spotted fever was considered, but the negative animal inoculations and the locality make such a diagnosis very doubtful.

Other ticks similar to the one that had bitten the patient were secured and proved to be *Amblyomma americanum*. This tick is an occasional parasite of man, but has never been implicated in the transmission of disease. The tick bites may have been coincidental; but because the bites caused local sores and glandular enlargement preceding the onset of fever, one can not ignore their possible significance.

The case is reported because of the association of the illness with tick bites, the consistently negative agglutination of *B. proteus* X_{19}, and the failure to reproduce the disease in laboratory animals.

SYMPOSIUM ON THE PREVENTION AND CURE OF CANCER

A symposium on cancer control was held at Lake Mohonk, N. Y., September 20–24, 1926, under the auspices of the American Society for the Control of Cancer. The purpose of the meeting was to consider the prevention and cure of cancer from a practical standpoint, to crystalize existing knowledge, and to express in concise language the fundamental ground work in fact and opinion upon which the collective effort now being made in the United States and other countries for the control of cancer should be continued and extended.

The symposium was attended by distinguished workers in the field of cancer control from both this country and Europe, and a fund of information and opinion was presented upon which the society will base its plans for the conduct of its work for many years to come.

Two resolutions were passed by the delegates. The first resolution pertained to the development of measures for continuation of the international effort to unify and disseminate knowledge regarding the control of cancer. The second was the adoption of statements of facts and opinions which should form the basis for campaigns against the disease. The text of this statement given below is taken from the Health News for October 18, 1926, published by the New York State Department of Health:

Although the present state of knowledge of cancer is not sufficient to permit of the formulation of such procedures for the suppression of this malady as have been successfully employed for the control of infectious diseases, there is enough well-established fact and sound working opinion concerning the prevention, diagnosis, and treatment of cancer to save many lives, if this information is carried properly into effect.

1. The causation of cancer is not completely understood, but it may be accepted that, for all practical purposes, cancer is not to be looked upon as contagious or infectious.

2. Cancer itself is not hereditary, although a certain predisposition or susceptibility to cancer is apparently transmissible through inheritance. This does not signify that, because one's parent or parents or other members of the family have suffered from cancer, cancer will necessarily appear in other persons of the same or succeeding generation.

3. The control of cancer, so far as this subject can be understood at the present time, depends upon the employment of measures of personal hygiene and certain preventive and curative measures, the success of which depends upon the intelligent cooperation of the patient and physician.

4. Persons who have cancer must apply to competent physicians at a sufficiently early stage in the disease, in order to have a fair chance of cure. This applies to all forms of cancer. In some forms early treatment affords the only possibility of cure.

5. Cancer in some parts of the body can be discovered in a very early stage, and if these cases are treated properly the prospect for a permanent cure is good.

6. The cure of cancer depends upon discovering the growth before it has done irreparable injury to a vital part of the body and before it has spread to other parts. Therefore, efforts should be made to improve the methods of diagnosis in these various locations and the treatment of the cancers so discovered.

7. The public must be taught the earliest danger signals of cancer which can be recognized by persons without a special knowledge of the subject, and induced to seek competent medical attention when any of these indications are believed to be present.

8. Practitioners of medicine must keep abreast of the latest advances in the knowledge of cancer in order to diagnose as many as possible of the cases of cancer which come to them.

9. Surgeons and radiologists must make constant progress in the refined methods of technic which are necessary for the diagnosis and proper treatment not only of ordinary cases but of the more obscure and difficult ones.

10. There is much that medical men can do in the prevention of cancer, in the detection of early cases, in the referring of patients to institutions and physicians who can make the proper diagnosis and apply proper treatment, when the physicians themselves are unable to accomplish these results. The more efficient the family doctor is, the more ready he is to share responsibility with a specialist.

11. Dentists can help in the control of cancer by informing themselves about the advances in the knowledge of the causes of cancer, especially with relation to the irritations produced by imperfect teeth and improperly fitting dental plates. They can also help by referring cases of cancer which they discover to physicians skilled in the treatment of cancer in this location. It may be doubted whether all dentists fully realize the help which can be obtained from X-ray photographs in revealing not only the state of the teeth but the condition of the bone surrounding them.

12. Medical students should be instructed in cancer by the aid of actual demonstrations of cancer patients, and this to a sufficient extent to give them a good working knowledge of the subject.

13. The most reliable forms of treatment, and, in fact, the only ones thus far justified by experience and observation, depend upon surgery, radium, and X rays.

14. Emphasis should be placed upon the value of the dissemination of the definite, useful, and practical knowledge about cancer, and this knowledge should not be confused nor hidden by what is merely theoretical and experimental.

15. Efforts toward the control of cancer should be made in two principal directions: (1) The promotion of research in order to increase the existing knowledge of the subject, and (2) the practical employment of the information which is at hand. Even with our present knowledge many lives could be saved which are sacrificed by unnecessary delay.

At a dinner to the foreign guests held in New York City at the end of the symposium, Dr. William H. Welch, director of the Institute of Hygiene and Public Health, Johns Hopkins University, said:

"The great note struck at the Mohonk symposium was the tremendous importance of the cancer question and the appalling problems which it presents. There was never a time when tuberculosis

presented problems of such magnitude. * * * There is no disease to which larger additions to our knowledge have been made than cancer, but because this knowledge does not reach the public which we are most anxious to reach, this seems trivial."

In a recent issue of Campaign Notes of the American Society for the Control of Cancer, the following statements appeared:

Few people realize the seriousness of the cancer problem. According to recent statistics issued by the United States Census Bureau, 1 in every 10 adults now living in the United States is destined to die of cancer. Between the ages of 45 and 65 one in every five deaths among women is due to this disease. Cancer is now a greater menace to adult life than tuberculosis, and its death rate is rapidly increasing.

Cancer is in many respects a unique disease. Against it no sanitary or public health measures have any effect. It is not affected by preventive measures such as are employed against infectious diseases. The upbuilding of the general bodily health and economic conditions are incapable of reducing its prevalence.

The only effective measures which now offer any promise are personal ones. People must learn the symptoms and apply to a competent physician upon the first suspicion of the presence of cancer. On their part physicians must give prompt and skillful attention to the patients who come to them. There must be a widespread campaign to teach the public what everyone should know about cancer, and a dissemination among medical practitioners of information that will help them in diagnosing and treating their cases.

Nothing less than the utmost authority and the most reliable opinion will suffice to meet the pessimistic attitude of many people who think that cancer is incurable, hereditary, and infectious. The strongest argument possible must be presented to convince the man in the street who is inclined to listen to the claims of quacks who hold out a prospect of cure, until the disease is too far advanced to make skillful help of any use.

MALARIA IN THE PRAIRIE RICE REGIONS OF LOUISIANA AND ARKANSAS

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EXTENT AND METHOD OF CULTIVATION OF PRAIRIE RICE

The largest area devoted to the cultivation of prairie rice in the United States is found on that portion of the coastal plain extending approximately from Rayne, La., to Crosby, Tex. This area, a large part of which was originally prairie, offers the climate, level ground, relatively impermeable subsoil, and the supply of irrigation water necessary for rice growing. A similar area is found in eastern Arkansas. Of the 904,000 acres of rice grown in the United States in 1925, 450,000 were found in Louisiana and 174,000 in Arkansas.

The cultivation of prairie rice is a comparatively new industry in the United States. Louisiana had about 42,000 acres under cultiva-

tion in 1879, but the greater part of the development in rice culture has occurred since 1889. In Texas practically all of the industry has developed since 1889, and in Arkansas since 1905. With the growth of rice culture, much land formerly considered of little value except for grazing has been brought under cultivation; and this industry has greatly increased the population and wealth of certain parts of the prairie country of the southern United States.

Irrigation is almost universally employed in the cultivation of prairie rice. Water for irrigation is pumped from streams or from deep wells. In the Louisiana-Texas area nearly four-fifths of the irrigation water is taken from streams, while in Arkansas practically all of it comes from wells.

During a large part of the growing season the plants stand in shallow water. Levees prevent the water from running off and the impermeable subsoil keeps it from seeping away. The seed is sown in early May, and the water is usually turned into the fields during that month. Drainage for harvest is commonly done in September. The majority of the fields are thus kept under water during a period of three or four months in the year. Only one crop a year is harvested. As a rule the land is used for rice one year and lies fallow or is devoted to other crops during the following year.

The method of cultivation of prairie rice in Arkansas and Louisiana is, then, such as to greatly favor the production of *Anopheles*. Large areas are converted into shallow ponds and remain under water during the greater part of the warmer season of the year. The water is, for the most part, bright and clear, and is replenished continually with fresh supplies, so that there is no accumulation of products of decay which might pollute the water and render it unfit for anopheline larvæ. The fields are exposed to the sun except where the growing rice affords a partial shade, and algæ grow in abundance all over the fields. Food and aeration are thus abundantly provided. Grassi has well called rice fields the "Paradise of *Anopheles*." [1]

INCIDENCE OF ANOPHELES IN THE PRAIRIE RICE DISTRICT

The number of larvæ per dip taken up by a dipping pan of standard size gives a rough but useful approximation of the incidence of anopheline larvæ in a breeding place. Two thousand seven hundred and eighty-five dips made by us in the rice fields during the years 1923, 1924, and 1925 gave a total of 2,985 anopheline larvæ, an average of 1.1 per dip. The dips were made with a pan measuring 5 by 9 inches at the top and 3¾ inches in depth. We estimated that each dip swept larvæ from an area averaging approximately 50

[1] For many of the statistical facts in relation to rice growing we are indebted to Mr. Charles E. Chambliss, Associate Agronomist in Charge, Rice Investigations, U. S. Department of Agriculture. See Farmers' Bulletins No. 1092, February 1920, and No. 1356, October, 1925, U. S. Department of Agriculture.

square inches. Many of the dips were made in more or less selected places, and the average incidence of larvæ was less than 1.1 per 50 square inch; our figures, however, indicate a large production since the breeding area is very great.

Larvæ are abundant in the midst of the fields as well as in the ditches inside and outside the dikes. More were found in partially open places than where the rice was thick and high. They appear early in the season; large collections were made in May. Sometimes good breeding was found in grassy, fallow fields partially flooded through some defect in the dikes.

Very large numbers of adult *Anopheles* are found in various resting places throughout the rice district. Stables, outhouses, schoolhouses, unscreened dwellings, hollow trees, and similar shelters often swarm with them. A single building may contain thousands of them, and surfaces are sometimes blackened by the large numbers of *Anopheles* roosting on them. We counted 304 *A. quadrimaculatus* resting on a board 12 by 13 inches. Le Prince (1) counted in one barrel at Stuttgart, Ark, 2,768 *A. quadrimaculatus*. The number of imagoes in the Arkansas fields was somewhat greater than in the fields of Louisiana.

SPECIES OF ANOPHELES FOUND IN THE RICE REGION

Table 1 shows that *A. quadrimaculatus* is the prevailing species found in the imago stage; nearly 97.5 per cent of the imagoes caught in the rice region of Arkansas belonged to that species. During the summer of 1920, in Arkansas, the proportion of *A. crucians* tended to increase as the season advanced. In June and September, 1925, we made collections in the same region, and, in addition, we surveyed many thousands of *Anopheles* in their resting places; not one *A. crucians* was seen. Geiger, Purdy, and Tarbett (2) caught 19,238 *Anopheles* near Lonoke, Ark., all of which proved to be *A. quadrimaculatus*. Comparing our findings in 1920, in which over 800 *A. crucians* were caught, with our findings of 1925 and with those of Geiger, Purdy, and Tarbett, it would appear that in the same general area considerable variation in the proportion of *A. crucians* may occur in different years.

In the Louisiana rice fields the proportion of *A. crucians* is high; nearly half of the imagoes we took in the adult stage were of that species. In June, 1917, Geiger, Purdy, and Bates (3) found in the Gueydan district of Louisiana imagoes of only *A. crucians* and *A. punctipennis*, the *A. crucians* being about twice as abundant as the *A., punctipennis*. *A. quadrimaculatus* was first found by them in the latter part of June, and by July 10 this species superseded all others.

TABLE 1.—*Anopheles caught in imago stage in rice fields*

Locality and year	May		June		July		August		September		October		All months			
													Numbers		Percentage incidences	
	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.
Arkansas, 1920	----	----	----	----	----	----	15,815	152	15,695	401	407	257	31,917	810	97.5	2.5
Arkansas, 1925	----	----	458	0	----	----	----	----	799	0	----	----	1,257	0	100.0	0.0
Total Arkansas	----	----	458	0	----	----	15,815	152	16,494	401	407	257	33,174	810	97.6	2.4
Louisiana, 1923	----	----	426	187	1,326	545	852	504	191	56	1	0	2,796	1,292	68.4	31.6
Louisiana, 1924	545	541	1,796	2,715	1,838	1,397	1,517	1,973	2,811	533	----	----	8,507	7,159	54.3	45.7
Total Louisiana	545	541	2,222	2,902	3,164	1,942	2,369	2,477	3,002	589	1	0	11,303	8,451	57.2	42.8
Grand total	545	541	2,680	2,902	3,164	1,942	18,184	2,629	19,496	990	408	257	45,477	9,361	82.9	17.1

The high proportion of *A. crucians* in the Louisiana rice fields as compared with the Arkansas fields is striking. Breeding conditions in the rice fields of both regions are similar, except that a larger proportion of the Arkansas fields are irrigated by water from wells. The times of seeding and harvesting rice are nearly synchronous in the two States, and both States have an even, high summer temperature. In the Louisiana rice country the monthly mean temperatures for June, July, and August range from 79.9° to 82.8° F., and the annual mean temperature ranges from 67.4° to 69.1°. In Arkansas the rice region has an annual mean temperature of 61.5° (Chambliss).

It has been alleged that the hydrogen-ion concentration of *Anopheles*-breeding waters may be a factor in determining the prevalence of certain species. In the Louisiana rice fields we made 35 tests of the hydrogen-ion concentration in different years and at different seasons, and obtained a range of pH 6.0 to pH 8.6. Twenty-six of the 35 tests fell within the range of pH 7.8 to pH 8.2. A well supplying water for irrigation varied from pH 7.2 to pH 8.4, and water from an irrigation canal had a pH of 6.8.

In the Arkansas rice fields we found a range of pH 6.8 to pH 9.2. Of a total of 15 tests (all made in June and September, 1925), we found 12 within the range of pH 7.2 to pH 8.4. Eight tests of wells supplying water for irrigation gave the narrow range of pH 7.2 to pH 7.4.

The hydrogen-ion concentration in the rice fields shows, then, a considerable range, depending in part on the distribution of masses of algæ, which tend to increase the alkalinity of the water; but the range is so similar in the rice fields of the two States as to make it unlikely that the greater prevalence of *A. crucians* in Louisiana is

due to any quality of the hydrogen-ion concentration of the water in which the *Anopheles* breed.

In Table 2 is shown the number of *Anopheles* bred out from larvæ or pupæ collected during 1923 and 1924 in the rice fields of Louisiana. It is seen that more than twice as many *A. crucians* as *A. quadrimaculatus* were bred out. It is interesting to compare this proportion with that of the percentage of *A. crucians* caught in the imago stage, where this species comprised only 43 per cent of the adult *Anopheles* collected in the same region.

The discrepancy between these two percentages is not easy to explain. It is possible that the two species, *A. quadrimaculatus* and *A. crucians*, prefer different daytime resting places, and that in our collections of imagoes, made for the most part in barns housing animals at night, we did not always include the preferred resting places of *A. crucians*. *A. quadrimaculatus* often predominated in resting places immediately adjacent to rice fields where the larvæ and pupæ of *A. crucians* were by far the more common of the two species.

In addition to *A. crucians* and *A. quadrimaculatus*, a few *A. walkeri* were found. Two *A. walkeri* were bred out in the rice fields of Louisiana, and their imagoes were occasionally found in resting places near the rice fields. We found but few *A. punctipennis* as adults or larvæ. During the summer of 1920 we collected many thousands of *A. quadrimaculatus* in the rice region of Arkansas, but found only 10 *A. punctipennis*.

TABLE 2.—*Anopheles bred out from larvæ or pupæ taken in rice fields of Louisiana in 1923 and 1924*

May		June		July		August		September		October		All months			
												A. cruc.		A. quad.	
A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	A. cruc.	A. quad.	No.	Per cent	No.	Per cent
81	50	578	303	298	194	196	32	407	129	9	1	1,569	68.8	709	31.1

Culicine larvæ were plentiful in the rice fields and their imagoes often constituted a pest, especially in the Arkansas region. In the Louisiana and Arkansas regions, while the rice is being flooded, common species are *Psorophora columbiae* Dyar and Knab, and *Psorophora discolor* Coq., together with *Psorophora ciliata* Fab. Later, as grass and algæ increase in the rice fields, *Culex* (*Neoculex*) *testaceus* (=*territans*) Van der Wulp and *Culex* (*Choeroporpa*) *leprincei* Dyar and Knab are also found commonly with the larvæ of *Anopheles*.

THE MALARIA PARASITE AND SPLEEN INDEX IN THE PRAIRIE RICE REGIONS

Geiger, Purdy, and Bates (3) surveyed a population at Lonoke, Ark., during the month of January and found only 0.5 per cent infected with malaria parasites among 1,965 persons examined. In May they found in the same district 1.6 per cent infected among 2,162 examined. Children 1–10 years of age gave zero per cent in January and 1.9 in May. In the Gueydan district of Louisiana they made a survey in April and found but 1.1 per cent infected among 417 persons examined. Children 1–10 years old gave an index of 1.8 per cent. They found a malaria history rate of 29 per cent in the Lonoke population and exactly the same rate in the Gueydan group.

In our survey of the Louisiana rice region made some six years later than that of Geiger, Purdy, and Bates, we also found very low parasite rates. Our results for school children are shown in Table 3, which compares malaria indices of the rice country with those in surrounding regions not near rice fields.

TABLE 3.—*Parasite indices in Louisiana, 1923–1924 (school children)*

	Number of schools	Number of school examinations	Number children examined	Per cent positives
Group I. Schools in the immediate vicinity of rice fields:				
White	10	11	399	1.8
Colored	6	14	364	3.8
Total	16	25	763	2.8
Group II. Schools not in the vicinity of rice fields:				
White	11	16	499	2.8
Colored	14	20	568	5.1
Total	25	36	1,067	4.0
Grand total, groups I and II	41	61	1,830	3.5

Schools and school "examinations" are distinguished in Table 3, because in some cases a school was examined more than once, either in different years or in the spring and autumn of the same year. There are fewer repetitions of the examination of the same child than would be indicated by the ratio of schools to school examinations because there were frequent changes in the personnel of the schools. Practically all schools were rural, or situated in small towns So far as we made any selection of schools for examination it was in the direction of those in the more malarious districts.

Table 3 shows clearly that the malaria parasite rate among school children of the Louisiana rice district is low, and somewhat lower than in schools in the surrounding country, where cane and cotton are the principal crops. Of the 61 school examinations made, about

one-half gave no positives at all—the proportion of negative school examinations being about the same in and out of the rice region.

Colored children gave higher indices than the white, and the autumn index was higher than that of the spring. Of 1,113 children of both races examined during the spring term, from January to May, inclusive, 3.0 per cent were found positive. Of 717 examined during the autumn term, all during September, October, and November, 4.1 per cent were found positive.

In addition to the school work, we determined the malaria parasite index of certain Louisiana plantations, lumber camps, and neighborhoods. Within the rice region, 4 of such surveys gave 3.2 per cent positive among 123 persons examined. Outside of the rice region, 15 surveys gave 6.8 per cent positive among 557 persons examined.

We also examined many blood specimens for the physicians of Crowley, La. During 1923 we obtained 88 positive specimens through this source, and in 1924 only 22. The percentage of positives among such examinations is of little significance because we dealt with a highly selected group; the fact that we found so few positives is noteworthy, however, since several physicians cooperated with us during the entire malaria season of two years.

In April, 1923, 190 spleen examinations were made of school children in Louisiana by Kenneth F. Maxcy, Passed Assistant Surgeon, United States Public Health Service. Only 3.6 per cent showed enlarged spleens. Examinations were made of the child in the standing position. Forty-two of the children examined were found in a school (Gueydan) located in the immediate vicinity of rice fields; all were negative. The remainder came from localities more or less remote from rice fields.

TABLE 4.—*Malaria parasite rate in certain rural schools in Arkansas*

GROUP I. SCHOOLS IN THE MIDST OF RICE FIELDS

Check No.	School	Color	1922		1923		1924		1925		Total, all years	
			No. examined	Per cent positive	No. examined	Per cent positive	No. examined	Per cent positive	No. examined	Per cent positive	No. examined	Per cent positive
1	Goldman	White	30	6.7	27	3.7	18	0.0	17	5.9	92	4.4
2	Stukey	do	29	0.0	29	0.0	27	3.7	30	0.0	115	0.9
3	Shannon	do	25	4.0	25	4.0	25	0.0	24	0.0	99	2.0
	Total, Nos. 1, 2, and 3.		84	3.6	81	2.5	70	1.4	71	1.4	305	2.3
4	Stahley	White			18	5.6			4	0.0	22	4.5
5	Sunshine	do			20	0.0	25	16.0	21	9.5	66	9.1
	Total group I.		84	3.6	119	2.5	95	5.3	95	3.1	394	3.6
	GROUP II. SCHOOLS NOT IN RICE FIELDS											
6	Casco	Colored	22	22.7	48	31.3	48	2.1			118	17.8
7	Gill	White			36	16.6	21	4.8	19	0.0	76	9.2
8	Alcorn	do			42	9.5	42	2.4			84	6.0
	Total group II.		22	22.7	126	19.8	111	2.7	19	0.0	278	11.9

With but few exceptions, our surveys of the Arkansas schools were made in September, October and November, months in which the malaria parasite rate is highest. Table 4 shows definitely that the parasite rate of certain rural schools in the rice fields is low, and generally lower than that outside the rice region or at its borders. Especially remarkable is the low rate for schools Nos. 1, 2, and 3, surveyed during four successive years, in every case in September, October, or November. The year rate of each of these three schools, as well as the aggregate for the four-year period, is low. Stukey school showed but one positive during the whole period. Spleen examinations were made of the boys of these three schools during the autumn of 1923 and 1924 by C. P. Coogle, Acting Assistant Surgeon, United States Public Health Service. In the aggregate only 5.3 per cent of a total of 76 examined showed enlarged spleens.

Schools Nos. 1, 2, and 3 are situated in the very midst of the rice fields. The children, all of the white race, live in houses for the most part good and situated in prosperous neighborhoods. The population of the neighborhoods in which these schools are situated is relatively constant, showing less of the shifting so common among farmers of the renter class.

A group of town schools gave the following malaria parasite indices: 4.7 per cent positive among 86 colored children in two schools in the rice country; 11.6 per cent positive among 86 colored children in two schools at the edge of the rice country; 8.3 per cent postive among 169 white children in two schools also at the edge of the rice country; 0 per cent positive among 27 white children of a school not in the rice region.

Certain house to house neighborhood surveys made in the Arkansas region may be compared with those of the schools. We made these also in the summer and autumn, and in some of them we selected persons more likely to be infected. The results are given in Table 5.

TABLE 5.—*Neighborhood surveys, Arkansas—Malaria parasite rate*

Locality	Color	Number examined	Per cent positive	Locality	Color	Number examined	Per cent positive
In rice region	White	54	1.8	Not in rice region	White	34	8.8
Do	Colored	112	8.0	Do	Colored	100	11.0
Total, white and colored.		166	6.0	Total, white and colored.		134	10.4

During portions of the summers of 1920 and 1922 we examined blood specimens for the physicians of Stuttgart, Ark. Most of the patients came from the rice region or the country immediately adjoining it. One hundred and one examinations gave 18 positives. This group, of course, was a highly selected one.

In sum, it is evident that malaria is present in the rice regions of both Louisiana and Arkansas, but that the rate is low, rather lower than in certain regions situated outside of the rice regions but in the same general neighborhood. Very low rates persist from year to year in certain neighborhoods situated in the midst of the rice fields where *Anopheles* swarm. The amount of malaria within the rice regions is doubtless increased by the presence of more highly infected communities at their borders.

In all blood examinations the slides were examined by one of us (Barber) personally, with the exception of the 1923 examination of the Arkansas schools, which was done by the United States Public Health Service laboratory at Memphis, under the direction of Dr. William Krauss. Thick films were employed in all specimens examined by ourselves.

THE TYPE OF MALARIA PARASITE FOUND IN THE RICE REGION OF LOUISIANA

The type of parasite found in the rice region of Louisiana is shown in Table 6, where data are arranged by months. We made but few examinations in the months of December and January, and obtained no positives during these months. One mixed case was found, but is not included in the table.

TABLE 6.—*Positive cases of malaria found in Louisiana, arranged by months and type of parasite*

Month	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	All months
Number of positives	6	4	4	16	10	10	23	27	22	11	133
Per cent of E-A	83.3	100.0	25.0	12.5	10.0	0	21.7	25.9	54.5	63.6	33.1

The number of cases shown in Table 6 is small, but sufficiently large to indicate clearly that the percentage of estivo-autumnal malaria falls to a minimum in June and July; then it rises rapidly, reaching its maximum in the late autumn and winter and in the early spring months. Barber and Mayne (4) have shown that a very similar curve of yearly incidence of the types of malaria parasite occurs generally in the Southern States, except that in the general series the minimum of the estivo-autumnal type occurs earlier in the season—April or May.

In the Arkansas rice region our surveys were made in late summer or in the autumn, when a high estivo-autumnal proportion would be expected. Of 46 positives obtained in the midst of the rice region, 50 per cent proved to be estivo-autumnal; of 76 obtained outside or at the borders of the rice country, 52.6 per cent were estivo-autumnal. In both groups positives obtained from negro cases showed a higher

percentage of estivo-autumnal than those from white. Of the total number of estivo-autumnal cases, about 39 per cent had crescents.

It is stated that, with the decrease of malaria in the rice region of northern Italy, the estivo-autumnal type of parasite has become relatively rare (5). In our rice districts any amelioration in the number or severity of cases seems to have come about independently of any change in the type of parasite.

The effect on the malaria rate of the introduction of rice cultivation is hard to estimate since we lack trustworthy malaria surveys of the prairie regions prior to the beginning of rice culture. The evidence of physicians in both regions is almost unanimous to the effect that there has been a decided reduction within the last 15 or 20 years in both the amount and the severity of the disease. Blackwater fever and the more severe types of "swamp fever" have become almost extinct. Dr. H. L. Gardiner, health officer of Acadia Parish, a county situated in the midst of the Louisiana rice district, informed us that, during a tenure of office of six years, 1919 to 1924, inclusive, he had not signed a single death certificate for malaria. A comparison of the parasite rates obtained by Geiger, Purdy, and Bates in 1917–18 with the rates obtained by us six years later indicate little more than the absence of a striking change in malaria during that period. In schools Nos. 1, 2, and 3, Table 4, one might deduce evidence of decrease in malaria, but the numbers are too small to show any significant change.

THE RELATION OF RICE CULTIVATION AND MALARIA IN OTHER LOCALITIES

A relative immunity from malaria in the presence of numerous *Anopheles* bred in rice fields is not without parallel in this and other countries.

Herms (6) states that rice culture as practiced in California is responsible for vast hordes of *Anopheles*, but thus far there has been little or no increase in malaria as a consequence. Lenert (7) states that the more malarious portions of California are not found near the rice fields, but that there are few dwellings in their immediate vicinity.

Certain portions of northern Italy possibly furnish conditions more nearly parallel with those of our prairie rice fields—a temperate climate, intensive rice culture with irrigation, and the presence, within flight distance of dwellings, of abundant *Anopheles* known to be vectors of malaria. The present condition of malaria in that region is described by Giardina, Novelli, Alessandrini, and Sampietro (5), and may be summed up as follows: Malaria in the valley of the Po, formerly severe and widely diffused, has decreased with the improvement in agriculture and with bettered social and sanitary conditions

of living. The reduction has been most marked within the last 30 years and is most pronounced where the cultivation of rice is most intense. Benign tertian is the prevailing type of parasite found, and severe cases of malaria are rare. Estivo-autumnal, when it occurs, tends to run a mild course. Together with a reduction in the malaria rate, there has been a decrease in the death rate from all causes. In some localities of the rice regions the introduction of numerous cases infected during the World War caused an increase in the malaria rate. But the rise was transient and the rate soon returned to normal. Apparently the "soil" had become unfavorable to the spread of the disease. *Anopheles* are present in enormous numbers. The anopheline species represented are *A. maculipennis*, one of the chief malaria vectors of Europe, about 88–90 per cent; *A. superpictus*, about 7–10 per cent; *A. pseudopictus*, 2–3 per cent; *A. bifurcatus*, rare.

Eugling (8) compares three villages in Macedonia, one in the swamps, one in a rice region, and one 1½ kilometers from rice fields. The village in the swamp region shows the highest children's death rate, the other two showing a rate hardly one-half as great as that of the swamp dwellers. Spleen, parasite, and anemia rates were high in all three. The rice region was more favorable to the production of *Anopheles* than the swamps. The author is of the opinion that the cultivation of rice has diminished malaria. With better economic conditions the people have better houses, better food, and better medical treatment, and are able to buy more quinine.

Nocht (9), in describing observations made in southern Europe during a recent journey, states that in Bulgaria malaria is no worse in rice-growing districts than in the truck-growing regions. In certain regions of Spain where rice cultivation is of ancient date and the inhabitants have become prosperous, malaria is insignificant in spite of abundant *Anopheles*; while in newly opened rice regions, where the people still have to contend with economic hardships, malaria is far more troublesome.

Certain rice-growing districts in the Orient also enjoy a relative freedom from malaria, but the species of *Anopheles* bred in them may not always be the most efficient vectors of malaria. Watson (10) states that on the coastal plains of Assam, where the *Anopheles* are *A. rossi*, *A. sinensis*, *A. kochi*, and *A. barbirostris*, the rice regions are generally healthful, whereas in the valleys where *A. minimus* and *A. maculatus* are also produced, they are generally unhealthful. In certain regions of the Philippines, where the anopheline species are chiefly *A. rossi*, *A. sinensis*, and *A. barbirostris*, Barber, Raquel, Guzman, and Rosa (11) found both spleen and parasite rates almost nil. Some rice regions of the Malay States also show a relatively low parasite rate. Walch (12), however, has described an epidemic of malaria in the rice fields of Java caused by *A. sinensis*. The *A.*

sinensis concerned in this epidemic was of the variety *vanus*, which may be a better vector than the type form.

In Bengal, Bentley (14) describes an instance in which the decline in the irrigated culture of rice and jute has brought about a decrease in population and an increase in the malaria rate. The building of embankments has prevented the annual inundations and the deposition of soil-enriching silt and has increased the swamp area. The formation of swamps and of other waters lacking silt has increased the production of *Anopheles* also, so that conditions here are not exactly parallel with those of most rice regions, where mosquito production is usually augmented by irrigation. But the impoverishment of the people through the decline in agriculture has doubtless been one factor in the increase in malaria.

Kendrick (15) made a survey of 30,000 children in the rice-producing area of the Central Provinces of India. In the open plains country he found an average spleen rate of only 4.3 per cent among 12,384 children. Areas with jungle and hill in excess and close to villages gave an average spleen rate of 70.5 per cent among 8,971 children. An intermediate area comprising the edges of open plains near forest, jungle, or hill gave an average rate of 24.1 among 9,075 children. Malaria, then, was not associated with the intensive cultivation of rice, but with certain topographical features. The commonest *Anopheles* is *A. fuliginosus;* the next most common species, *A. culicifacies*, was considered by the author as the main carrier, since it corresponded in distribution with the malarial areas, and was the only one which showed sporozoites in the salivary glands.

In other parts of India (5) the introduction of rice cultivation is said to have rendered a once salubrious region intensely malarious.

In the United States rice was extensively cultivated along the Atlantic coast before the Civil War. According to Carter (16), malaria was formerly intense there and was commonly attributed to the "miasm" arising from the rice fields. Gamble (17) states that in 1817 the city of Savannah took measures to abandon the wet culture of rice in the vicinity of the city. A report of a special committee of the council, in recommending such legislation, stated that previous to the introduction of wet culture the city had enjoyed a relative immunity from autumnal diseases. Dry culture was introduced and it was claimed that this measure reduced the proportion of persons dying from "autumnal diseases" from 1 in 11 of population during the first period of three years of wet culture to 1 in 35 during the second period of three years under dry culture. Apparently diseases other than malaria were included under "autumnal fevers."

In Italy also malaria was formerly so intense in the rice regions that legislation was introduced to limit rice cultivation to certain districts (5).

BIOLOGY OF ANOPHELES IN THE RICE REGION

Provided an efficient vector of malaria is bred in sufficient numbers, it would seem that the mere introduction of rice culture can not be expected to reduce the malaria rate unless there is a concomitant betterment of the social and hygienic status of the people. It has been suggested, however, that certain biological factors having to do with the mosquito carrier may have contributed to the decrease in malaria. Some of these factors will be considered.

Alessandrini (5) suggests the hypothesis that a mosquito species, normally an efficient vector of malaria parasites, may become less susceptible to infection through the favorable conditions under which the larvæ develop in the rice fields. He compared a series of larvæ bred in the rice fields with those bred in swamps, selecting only larvæ about to pupate, in order to get a comparable size, and found that those bred in the fields are, on the average, measurably larger. The more vigorous adults emerging from larvæ of the rice fields may, then, be less susceptible to malaria, following the analogy observed generally, that the weaker individuals are more susceptible to disease. Little experimental evidence has thus far been adduced by the author in support of his hypothesis.

In 1922, at Stuttgart, Ark., we attempted to determine by infection experiments whether mosquitoes bred in rice fields are susceptible to malaria infection. Our results are given in Table 7. The mosquitoes tested were all *A. quadrimaculatus*, collected in the imago stage from shelters in the midst of the rice region. They were taken at a time of drought when it was unlikely that any had been bred elsewhere than in the rice fields. All the human carriers on which the mosquitoes were fed harbored crescents; only that of lot No. 5 had, in addition, any benign tertian gametocytes. We have included in the table only those mosquitoes which were known to have taken blood from the carrier. They were fed but once on the carriers.

TABLE 7.—*Infection experiments with rice-field-bred Anopheles, at Stuttgart, Ark.*

Lot No.	Carrier No.	Date of feeding, 1922	Number of crescents per 100 leucocytes	Number of mosquitoes dissected	Per cent of mosquitoes infected	Average number of oöcysts per gut in positives	Remarks
1	1	Aug. 22	1	13	0.0	0.0	
2	1	Aug. 23	1.5	12	58.3	2.5	
3	1	Aug. 25	1	11	45.4	1.4	Patient had taken a total of about 70 grains quinine.
4	1	Aug. 26	0.8	14	64.3	5.3	Sporozoites in oöcysts in gut.
5	2	Sept. 1	1	2	0.0	0.0	Crescents plus a few B. T. gametocytes also.
6	3	---do----	8.5	8	0.0	0.0	

It is shown in Table 7 that three of six lots had a high percentage of infected mosquitoes. The average numbers of oöcysts is small, as is common where the percentage of gametocytes is low. Older oöcysts often showed "black spores" or other signs of degeneracy. We found sporozoites, in some cases apparently tending to degeneracy, in the oöcysts of lot No. 5, but in no case did we find them in the salivary glands, although we dissected 12 with positive gut 10 or more days after feeding, including 9 positives dissected 12 to 15 days after feeding. Such degeneracy of oöcysts and lack of sporozoites might be taken as evidence in support of the theory of Alessandrini, but these findings are by no means uncommon in mosquito infection experiments, whatever the breeding place of the mosquito.

We did another series of mosquito infection experiments in Louisiana. Here the experiments were made for a different purpose, and it was less certain that the *Anopheles* used were actually bred in rice fields. Mosquitoes were fed on two crescent carriers; one with 2.8 and the other with 3.5 crescents per 100 leucocytes. Twenty-one *A. quadrimaculatus* and one *A. crucians* were dissected, all proving negative. On October of the same year, when the rice-field-bred *Anopheles* had presumably disappeared, we obtained positive infection experiments with *A. quadrimaculatus* caught in the adult stage, and with both benign tertian and estivo-autumnal parasites.

Our Stuttgart experiments show clearly that *A. quadrimaculatus* bred in rice fields may be infected with parasites of estivo-autumnal malaria; and we are inclined to doubt whether any species may be sufficiently modified by breeding in such a locality as to decrease greatly its power of transmitting malaria. Rice fields exhibit an infinite variety of breeding places, of which not all are exceptionally favorable to anopheline larvæ, and myriads of adults come from waters very similar to those found in ponds or swamps. Further, in considering any biological factor we must give due weight to the evidence that malaria was formerly plentiful in certain rice-growing regions. The possible effect of food, aeration, or any characteristic of the breeding place on the susceptibility of the mosquito is a matter of importance and worthy of study; but a long and careful series of experiments would be required to give any definite information, since we have to do with complicated and highly variable conditions.

Rice fields are usually drained in September and the number of *Anopheles* is greatly diminished in early October; but it seems unlikely that the October diminution could have much influence on the malaria rate, since adults of *A. quadrimaculatus* are abundant from June to September, inclusive, a period comprising the warmer months of the year.

Domestic animals may possibly decrease the transmission of malaria by diverting from human beings mosquitoes in their search for blood, but it is doubtful whether this factor is of greater weight in the rice country than elsewhere. We have demonstrated that *Anopheles* in the rice country will bite human beings in a stable crowded with domestic animals (18), and the Italian authors above quoted (5) have made a similar observation in Italy. The malaria rate is higher in the Arkansas rice country than in that of Louisiana, although domestic animals in the Arkansas region are quite as numerous as in the Louisiana rice country, and better housed.

Longevity of the mosquito is presumably important in respect to the probablity of its transmitting malaria. In the rice country of Arkansas we (19) have demonstrated by staining methods that adult *Anopheles* may live in the open during midsummer and under natural conditions as long as 25 days.

It has been suggested that thick woods may promote the prevalence of malaria, possibly through affording favorable shelters for *Anopheles*. Such woods are plentiful in both the Arkansas and the Louisiana rice regions. Further, malaria may be very intense in a very thinly wooded country, as Calabria, in southern Italy. In the survey of malaria in rice fields described by Kendrick (15), nearness to jungle seemed to have promoted malaria, but here the jungle may have furnished a breeding place for the chief vector of malaria, *A. culicifacies*.

Purdy (20) describes the great variation in the anopheline output of different California rice fields, some of which produce practically no *Anopheles*. He believes that there is a probability that such lack of breeding in certain fields is due to the presence there of a heavy growth of a blue-green alga, *Tolypothrix tenuis*. He did not find this alga abundant in the rice fields of Arkansas or Louisiana, nor could we find any amount of it there.

Chara robbinsii is very abundant in the Louisiana rice fields, but does not appear to deter the production of *Anopheles* (21).

THE HUMAN FACTOR IN THE PREVALENCE OF MALARIA IN THE RICE REGIONS

The history of malaria in rice regions and the study of the present status of the disease lead one to ascribe the relative freedom from malaria in rice regions to human rather than to mosquito factors. Certain of the human factors as they exist in the prairie rice regions will be briefly considered.

In neither Arkansas nor Louisiana is much hand labor employed in the cultivation of rice. The greater part of the preparation of the soil and the seeding, irrigation, and harvesting is done by machinery. Some hand labor is employed in weeding, but the number of such

laborers is inconsiderable. Negro laborers are employed in rice production, but the greater part of them live in towns and go out to their work in the fields. There is no large rural negro population such as is found on the cotton plantations of the Mississippi Delta. A large proportion of the owners of rice farms live on their own land and cultivate it themselves. There is no large class of "croppers" poorly housed, or of "bunk-house" labor in the prairie rice country, whose presence tends to favor the transmission and spread of malaria. We should be on our guard, however, against placing too much stress on the labor or any other single human factor in the prevention of malaria. In the rice country of northern Italy malaria is comparatively insignificant, although a large amount of transient hand labor is employed in weeding and other work. On the sugar plantations of Louisiana, where malaria is not usually severe, the labor, chiefly negro, is usually housed in unscreened cabins clustered around the sugar "centrals."

The quality of the dwellings in the prairie rice region is somewhat above the average found in cotton-growing territories. In the Arkansas region screening is almost universal, although many of the houses are imperfectly screened. In Louisiana, screening is alsocommon, although by no means universal. Many rural houses are wholly without this protection.

The use of quinine as a preventive by well persons is uncommon in the rice regions, as everywhere else in the country, and early treatment of cases is about as common there as in any well-to-do country. The Italian authors above quoted (5) hold that quinine has been an important factor in the diminution of malaria in Italy—not through prophylaxis in the sense of immunizing the well but through the prompt use of the drug in treatment. Quinine is abundantly and cheaply available to the laborers and they are accustomed to take it at the first appearance of malaise.

The population of the prairie rice regions of both Arkansas and Louisiana has within recent years shown a notable increase—a factor which would tend to decrease the malaria rate, but not necessarily the amount of malaria (22). In both districts, however, a large proportion of the increment in population has come from the Northern States or from other localities relatively free from malaria and is composed of people presumably susceptible to the disease; it is unlikely, therefore, that the relatively rapid increase in population has of itself greatly diminished the malaria rate.

In summing up the social and hygienic conditions in the rice regions it may fairly be stated that the conditions of living of the rural population are generally superior to those found in the rural regions of other parts of the Southern States.

MALARIA IN CERTAIN REGIONS NOT RICE-PRODUCING

In considering the factors which may have affected the malaria rate in the rice region, we should keep in mind the fact that there has been a marked diminution of malaria in other parts of the United States in the presence of numbers of *Anopheles* apparently adequate for the transmission of malaria. During 1923 and 1924 we made surveys comparing the prevalence of malaria in certain regions bordering the upper and lower portions of Bayou Teche in southwest Louisiana. The results of these surveys, which appear in Table 8, illustrate the fact that, of two regions, neither of which is near rice fields, but both abounding in *Anopheles*, one may exhibit a low malaria rate and the other a relatively high one. The upper Teche is mainly devoted to cotton growing and the lower to sugar-cane. In the lower region *Anopheles* breed in a series of more or less weedy lakes, and in both regions in the swamps bordering the bayou. All biological conditions which may affect the mosquito-breeding places—presence of woods or of domestic animals—are similar in the two regions. In the upper region we found some groups of negro renters among whom the malaria rate was relatively high. In the lower region most of the negro plantation workers live in cabins near the sugar factories.

TABLE 8.—*Parasite index of certain regions bordering the upper and lower portions of Bayou Teche in Louisiana*

	Number examined	Per cent positive		Number examined	Per cent positive
Upper Teche:			Lower Teche:		
9 colored schools	271	8.1	3 colored schools	95	0.0
10 white schools	310	3.9	5 sugar plantations	179	1.1
6 neighborhood surveys	239	11.7	1 lumber camp	31	0.0
2 plantations	83	9.6	1 neighborhood survey	25	0.0
Total	903	7.8	Total	330	0.6

In southern Alabama also we found a region where the malaria rate was very low in spite of the presence of *Anopheles*, both *A. quadrimaculatus* and *A. crucians*, in numbers apparently fully adequate for malaria transmission.

In none of the regions we have described—the prairie rice country, the Alabama region, or the Teche regions—had there been any systematic attempt to control malaria.

METHODS OF CONTROL OF MALARIA IN RICE REGIONS

Geiger and Purdy (23) used sawdust soaked with fuel oil (about 3 gallons of oil to a bushel of sawdust) as a larvicide in some experimental plots of rice. The mixture when sown broadcast destroyed 85 per cent of the larvæ without injuring the rice.

We have found Paris green effective as a larvicide in rice fields provided the plants are not so tall and thick as to intercept too large a proportion of the dust. We treated an area of about 2,000 square meters with one-fourth pound of Paris green mixed with dust. The dust was thrown into the air and distributed by the wind. Over 90 per cent of the larvæ were destroyed by a single treatment. In a second tract, where the rice was about 30 inches tall, thick, and blossoming, we got much poorer results with a similar treatment.

King and Bradley (24) made use of an airplane in dusting a tract of flooded rice with Paris green. Five pounds of Paris green mixed with 100 pounds of Tripoli earth were distributed over a tract of 7½ acres, where the plants were about 20 inches in height. The distribution of the dust was thorough, except that one edge of the field was missed on account of a strong wind. "For the whole 'cut' an estimated mortality of 73 per cent resulted, but with the exception of the one edge practically 100 per cent of the large larvæ were destroyed as well as the majority of the small ones."

In their experiments, as well as in ours, it was found that the quantity of Paris green necessary to kill anopheline larvæ is not injurious to the rice plants.

It appears that Paris green might be a practical means of destroying anopheline larvæ in a small group of rice fields, but where many thousands of acres have to be treated, as is the case in rice regions of Louisiana and Arkansas, the use of any known larvicide would be impracticable on account of the expense.

Destruction of larvæ by intermittent drainage has been proposed. However, such drainage always leaves many puddles which would continue to breed *Anopheles*. Further, as pointed out by Geiger and Purdy, drainage in these level plains is likely merely to transfer the larvæ to another locality where they will continue their development within flight distance of dwellings.

There is no question that the presence of *Gambusia* or other top-feeding minnows will reduce the numbers of larvæ in rice fields. Geiger and Purdy (23) state that they reduced by 70 per cent the numbers of mosquito larvæ in an experimental plot by the introduction of top-feeding minnows. We have noted that where water is pumped from wells into a field unstocked with *Gambusia*, breeding may be very intense. In July, 1924, we had an opportunity of testing the efficiency of top-feeding minnows in certain plots of the rice experimental farm at Crowley, La. Into certain plots, fish were introduced freely; from others they were excluded by means of weirs or other devices. A very few fish may have entered into the "fish-free" plots, but their numbers were inconsiderable. The incidence of anopheline larvæ in the "fish-containing" and the "fish-free" plots was compared by dipping. Seven hundred and seventy-seven dips

in the fish-containing plots gave an average of 0.63 anopheline larvæ or pupæ per dip and in the fish-free plots 460 dips gave an average of 1.03 larvæ or pupæ per dip. Pupæ were more numerous in the fish-free plots, the ratio of pupæ to total larvæ being 1:61 in the presence of the fish and 1:23 in the fish-free plots. By way of comparison, the incidence of anopheline larvæ in certain ditches well stocked with *Gambusia* was compared with that in similar ditches immediately adjacent and wholly fish-free. The former gave an average of 1.54 larvæ or pupæ per dip (98 dips) and the latter an average of 2.75 per dip (36 dips). In these ditches the culicine mosquitoes were almost wholly destroyed by the fish, being apparently more accessible to the minnows than the *Anopheles*.

It is clear from these observations that one can not depend on fish as a means of control of *Anopheles* in breeding areas so immense as those afforded by rice fields, because sufficient larvæ will escape the fish to produce large numbers of adults; but in regions where top-feeding minnows are lacking, it would be worth while to introduce them, since once established in canals or puddles they may persist from year to year, and at least somewhat lower the production of mosquitoes of all sorts.

The prohibition by legislation of the cultivation of rice within a certain distance of towns, a measure which has been carried out in Italy and in other regions, would not be practical in the prairie regions of the United States. Geiger and Purdy, by means of stained mosquitoes, found that *A. quadrimaculatus* will spread a distance of a mile or more from rice fields. Barber and Hayne (19), by means of a survey of daytime resting places, also found that *Anopheles* in effective numbers would spread a distance of a mile from the rice fields. With towns and villages as thick as they are in some portions of Louisiana, therefore, a large proportion of the land, often little fit for anything but rice, would have to be abandoned or only partially used.

Screening and quinine, already mentioned, are certainly among the best of antimalaria measures in the rice country, as elsewhere. Education as regards the early and thorough treatment of attacks and as to the proper use of screens and other mechanical protection against *Anopheles*, is, of course, to be encouraged in every way. The elimination of carriers is important in any locality. Sixty-four persons in Louisiana whom we found infected with malaria parasites in 1923 were reexamined in 1924, and 28.1 per cent were again found positive. The general parasite index of the region during 1924, as indicated by the examination of 1,173 blood specimens of school children, was only 3.7 per cent.

Destruction of adult mosquitoes in houses may be an excellent measure, especially in case of an epidemic (12) (13). The disposition

of animals at strategic points in order to intercept or divert mosquito attacks, a measure practiced in Java (12), would hardly be practical in the prairie rice country of the United States. With the immense numbers of *Anopheles* present even a human cordon seems unavailing. We found that large numbers of *A. quadrimaculatus* will penetrate a thickly populated town for a distance of at least a quarter of a mile.

DISCUSSION

In considering the effect of the cultivation of rice on malaria we must keep in mind the fact that the diminution of malaria or the maintenance of a comparatively low rate of the disease in spite of the presence of numerous *Anopheles* is a phenomenon by no means peculiar to the rice regions, although it is more striking there on account of the large numbers of *Anopheles* present. Further, in some parts of the world, high endemic and epidemic malaria may occur in rice regions, and the history of malaria in some rice regions now relatively exempt from the disease indicates that malaria was formerly intense in them. Apparently the amelioration in malaria prevalence in *Anopheles*-infested regions occurs only where improved agriculture or other social factor has brought about a general economic improvement in the condition of the people, an improvement which may have been the more rapid and complete where rice cultivation was introduced into swamps or into a prairie country little adapted to other sorts of crops. It would seem that, with even a moderate betterment of social conditions, malaria in the United States tends to disappear or become relatively inconsiderable provided such improvement is general. Or, to state the proposition in another way, the maintenance of high endemic malaria requires a permanent reservoir of infection such as is furnished by a considerable body of people lacking proper housing, proper food, and adequate medical treatment. Now that pioneer conditions of life have in most parts of the country disappeared or have become modified, it is usually a certain type of renter class which provides the necessary reservoir of infection. It is well known that the impoverishment of a people or the introduction into it of unprotected temporary labor or soldiers may bring about an increase in malaria. The economic factor, then, is an important one and should receive due emphasis.

We do not wish to discourage the use of antimosquito measures or to regard such as unimportant. In regions where it is feasible to eliminate or greatly reduce *Anopheles*, such measures should be practiced; but where the *Anopheles* link in the chain of transmission of malaria is too strong to break, conditions are still far from discouraging, as is shown by the prairie rice regions of the United States where malaria remains at a comparatively low level without any conscious antimalaria work and in spite of an abundance of *Anopheles*. In

malaria work we must decide where to expend the greatest effort, a problem which must vary greatly in different regions.

It would seem that the study of regions of the type of the prairie rice country might afford malaria workers some hints as to means suitable for antimalaria work generally; but when we come to analyze the conditions found there, or try to evaluate the different factors comprised under the term "social improvement," it is difficult to determine which of them has had the most effect on malaria reduction. Screening and other precautions against mosquito bites, although by no means universally practiced in the rice regions of the United States, and employed but little in such regions of Italy, have doubtless been of direct influence against malaria. The use of quinine and medical treatment of malaria in general have probably improved. Less direct measures, such as improvement in food, housing, hours of labor, water supply, and the like, have doubtless been of weight, since all tend to maintain a higher physical level and to prevent relapse of malaria attacks. It would seem that nearly every phase of economic improvement has had some effect on the reduction of malaria.

The work of the health officer in regions where the presence of numerous *Anopheles* is inevitable is, of course, limited. He may encourage screening and general betterment of tenant houses, a work which is already under way in certain States. He may make quinine as abundantly and cheaply available as possible. Education of the people may encourage the proper use of screens and the early and thorough use of quinine. In certain malarious regions the inhabitants may be unduly disposed to await relief from the outside. In such regions the lesson of the prairie rice country may be applied and the people taught that a good part of the remedy lies in themselves, and that a betterment of conditions of living may bring about a considerable amelioration in malaria, even though mosquitoes are not immediately abolished.

Irrigated regions where a high anopheline rate is inevitable should be kept under hygienic supervision, even though the malaria rate be inconsiderable. Such regions should be regarded as being in a state of less stable equilibrium, and possible epidemics should be looked out for and detected as early as possible. But in the prairie rice regions of the southern United States conditions are now such that malaria should be no deterrent to the prospective immigrant that is willing to take comparatively simple precautions to protect himself. Among such precautions, screening, and proper treatment in case of an attack probably stand first.

SUMMARY

In the prairie rice region of the southern United States conditions favor a large production of *Anopheles*. *A. quadrimaculatus*, an efficient vector of malaria, is the predominant species, and *Anopheles* are very abundant from June to September, inclusive, a period of sufficiently high temperature to favor the transmission of malaria. There does not appear to be any biological factor having to do with the mosquito or its breeding places which would prevent these mosquitoes from being an efficient vector of malaria. Malaria of both the estivo-autumnal and the benign tertian types is present in the rice region; but the rate is low and the malaria problem is not a serious one. Attacks of malaria, when they occur, are usually comparatively mild, and deaths from the disease are rare. The economic and hygienic status of the rural population in the rice region is relatively good, and this high general status is probably the most important factor in keeping the malaria rate at a comparatively low level. Conditions are such in the prairie rice regions that the fear of malaria should be no deterrent to immigration, provided simple precautions are taken by the immigrant; but, like any region heavily infested with *Anopheles*, the prairie rice country should be kept under hygienic supervision.

ACKNOWLEDGMENT

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PUBLIC HEALTH ENGINEERING ABSTRACTS

The 1926 Tourist Camp Survey.—Lewis S. Finch, director, water and sewage department. *Monthly Bulletin*, Indiana State Board of Health, vol. 29, No. 8, August, 1926, pp. 117–118. (Abstract by I. W. Mendelsohn.)

Supervision of tourist camps in Indiana was begun by the State board of health in 1923. At present there are about 325 such camps.

From May 20, 1926, to August 1, 1926, 227 camps were inspected. The inspector takes samples of all camp water supplies, investigates the methods of sewage and garbage disposal, and discusses unsatisfactory conditions with the owner or operator. When the laboratory examination of the water sample is completed, a report of the survey with recommendations is sent to the camp owner and to the health official in whose district the camp is located.

The work in the past has been productive of good results, as shown in the following table:

Sanitary conditions of Indiana tourist camps inspected

Item	1923		1924		1925	
	Total number	Per cent good	Total number	Per cent good	Total number	Per cent good
Water supplies	99	74	174	74	184	81
Sewage disposal	97	15	181	48	186	84
Garbage disposal	93	16	174	71	192	82

Camp Sanitation is an Important Public Health Problem.—Charles G. Cox, division of sanitation, New York State Department of Health, Albany, N. Y. *The Nation's Health*, vol. 8, No. 7, July 15, 1926, pp. 459–461. (Abstract by Paul S. Fox.)

Close cooperation between State divisions of sanitary engineering and local health officers is important, because most camp sanitation problems are of an engineering nature.

Camp site.—A camp is best located on western shore of stream or lake, since timbered section offers shade from hot afternoon sun. Soil should be porous and dry. Site should be free from mosquito breeding places.

Water supply.—Drinking water should be obtained from unpolluted springs or wells. Larger camps sometimes maintain their own filter plants. Camps should be supplied with hypochlorite for emergency sterilization. Dual water supplies should not be allowed.

Sewage disposal.—Flush toilets should be used whenever possible. Sanitary privies or chemical toilets may be used.

Garbage disposal.—Garbage should be disposed of daily by either burying or burning.

Milk supply.—Pasteurized milk should be provided, and, if possible, it should come from a tuberculin tested herd. Milk should be stored in properly sterilized containers and kept at low temperatures.

The sanitary condition of camps depends not only upon the character of equipment but upon the degree of supervision by the camp authorities.

Administrative Phases of Stream-Pollution Control.—J. E. Monger, State director of health, Columbus, Ohio. *American Journal of Public Health*, vol. 16, No. 8, August, 1926, pp. 788–804. (Abstract by J. H. O'Neill.)

The effects of pollution may differ in various communities, but in general they may be classified somewhat as follows: (1) The menace of a contaminated public water supply; (2) the creation of nuisance otherwise affecting public health and comfort; (3) the damage to property with resulting depreciation of values; (4) the killing of fish and other natural stream life; (5) the damage to livestock; (6) the impairment of recreational facilities and destruction of bathing places; (7) the damage to public and private river and harbor improvements and navigation.

The general administrative features to be invoked in dealing with this problem are common to all States, and the necessity for meeting the problem is present in all of them. The underlying principles will vary but little; but variants, such as the quantity and quality of the various polluting agencies, the proximity of these points of discharge to water-supply intakes, and other important factors, render

a hard-and-fast consideration of administrative policies difficult. The paper deals principally with the general underlying principles employed in Ohio.

The Ohio law gives the State health department the same control over industrial wastes that it had over municipal wastes. It gives the public health council power to make regulations designed to meet the varying needs of different watersheds. It limits the pollution problem to its present dimensions and permits the orderly consideration of each individual watershed according to the necessities of the case. An important feature of the law is that permitting the coordination of municipal and industrial effort.

The things necessary to meet the problem of a future uncontaminated water supply are summarized as follows: Drive home its necessity and importance; develop a civic and industrial conscience that will not permit indiscriminate destruction of a great public asset; exercise a common sense degree of patience pending the development of economically possible methods of meeting the problem.

The question of the advisability of Federal legislation at the present time is a debatable one. In dealing with interstate problems the joint actions of the respective States and the cooperation of Federal agencies is most important. (Abstractor's note: The above paper is part of a symposium on the subject presented at the meeting of the American Public Health Association at Atlantic City, May 20, 1926. The discussion published with the papers contains much of interest.)

Administration Problems in the Control of Pollution in Streams.—George W. Fuller. *American Journal of Public Health*, vol. 16, No. 8, August 1926. pp. 777–781. (Abstract by J. H. O'Neill.)

Although much progress has been made in the last 30 years, particularly with reference to the quality of public water supplies, the problem is far from complete solution. Gross nuisances in our streams abound and new ones come to affect those corrected. It is pointed out that the lack and failure of control of stream pollution can not be attributed to deficiencies in engineering knowledge or to the absence of legal and legislative measures for preventing pollution.

The answer to the question "Why is not stream pollution under better control?" is to be found in the shortcomings of present administrative facilities for carrying out suitable remedies designed to meet the demands of legislative acts, when interpreted in the light of the needs of the public from health and welfare standpoints. Popular support and adequate funds are needed for effective work.

There are two types of administrative problems: One relating to the local or decentralized or internal problems for the particular locality in question, the other having to do with group, district,

regional, or Federal type of control. A discussion is given of each group.

A Model Milk Pasteurization Plant.—Anon. *The Medical Officer*, vol. 36, No. 2, July 10, 1926, pp. 19–20. (Abstract by H. A. Kroeze.)

This article states that while Great Britain has been slow to adopt the methods of milk production and distribution which have been perfected in some of the cities of the United States, it is not yet generally realized what progress has been made in this direction during the last few years. In London especially the great organization known as United Dairies (Ltd.) has established standards of efficiency in the handling of milk supplies that would have been thought unattainable only a few years ago.

On June 29 the new pasteurizing plant at Valley Farm, Streatham, was opened. Competent judges, both American and European, have declared this plant as second to none in either hemisphere. The article gives a brief description of the plant, and methods of receiving, pasteurizing, and bottling of the milk. Of particular interest are the methods used for washing bottles and cans—each utensil being washed for 20 minutes by an elaborate process—a description of which is given.

A brief note is made of the arrangements for the welfare of the staff, which are on a scale never before attempted in the dairy trade. These provide for rest rooms, two restaurants (men and women), bath rooms, drying rooms for roundsmen's clothes, laundry, and playing fields. There are also large and fully equipped stables with accommodation for 100 vans and horses.

DEATHS DURING WEEK ENDED OCTOBER 23, 1926

Summary of information received by telegraph from industrial insurance companies for week ended October 23, 1926, and corresponding week of 1925. (From the Weekly Health Index, October 27, 1926, issued by the Bureau of the Census, Department of Commerce)

	Week ended Oct. 23, 1926	Corresponding week, 1925
Policies in force	65, 641, 744	61, 666, 572
Number of death claims	11, 169	11, 350
Death claims per 1,000 policies in force, annual rate	8. 9	9. 6

Deaths from all causes in certain large cities of the United States during the week ended October 23, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, October 27, 1926, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Oct. 23, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended Oct. 23, 1926 [2]
	Total deaths	Death rate [1]		Week ended Oct. 23, 1926	Corresponding week, 1925	
Total (65 cities)	6,279	11.3	12.0	750	765	[3] 62
Akron	33			6	1	65
Albany [4]	34	14.9	12.8	4	3	83
Atlanta	77			6	7	
White	35			3		
Colored	42	(5)		3		
Baltimore [4]	196	12.6	14.1	27	24	82
White	140			16		60
Colored	56	(5)		11		175
Birmingham	78	19.3	12.7	8	8	
White	37			4		
Colored	41	(5)		4		
Boston	206	13.6	12.4	33	24	92
Bridgeport	28			3	3	51
Buffalo	138	13.2	16.2	18	10	75
Cambridge	27	11.5	10.0	6	3	107
Camden	26	10.3	13.8	5	6	84
Canton	20	9.5	9.3	6	1	132
Chicago [4]	601	10.3	10.4	58	73	51
Cincinnati	122	15.5	15.8	11	10	69
Cleveland	175	9.5	10.1	19	18	49
Columbus	73	13.4	13.6	14	2	131
Dallas	49	12.8	12.9	11	11	
White	43			10		
Colored	6	(5)		1		
Dayton	37	10.9	10.9	4	8	66
Denver	77	14.1	17.1	10	12	
Des Moines	25	8.9	10.7	1	1	17
Detroit	271	11.0	10.8	52	47	85
Duluth	29	13.4	11.8	2	7	46
El Paso	18	8.6	11.4	3	4	
Erie	29			4	5	78
Fall River [4]	19	7.6	8.9	4	5	63
Flint	18	6.9	8.0	6	4	102
Fort Worth	27	8.9	6.2	5	3	
White	21			4		
Colored	6	(5)		1		
Grand Rapids	32	10.7	13.9	2	4	29
Houston	46			5	2	
White	33			3		
Colored	13	(5)		2		
Indianapolis	88	12.5	14.7	8	12	61
White	78			7		61
Colored	10	(5)		1		57
Jersey City	55	9.0	11.1	5	14	38
Kansas City, Kans	35	15.6	15.3	8	6	155
White	29			7		156
Colored	6	(5)		1		152
Kansas City, Mo	67	9.8	11.1	3	8	
Los Angeles	196			16	24	45
Louisville	98	16.4	15.5	8	11	68
White	73			7		68
Colored	25	(5)		1		70
Lowell	33			2	0	39
Lynn	15	7.5	7.6	2	2	53
Memphis	44	13.0	16.1	6	4	
White	22			3		
Colored	22	(5)		3		
Milwaukee	91	9.2	10.2	14	17	66
Minneapolis	80	9.6	9.4	3	3	17

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, Oct. 22, 1926.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended October 23, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, October 27, 1926, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Oct. 23, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended Oct. 23, 1926
	Total deaths	Death rate		Week ended Oct. 23, 1926	Corresponding week, 1925	
Nashville [4]	45	17.1	16.5	4	8	
White	22			2		
Colored	23	(5)		2		
New Bedford	30			6	3	101
New Haven	33	9.5	12.2	0	4	0
New Orleans	126	15.7	19.0	11	9	
White	85			5		
Colored	41	(5)		6		
New York	1,253	11.0	11.1	137	146	56
Bronx Borough	168	9.7	9.2	11	14	37
Brooklyn Borough	393	9.1	9.9	43	41	44
Manhattan Borough	543	15.1	14.9	67	76	74
Queens Borough	106	7.2	7.2	14	12	64
Richmond Borough	43	15.7	8.7	2	3	35
Newark, N. J	78	8.9	11.2	10	11	48
Norfolk	37	11.1	8.6	3	5	61
White	19			0		0
Colored	18	(5)		3		159
Oakland	59	11.8	10.5	6	5	70
Oklahoma City	28			4	6	
Omaha	43	10.4	16.8	6	5	64
Paterson	32	11.7	10.3	2	2	34
Philadelphia	473	12.3	13.1	62	59	83
Pittsburgh	147	12.0	13.7	25	24	83
Portland, Oreg	53			5	6	50
Providence	51	9.7	12.3	6	8	50
Richmond	43	11.9	10.4	6	8	75
White	26			1		19
Colored	17	(5)		5		173
Rochester	48	7.8	12.7	6	12	48
St. Louis	198	12.4	12.2	19	13	
St. Paul	64	13.5	11.0	5	4	44
Salt Lake City [4]	25	9.8	9.2	3	1	46
San Antonio	43	10.9	13.4	5	5	
San Diego	26	12.3	14.3	1	0	21
San Francisco	103	9.5	14.0	3	9	18
Schnectady	18		10.1	0	2	0
Seattle	65			1	2	10
Somerville	11	5.7	13.7	0	4	0
Spokane	35	16.7	14.4	3	2	70
Springfield, Mass	30	10.8	11.7	2	3	31
Syracuse	42	11.9	12.0	9	6	114
Toledo	53	9.4	13.6	11	11	106
Trenton	27	10.5	11.1	2	5	34
Utica	34	17.2	13.3	5	3	114
Washington, D. C	118	11.7	14.0	15	11	86
White	78			12		100
Colored	40	(5)		3		55
Waterbury	15			0	5	0
Wilmington, Del	22	9.3	12.0	1	3	22
Worcester	46	12.4	13.9	8	7	96
Yonkers	15	6.7	7.3	0	1	0
Youngstown	30	12.5	8.2	8	4	101

[4] Deaths for week ended Friday, Oct. 22, 1926

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Week Ended October 30, 1926

ALABAMA

	Cases
Chicken pox	4
Diphtheria	75
Influenza	32
Malaria	105
Measles	6
Mumps	7
Pellagra	4
Pneumonia	36
Scarlet fever	38
Tetanus	1
Trachoma	7
Tuberculosis	104
Typhoid fever	45
Typhus fever	1
Whooping cough	14

ARIZONA

Cerebrospinal meningitis	1
Diphtheria	8
Measles	36
Mumps	1
Scarlet fever	12
Trachoma	6
Tuberculosis	8
Typhoid fever	3
Whooping cough	3

ARKANSAS

Chicken pox	7
Diphtheria	17
Influenza	71
Malaria	83
Measles	1
Mumps	1
Paratyphoid fever	3
Pellagra	6
Scarlet fever	15
Smallpox	2
Tuberculosis	9
Typhoid fever	30
Whooping cough	10

COLORADO

	Cases
Cerebrospinal meningitis	1
Chicken pox	13
Diphtheria	16
Measles	8
Mumps	2
Pneumonia	2
Scarlet fever	42
Tuberculosis	37
Typhoid fever	7
Whooping cough	7

CONNECTICUT

Chicken pox	79
Diphtheria	28
Dysentery (bacillary)	1
German measles	1
Influenza	5
Lethargic encephalitis	1
Measles	11
Mumps	8
Pneumonia (broncho)	15
Pneumonia (lobar)	16
Poliomyelitis	4
Scarlet fever	48
Septic sore throat	76

DELAWARE

Chicken pox	6
Diphtheria	8
Measles	3
Pneumonia	2
Scarlet fever	25
Tuberculosis	1
Typhoid fever	12
Whooping cough	2

FLORIDA

Chicken pox	2
Diphtheria	70
Dysentery (amebic)	1
Influenza	5

FLORIDA—continued	Cases
Malaria	11
Measles	1
Mumps	4
Pneumonia	1
Scarlet fever	14
Smallpox	6
Tetanus	1
Tuberculosis	17
Typhoid fever	7
Whooping cough	5

GEORGIA

Chicken pox	5
Dengue	3
Diphtheria	91
Dysentery	3
Hookworm disease	2
Influenza	53
Malaria	80
Measles	4
Mumps	6
Paratyphoid fever	1
Pellagra	1
Pneumonia	29
Scarlet fever	24
Septic sore throat	24
Smallpox	11
Tuberculosis	20
Typhoid fever	31
Typhus fever	2
Whooping cough	9

IDAHO

Chicken pox	5
Diphtheria	5
Measles	6
Mumps	1
Pneumonia	1
Scarlet fever	30
Septic sore throat	2
Typhoid fever	2
Whooping cough	2

ILLINOIS

Cerebrospinal meningitis—Cook County	1
Chicken pox	239
Diphtheria	130
Influenza	24
Lethargic encephalitis:	
Cook County	1
Menard County	1
Measles	219
Mumps	35
Pneumonia	198
Poliomyelitis—Cook County	4
Scarlet fever	211
Smallpox	3
Tuberculosis	269
Typhoid fever	85
Whooping cough	211

IOWA

Chicken pox	35
Diphtheria	31
German measles	1

IOWA—continued	Cases
Measles	3
Mumps	3
Scabies	2
Scarlet fever	44
Smallpox	5
Tuberculosis	3
Typhoid fever	6
Whooping cough	15

KANSAS

Cerebrospinal meningitis—Coffeeville	1
Chicken pox	79
Diphtheria	63
Influenza	4
Measles	42
Mumps	7
Pneumonia	18
Poliomyelitis:	
Inman	1
Smith Center	1
Stafford	1
Scarlet fever	57
Septic sore throat	1
Smallpox	5
Typhoid fever	12
Whooping cough	37

LOUISIANA

Bubonic plague (imported)[1]	2
Diphtheria	37
Influenza	8
Leprosy	1
Malaria	56
Pneumonia	19
Scarlet fever	10
Tuberculosis	39
Typhoid fever	24

MAINE

Chicken pox	63
Diphtheria	6
German measles	4
Influenza	14
Measles	76
Mumps	1
Pneumonia	7
Poliomyelitis	1
Scarlet fever	20
Septic sore throat	1
Tuberculosis	8
Typhoid fever	4
Whooping cough	37

MARYLAND [2]

Chicken pox	32
Diphtheria	42
Dysentery	4
German measles	1
Influenza	8
Lethargic encephalitis	1
Measles	4
Mumps	8
Paratyphoid fever	2
Pellagra	1

[1] See page 25-59.

[2] Week ended Friday.

MARYLAND—continued	Cases
Pneumonia (broncho)	18
Pneumonia (lobar)	18
Poliomyelitis	1
Scarlet fever	45
Septic sore throat	1
Tuberculosis	26
Typhoid fever	50
Vincent's angina	4
Whooping cough	70

MASSACHUSETTS

Cerebrospinal meningitis	2
Chicken pox	180
Conjunctivitis (suppurative)	6
Diphtheria	92
German measles	8
Influenza	8
Lethargic encephalitis	2
Measles	39
Mumps	73
Ophthalmia neonatorum	40
Pellagra	1
Pneumonia (lobar)	58
Poliomyelitis	6
Scarlet fever	246
Septic sore throat	4
Tuberculosis (pulmonary)	91
Tuberculosis (other forms)	23
Typhoid fever	13
Whooping cough	97

MICHIGAN

Diphtheria	211
Measles	20
Pneumonia	71
Scarlet fever	204
Smallpox	14
Tuberculosis	231
Typhoid fever	21
Whooping cough	134

MISSISSIPPI

Diphtheria	39
Poliomyelitis	1
Scarlet fever	20
Smallpox	1
Typhoid fever	19

MISSOURI

(Exclusive of Kansas City)

Chicken pox	33
Diphtheria	68
Epidemic sore throat	1
Influenza	16
Malaria	1
Measles	14
Scarlet fever	93
Smallpox	2
Trachoma	8
Tuberculosis	22
Typhoid fever	17
Whooping cough	18

MONTANA

	Cases
Cerebrospinal meningitis	2
Chicken pox	25
Diphtheria	4
Measles	84
Mumps	1
Scarlet fever	67
Smallpox	3
Trachoma	2
Typhoid fever	10
Whooping cough	4

NEBRASKA

Chicken pox	18
Diphtheria	21
German measles	2
Measles	1
Mumps	5
Pneumonia	1
Poliomyelitis	1
Scarlet fever	18
Smallpox	3
Tuberculosis	1
Whooping cough	11

NEW JERSEY

Cerebrospinal meningitis	2
Chicken pox	43
Diphtheria	86
Influenza	1
Measles	7
Paratyphoid fever	1
Pneumonia	66
Poliomyelitis	1
Scarlet fever	100
Trachoma	1
Typhoid fever	23
Whooping cough	101

NEW MEXICO

German measles	1
Malaria	1
Pneumonia	4
Scarlet fever	16
Tuberculosis	29
Typhoid fever	23
Whooping cough	4

NEW YORK

(Exclusive of New York City)

Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	242
Diphtheria	82
Dysentery	1
German measles	22
Malaria	1
Measles	224
Mumps	62
Ophthalmia neonatorum	3
Pneumonia	144
Poliomyelitis	12
Scarlet fever	89
Septic sore throat	1
Smallpox	11

NEW YORK—continued

	Cases
Tetanus	1
Typhoid fever	40
Vincent's angina	21
Whooping cough	203

NORTH CAROLINA

Chicken pox	24
Diphtheria	217
German measles	5
Malaria	3
Measles	51
Poliomeylitis	2
Scarlet fever	99
Septic sore throat	2
Smallpox	13
Typhoid fever	35
Whooping cough	220

OREGON

Cerebrospinal meningitis	1
Chicken pox	24
Diphtheria	17
Influenza	10
Measles	17
Mumps	7
Pneumonia	[1] 7
Poliomyelitis	1
Scarlet fever	37
Septic sore throat	1
Smallpox	29
Tuberculosis	[1] 4
Typhoid fever	2
Whooping cough	3

SOUTH DAKOTA

Chicken pox	2
Diphtheria	1
Measles	8
Scarlet fever	16
Typhoid fever	1
Whooping cough	6

TENNESSEE

Chicken pox	1
Diphtheria	63
Influenza	29
Malaria	24
Measles	5
Mumps	2
Pellagra	8
Pneumonia	10
Scarlet fever	53
Smallpox	3
Tuberculosis	14
Typhoid fever	59
Whooping cough	35

TEXAS

Chicken pox	1
Diphtheria	40
Influenza	20
Mumps	1
Pneumonia	3
Scarlet fever	19

[1] Deaths.

TEXAS—continued

	Cases
Tuberculosis	10
Typhoid fever	14
Whooping cough	18

UTAH

Chicken pox	38
Diphtheria	7
German measles	19
Influenza	3
Measles	138
Pneumonia	4
Poliomyelitis—Monroe	1
Scarlet fever	19
Smallpox	2
Typhoid fever	3
Whooping cough	9

VERMONT

Chicken pox	23
Diphtheria	3
Measles	82
Mumps	14
Scarlet fever	1
Whooping cough	35

VIRGINIA

Smallpox	1

WASHINGTON

Cerebrospinal meningitis:	
Douglas County	1
Spokane	1
Chicken pox	75
Diphtheria	23
German measles	3
Measles	33
Mumps	32
Pneumonia	1
Scarlet fever	50
Septic sore throat	1
Smallpox	11
Tuberculosis	2
Typhoid fever	16
Whooping cough	11

WEST VIRGINIA

Cerebrospinal meningitis—Wood County	1
Chicken pox	16
Diphtheria	54
Influenza	19
Measles	8
Poliomyelitis—Morgantown	2
Scarlet fever	84
Smallpox	2
Tuberculosis	24
Typhoid fever	62
Whooping cough	55

WYOMING

Chicken pox	12
Diphtheria	1
Measles	13
Mumps	1
Scarlet fever	14
Whooping cough	2

Reports for Week Ended October 23, 1926

DISTRICT OF COLUMBIA

	Cases
Chicken pox	5
Diphtheria	18
Pneumonia	19
Scarlet fever	15
Tuberculosis	13
Whooping cough	7

NORTH DAKOTA

	Cases
Chicken pox	12
Diphtheria	6
German measles	6
Lethargic encephalitis	1
Measles	93
Mumps	9
Paratyphoid fever	1
Pneumonia	3
Scarlet fever	39
Smallpox	11
Trachoma	3
Tuberculosis	5
Typhoid fever	13
Whooping cough	22

SOUTH CAROLINA

	Cases
Chicken pox	10
Dengue	2
Diphtheria	101
Hookworm disease	23
Influenza	247
Malaria	720
Measles	17
Paratyphoid fever	4
Pellagra	39
Poliomyelitis	3
Scarlet fever	16
Smallpox	2
Tuberculosis	28
Typhoid fever	54
Whooping cough	31

PLAGUE ON VESSEL AT NEW ORLEANS

The Japanese steamship *Manila Maru* from Pacific ports, Buenos Aires, Argentina, and Rio de Janeiro and Santos, Brazil, arrived at New Orleans on October 24 with two human cases of bubonic plague. The patients were removed to the United States Marine Hospital, where one patient subsequently died. Diagnosis in both cases was confirmed clinically and bacteriologically. The steamer is now in process of complete deratization, which requires several fumigations during the discharge of cargo to prevent live rats from remaining in the cargo. Fumigations to date have yielded 130 rats, of which 6 of the species *alexandrinus* have been found to be infected. After complete discharge, the vessel will be given thorough fumigation throughout and will be surveyed by a service employee, an expert in ship rat-proofing, sent especially from New York for this purpose, in order to locate the breeding places of rats on the ship and permanently to eliminate all these in so far as possible. The vessel is bound for Galveston, Cristobal, and San Pedro.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1926										
Pennsylvania	5	514	----	0	2,979	0	3	755	2	113
September, 1926										
Alabama	2	141	45	529	57	45	3	66	15	393
California	13	503	60	14	1,289	3	35	425	34	127
Colorado	0	90	----	----	22	1	1	54	14	52
Florida	0	80	6	31	27	3	1	19	39	48
Idaho	1	28	1	0	9	0	4	48	2	27
Illinois	11	273	93	15	236	2	23	376	26	308
Kansas	6	48	17	3	37	1	21	139	8	124
Maine	0	13	7	0	82	0	1	81	0	33
Mississippi	0	145	1,330	12,262	246	569	6	36	4	418
Missouri	0	93	12	7	49	----	5	157	8	162
Montana	3	29	----	----	18	----	0	74	9	16
North Carolina	1	432	----	106	62	----	16	213	30	335
Oklahoma [1]	1	122	146	707	36	40	7	86	2	535
South Dakota	0	9	3	----	90	----	2	94	0	11
Washington	10	110	6	----	39	----	1	159	59	62

[1] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended October 16, 1926, 37 States reported 1,858 cases of diphtheria. For the week ended October 17, 1925, the same States reported 1,742 cases of this disease. One hundred cities, situated in all parts of the country and having an aggregate population of more than 30,260,000, reported 960 cases of diphtheria for the week ended October 16, 1926. Last year for the corresponding week they reported 855 cases. The estimated expectancy for these cities was 1,133 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-five States reported 1,408 cases of measles for the week ended October 16, 1926, and 766 cases of this disease for the week ended October 17, 1925. One hundred cities reported 253 cases of measles for the week this year, and 386 cases last year.

Poliomyelitis.—The health officers of 37 States reported 66 cases of poliomyelitis for the week ended October 16, 1926. The same States reported 180 cases for the week ended October 17, 1925.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-six States—this year, 2,064 cases; last year, 1,563 cases; 100 cities—this year, 752 cases; last year, 692 cases; estimated expectancy, 639 cases.

Smallpox.—For the week ended October 16, 1926, 37 States reported 119 cases of smallpox. Last year for the corresponding week they reported 111 cases. One hundred cities reported smallpox for the week as follows: 1926, 23 cases; 1925, 45 cases; estimated expectancy,

22 cases. No deaths from smallpox were reported by these cities for the week this year.

Typhoid fever.—One thousand and thirty-seven cases of typhoid fever were reported for the week ended October 16, 1926, by 36 States. For the corresponding week of 1925, the same States reported 864 cases of this disease. One hundred cities reported 184 cases of typhoid fever for the week this year and 198 cases for the corresponding week last year. The estimated expectancy for these cities was 177 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 94 cities, with a population of more than 29,560,000, as follows: 1926, 475 deaths; 1925, 534 deaths.

City reports for week ended October 16, 1926

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1917 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	6	1	0	0	0	1	0	2
New Hampshire:									
Concord	22,546	0	0	0	0	0	1	0	0
Manchester	83,097	0	4	0	0	0	0	0	0
Vermont:									
Barre	10,008	1	0	0	0	0	2	0	0
Burlington	24,089	2	0	0	0	0	0	0	2
Massachusetts:									
Boston	779,620	13	47	15	0	0	5	20	13
Fall River	128,993	0	4	0	2	0	0	1	2
Springfield	142,065	1	4	1	0	0	0	0	2
Worcester	190,757	15	7	7	1	0	0	0	4
Rhode Island:									
Pawtucket	69,760	2	1	2	0	0	0	1	0
Providence	267,918	0	5	2	0	2	1	0	6
Connecticut:									
Bridgeport	(1)	0	9	4	0	0	1	2	0
Hartford	160,197	----	7	----	----	----	----	----	----
New Haven	178,927	1	3	2	0	0	0	0	2
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	24	21	7	----	0	2	0	5
New York	5,873,356	42	141	122	27	5	5	33	116
Rochester	316,786	1	11	0	----	0	3	0	2
Syracuse	182,003	0	9	1	----	0	4	0	2
New Jersey:									
Camden	128,642	2	7	18	0	0	1	0	3
Newark	452,513	12	13	5	0	0	1	2	8
Trenton	132,020	0	5	3	0	0	0	0	2

[1] No estimate made.

City reports for week ended October 16, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC—con.									
Pennsylvania:									
Philadelphia	1,979,364	17	64	29	----	2	0	4	31
Pittsburgh	631,563	40	31	15	----	2	3	2	7
Reading	112,707	5	4	0	----	0	0	1	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	5	17	14	1	0	1	0	4
Cleveland	936,485	17	47	50	1	1	5	0	15
Columbus	279,836	0	7	9	0	0	1	0	2
Toledo	287,380	22	13	5	0	0	2	0	0
Indiana:									
Fort Wayne	97,846	3	3	7	0	0	1	0	1
Indianapolis	358,819	22	14	19	0	1	2	0	6
South Bend	80,091	8	2	2	0	0	0	0	2
Terre Haute	71,071	7	2	1	0	0	0	0	3
Illinois:									
Chicago	2,995,239	31	126	66	16	0	28	10	29
Peoria	81,564	0	2	0	0	0	25	5	3
Springfield	63,923	2	2	0	0	0	6	0	1
Michigan:									
Detroit	1,245,824	26	59	125	1	1	1	9	13
Flint	130,316	7	12	7	0	0	2	1	3
Grand Rapids	153,698	1	6	2	0	0	1	1	2
Wisconsin:									
Kenosha	50,801	1	1	0	0	0	0	0	1
Madison	46,385	0	1	1	0	0	0	0	2
Milwaukee	509,192	36	23	17	0	0	5	13	9
Racine	67,707	4	2	1	0	0	0	3	0
Superior	39,671	0	1	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	4	4	1	0	0	14	0	1
Minneapolis	425,435	28	31	34	0	0	2	0	3
St. Paul	246,001	15	20	12	0	3	1	0	5
Iowa:									
Davenport	52,469	1	2	0	0	----	2	0	----
Des Moines	141,441	0	9	1	0	----	0	0	----
Sioux City	76,411	2	3	1	0	----	2	1	----
Waterloo	36,771	12	1	0	0	----	1	0	----
Missouri:									
Kansas City	367,481	9	13	2	2	2	0	0	7
St. Joseph	78,342	1	3	0	0	0	0	0	0
St. Louis	821,543	10	47	52	0	0	1	2	----
North Dakota:									
Fargo	26,403	3	0	0	0	0	1	3	0
Grand Forks	14,811	0	0	0	0	----	2	0	----
South Dakota:									
Aberdeen	15,036	2	0	0	0	----	0	0	----
Sioux Falls	30,127	1	1	0	0	0	0	0	0
Nebraska:									
Lincoln	60,941	2	1	3	0	1	0	0	2
Omaha	211,768	1	13	0	0	0	0	0	6
Kansas:									
Topeka	55,411	4	2	0	0	0	0	0	0
Wichita	88,367	1	4	2	0	0	0	0	3
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	0	3	1	0	0	0	0	2
Maryland:									
Baltimore	796,296	15	27	20	5	1	4	2	17
Cumberland	33,741	0	1	1	0	0	0	0	0
Frederick	12,035	0	1	2	0	0	0	0	0
District of Columbia:									
Washington	497,906	2	15	13	0	0	1	0	8

City reports for week ended October 16, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.									
Virginia:									
Lynchburg	30,395	0	2	3	0	0	0	0	0
Norfolk	(1)	11	3	5	0	0	0	0	3
Richmond	186,403	0	22	24	0	1	2	0	5
Roanoke	58,208	0	5	10	0	0	0	0	1
West Virginia:									
Charleston	49,019	0	3	0	0	0	0	0	0
Huntington	63,485	0	4	6	0		0	0	
Wheeling	56,208	0	3	0	0	0	1	0	1
North Carolina:									
Raleigh	30,371	1	4	5	0	0	0	0	1
Wilmington	37,061	0	1	1	0	0	0	0	0
Winston-Salem	69,031	0	4	4	0	0	0	0	2
South Carolina:									
Charleston	73,125	0	1	3	25	0	0	0	3
Columbia	41,225	0	3	2	0	0	0	0	0
Greenville	27,311	0	1	4	0	0	0	0	0
Georgia:									
Atlanta	(1)	2	10	15	4	0	3	1	2
Brunswick	16,809	0	0	0	0	0	0	9	0
Savannah	93,134	0	4	0	1	1	0	0	2
Florida:									
Miami	69,754	0		5	3	0	0	0	1
St. Petersburg	26,847		0			0			0
Tampa	94,743	0	1	3	0	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	3	8	0	0	0	0	0
Louisville	305,935	4	12	0	1	0	0	0	4
Tennessee:									
Memphis	174,533	5	13	7	0	0	0	0	4
Nashville	136,220	0	4	28	0	1	0	0	2
Alabama:									
Birmingham	205,670	0	7	0	0	0	0	1	0
Mobile	65,955	0	2	1	0	2	0	0	0
Montgomery	46,481	0	3	8	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	1	2	2	0		2	0	
Little Rock	74,216	0	2	0	0	0	0	0	2
Louisiana:									
New Orleans	414,493	0	10	1	3	2	0	0	10
Shreveport	57,857	0	0	2	0	0	0	0	1
Oklahoma:									
Oklahoma City	(1)	0	3	2	13	0	0	0	0
Texas:									
Dallas	194,450	4	9	21	0	0	0	0	3
Galveston	48,375	0	0	2	0	0	0	0	1
Houston	164,954	0	3	21	0	1	1	0	3
San Antonio	198,069	0	1	2	0	0	0	0	4
MOUNTAIN									
Montana:									
Billings	17,971	1	0	0	0	0	0	0	0
Great Falls	29,883	11	1	0	0	0	0	0	2
Helena	12,037	0	0	0	0	0	0	0	1
Missoula	12,668	3	0	0	0	0	0	0	1
Idaho:									
Boise	23,042		1	0	0	0	0		0
Colorado:									
Denver	280,911	1	14	15		3	3	0	5
Pueblo	43,787	4	5	0	0	0	0	0	0
New Mexico:									
Albuquerque	21,000	1	1	0	0	0	0	0	1

[1] No estimate made.

City reports for week ended October 16, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—continued									
Arizona:									
Phoenix	38,669	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City	130,948	9	4	3	0	0	23	0	4
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	37	7	14	0	----	3	16	----
Spokane	108,897	13	4	4	0	----	3	0	----
Tacoma	104,455	5	3	5	0	1	1	0	2
Oregon:									
Portland	282,383	8	9	6	0	0	13	1	7
California:									
Los Angeles	(1)	11	38	25	3	1	3	7	9
Sacramento	72,260	0	2	5	1	0	5	1	5
San Francisco	557,530	19	17	12	2	1	93	7	7

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	1	0	0	0	0	0	1	2	0	3	17
New Hampshire:											
Concord	1	0	0	0	0	0	0	0	0	4	8
Manchester	1	0	0	0	0	1	0	0	0	0	----
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	4	2
Burlington	1	0	0	0	0	0	0	0	0	1	5
Massachusetts:											
Boston	24	31	0	0	0	12	4	17	2	18	191
Fall River	1	2	0	0	0	2	2	1	0	4	27
Springfield	5	0	0	0	0	1	0	0	0	2	35
Worcester	7	18	0	0	0	3	1	3	0	3	40
Rhode Island:											
Pawtucket	1	0	0	0	0	2	0	0	0	0	9
Providence	4	0	0	0	0	2	1	1	0	2	72
Connecticut:											
Bridgeport	3	5	0	0	0	0	1	0	0	0	16
Hartford	3	----	0	----	----	----	1	----	----	----	----
New Haven	4	0	0	0	0	1	3	0	0	4	35
MIDDLE ATLANTIC											
New York:											
Buffalo	13	6	0	0	0	10	3	2	2	12	139
New York	57	53	0	0	0	[2] 86	29	29	4	36	1,267
Rochester	6	3	0	0	0	3	2	2	0	3	61
Syracuse	6	2	0	0	0	2	1	2	0	17	57
New Jersey:											
Camden	2	5	0	0	0	2	1	0	0	1	26
Newark	8	3	0	0	0	11	3	1	0	22	93
Trenton	0	0	0	0	0	1	1	0	0	0	30
Pennsylvania:											
Philadelphia	41	42	0	0	0	38	12	12	1	34	449
Pittsburgh	28	9	0	0	0	16	3	3	0	11	148
Reading	1	1	0	0	0	3	1	1	0	5	23

[1] No estimate made.

[2] Pulmonary tuberculosis only.

City reports for week ended October 16, 1926—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	9	5	0	0	0	5	2	0	0	4	101
Cleveland	18	11	0	0	0	12	4	6	2	20	208
Columbus	7	8	1	0	0	5	2	2	0	2	71
Toledo	8	6	0	0	0	6	2	0	0	32	59
Indiana:											
Fort Wayne	1	1	1	0	0	2	1	2	0	0	23
Indianapolis	6	8	1	3	0	13	2	2	3	17	102
South Bend	2	1	0	0	0	0	0	0	0	2	13
Terre Haute	1	3	0	0	0	1	0	0	0	0	23
Illinois:											
Chicago	72	52	0	0	0	62	7	8	2	53	614
Peoria	9	3	0	0	0	1	0	0	0	1	20
Springfield	1	1	0	0	0	0	1	0	0	5	20
Michigan:											
Detroit	48	51	2	1	0	17	5	2	2	37	266
Flint	7	22	0	0	0	0	0	0	0	0	28
Grand Rapids	6	8	0	0	0	0	0	0	0	1	35
Wisconsin:											
Kenosha	1	1	1	0	0	0	1	1	0	5	7
Madison	1	2	0	0	0	0	0	0	0	6	3
Milwaukee	18	18	2	0	0	3	1	0	0	46	71
Racine	3	1	0	0	0	1	0	0	0	2	7
Superior	2	2	0	0	0	0	0	0	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	9	0	0	0	0	1	0	0	1	21
Minneapolis	28	58	1	0	0	4	1	1	0	4	76
St. Paul	12	34	3	1	0	4	0	1	0	18	55
Iowa:											
Davenport	1	2	0	0	-------	-------	0	0	-------	0	-------
Des Moines	3	4	0	0	-------	-------	0	0	-------	0	-------
Sioux City	2	3	0	1	-------	-------	0	0	-------	1	-------
Waterloo	2	1	0	0	-------	-------	1	0	-------	7	-------
Missouri:											
Kansas City	8	3	0	0	0	8	3	0	0	5	92
St. Joseph	3	4	0	0	0	0	0	0	0	3	32
St. Louis	26	19	1	1	0	10	4	4	2	13	193
North Dakota:											
Fargo	1	11	0	0	0	0	0	0	0	0	8
Grand Forks	1	8	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	1	6	0	0	-------	-------	0	0	-------	5	-------
Sioux Falls	1	0	0	0	0	0	0	0	0	0	-------
Nebraska:											
Lincoln	0	1	0	0	0	0	0	1	0	1	15
Omaha	3	6	1	0	0	3	1	1	1	0	47
Kansas:											
Topeka	2	3	0	0	0	0	1	0	1	1	14
Wichita	2	7	0	0	0	2	1	0	0	4	35
SOUTH ATLANTIC											
Delaware:											
Wilmington	2	0	0	0	0	0	1	0	0	0	25
Maryland:											
Baltimore	10	12	0	0	0	15	9	11	0	32	208
Cumberland	1	0	0	0	0	0	0	0	0	0	13
Frederick	0	0	0	0	0	0	0	0	0	0	2
District of Col.:											
Washington	11	8	0	0	0	10	3	2	0	13	128
Virginia:											
Lynchburg	1	4	0	0	0	1	1	3	0	1	9
Norfolk	1	2	0	0	0	1	0	0	0	2	-------
Richmond	7	8	0	0	0	4	2	0	0	1	51
Roanoke	2	5	0	1	0	1	1	5	0	0	19
West Virginia:											
Charleston	1	5	0	0	0	4	2	0	0	1	23
Huntington	1	4	0	0	-------	-------	0	0	-------	0	-------
Wheeling	4	2	0	0	0	0	2	0	0	1	22
North Carolina:											
Raleigh	2	6	0	0	0	1	0	0	0	13	15
Wilmington	1	0	0	0	0	0	0	1	1	5	12
Winston-Salem	2	0	0	0	0	1	1	2	1	7	19

City reports for week ended October 16, 1926—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC—continued											
South Carolina:											
Charleston	0	1	0	0	0	0	2	2	0	0	26
Columbia	0	0	0	0	0	0	1	0	0	0	----
Greenville	0	1	0	0	0	1	0	0	0	0	8
Georgia:											
Atlanta	6	12	1	0	0	2	2	5	1	2	72
Brunswick	1	0	0	0	0	0	0	2	0	0	5
Savannah	1	0	0	0	0	0	0	0	0	0	30
Florida:											
Miami	----	0	----	0	0	4	----	2	0	3	32
St. Petersburg	0	----	0	----	0	0	0	----	0	----	9
Tampa	0	1	0	1	0	0	1	2	0	0	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	2	0	0	0	0	0	0	0	0	18
Louisville	4	6	0	0	0	5	4	2	2	3	81
Tennessee:											
Memphis	3	12	0	0	0	4	3	9	1	21	81
Nashville	4	3	0	0	0	3	3	12	2	6	50
Alabama:											
Birmingham	5	4	0	0	0	4	4	0	1	1	60
Mobile	1	1	0	0	0	1	0	3	0	0	18
Montgomery	1	0	0	0	0	0	0	1	0	0	9
WEST SOUTH CENTRAL											
Arkansas:											
Forth Smith	1	0	0	0	----	----	0	0	----	2	----
Little Rock	2	3	0	0	0	2	1	0	0	0	----
Louisiana:											
New Orleans	3	3	0	0	0	12	4	2	0	0	134
Shreveport	1	3	0	0	0	5	1	0	0	0	30
Oklahoma:											
Oklahoma City	1	2	0	0	0	2	1	4	0	0	23
Texas:											
Dallas	4	9	0	1	0	3	2	2	0	0	44
Galveston	0	0	0	0	0	1	0	0	0	0	16
Houston	0	1	0	0	0	4	0	0	0	0	54
San Antonio	1	1	0	0	0	5	1	2	0	0	35
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	1	0	0	1	5
Great Falls	1	3	0	0	0	0	0	0	0	0	10
Helena	1	0	0	0	0	0	0	0	0	0	6
Missoula	0	5	0	0	0	0	0	2	1	0	10
Idaho:											
Boise	0	0	1	0	0	0	1	0	0	----	3
Colorado:											
Denver	5	18	1	0	0	8	3	1	0	2	80
Pueblo	1	2	0	0	0	4	1	0	0	0	12
New Mexico:											
Albuquerque	1	1	0	0	0	5	2	4	0	0	11
Arizona:											
Phoenix	1	0	0	0	0	7	0	0	0	0	17
Utah:											
Salt Lake City	2	1	0	1	0	0	3	2	0	5	29
Nevada:											
Reno	1	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	7	20	1	1	----	----	2	2	----	0	----
Spokane	5	11	1	0	----	----	1	1	----	1	----
Tacoma	3	2	1	11	0	0	1	1	0	0	19
Oregon:											
Portland	6	30	2	6	0	0	2	1	1	2	70
California:											
Los Angeles	11	27	3	0	0	18	4	1	0	5	205
Sacramento	1	2	0	0	0	1	1	1	1	0	----
San Francisco	6	14	0	0	0	12	1	0	0	9	155

City reports for week ended October 1 , 1926—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	0	0	2	2	0
Rhode Island:									
Providence	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	3	2	0	3	0	0	12	0	1
New Jersey:									
Newark	1	0	1	0	0	0	1	1	0
Pennsylvania:									
Philadelphia	0	0	1	1	0	0	1	0	0
Pittsburgh	0	0	0	1	0	0	0	1	0
EAST NORTH CENTRAL									
Ohio:									
Toledo	0	0	0	0	0	0	0	1	0
Illinois:									
Chicago	1	0	1	1	0	0	4	4	0
Michigan:									
Detroit	2	2	0	0	0	0	1	7	4
WEST NORTH CENTRAL									
Missouri:									
Kansas City	0	0	0	0	0	0	0	1	0
St. Joseph [1]	0	0	0	0	0	1	0	0	0
St. Louis	1	0	0	0	0	0	1	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	0	0	0	0	1	1	0
District of Columbia:									
Washington	0	0	1	1	0	0	1	0	0
Virginia:									
Richmond	0	0	0	1	0	0	0	0	1
Roanoke	0	0	0	0	0	1	0	0	0
North Carolina:									
Wilmington	1	0	0	0	0	0	0	1	0
South Carolina:									
Charleston	0	0	0	0	2	0	0	0	0
Georgia:									
Atlanta	0	0	0	0	0	1	0	0	0
Florida:									
Tampa	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	0	0	0	0	0	1	0
Tennessee:									
Memphis	0	1	0	0	0	1	0	0	0
Nashville	1	1	0	0	0	0	0	0	0
Alabama: [2]									
Birmingham	0	0	0	0	0	0	0	1	1
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	1	0	2	2	0	0	0
Texas:									
Dallas	0	0	0	0	1	1	0	0	0
MOUNTAIN									
Montana:									
Missoula	3	3	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1	0	0	0	0	0	0	0	0
Oregon:									
Portland	1	0	0	0	0	0	0	1	0
California: [2]									
San Francisco	0	0	0	1	0	0	0	0	1

[1] Rabies (human): 1 case and 1 death at St. Joseph, Mo.
[2] Typhus fever: 1 case at Montgomery, Ala., and 1 case at Los Angeles, Calif

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended October 16, 1926, compared with those for a like period ended October 17, 1925. The population figures used in computing the rates are approximate estimates as of July 1, 1925 and 1926, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had an estimated aggregate population of nearly 30,000,000 in 1925 and nearly 30,500,000 in 1926. The 95 cities reporting deaths had more than 29,200,000 estimated population in 1925 and more than 29,730,000 in 1926. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, September 12 to October 16, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Sept. 19, 1925	Sept. 18, 1926	Sept. 26, 1925	Sept. 25, 1926	Oct. 3, 1925	Oct. 2, 1926	Oct. 10, 1925	Oct. 9, 1926	Oct. 17, 1925	Oct. 16, 1926
101 cities	[2] 95	84	[2] 97	107	[3] 115	[3] 128	134	[4] 159	150	[5] 165
New England	139	35	81	73	74	66	96	66	120	[5] 84
Middle Atlantic	83	63	81	70	84	81	114	118	129	100
East North Central	76	95	101	128	[3] 130	[3] 135	153	188	166	219
West North Central	145	95	153	127	192	143	198	177	233	209
South Atlantic	88	111	109	128	207	163	179	[6] 224	209	218
East South Central	74	109	58	135	63	270	89	[7] 242	89	270
West South Central	57	77	75	69	62	211	79	[8] 188	88	219
Mountain	[2] 217	237	[2] 189	137	129	291	194	173	157	164
Pacific	130	100	102	213	102	175	102	200	105	175

MEASLES CASE RATES

101 cities	[2] 29	28	[2] 35	37	[3] 39	[3] 36	53	[4] 31	67	[5] 44
New England	108	19	177	38	242	21	371	33	431	[5] 28
Middle Atlantic	34	10	33	9	35	10	47	11	65	9
East North Central	22	23	22	22	[3] 24	[3] 24	24	29	24	36
West North Central	8	12	6	28	6	10	6	26	10	44
South Atlantic	15	9	29	11	23	13	15	[6] 16	52	21
East South Central	5	16	11	10	11	5	11	[7] 6	5	0
West South Central	4	4	0	0	0	0	0	[8] 0	0	13
Mountain	[2] 9	73	[2] 28	118	9	109	37	109	18	237
Pacific	14	213	19	310	3	329	11	181	28	291

SCARLET FEVER CASE RATES

101 cities	[2] 60	66	[2] 63	79	[3] 86	[3] 100	92	[4] 112	121	[5] 130
New England	60	76	46	71	86	104	105	144	127	[5] 143
Middle Atlantic	46	44	48	56	62	51	65	57	75	62
East North Central	58	64	65	80	[3] 96	[3] 99	109	121	143	132
West North Central	133	129	135	153	176	197	119	215	256	318
South Atlantic	36	49	61	79	67	111	92	[6] 103	129	126
East South Central	53	119	74	83	74	99	121	[7] 149	142	145
West South Central	40	30	13	52	48	69	62	[8] 64	53	86
Mountain	[2] 161	82	[2] 85	118	176	319	148	300	46	264
Pacific	64	119	77	119	88	175	102	159	135	205

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1925 and 1926, respectively.
[2] Helena, Mont., not included.
[3] Superior, Wis., not included.
[4] Greenville, S. C., Tampa, Fla., Covington, Ky., and Little Rock, Ark., not included.
[5] Hartford, Conn., not included.
[6] Greenville, S. C., and Tampa, Fla., not included.
[7] Covington, Ky., not included.
[8] Little Rock, Ark., not included.

Summary of weekly reports from cities, September 12 to October 16, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925—Continued

SMALLPOX CASE RATES

	Week ended—									
	Sept. 19, 1925	Sept. 18, 1926	Sept. 26, 1925	Sept. 25, 1926	Oct. 3, 1925	Oct. 2, 1926	Oct. 10, 1925	Oct. 9, 1926	Oct. 17, 1925	Oct. 16, 1926
101 cities	[2] 6	2	[2] 5	3	[3] 2	[3] 1	5	[4] 3	8	[5] 4
New England	0	0	0	0	0	0	0	0	0	[5] 0
Middle Atlantic	0	0	0	1	0	0	0	0	0	0
East North Central	2	0	2	1	[3] 0	[3] 0	1	1	8	3
West North Central	2	0	2	2	2	2	10	2	0	6
South Atlantic	12	9	6	6	0	4	6	[6] 0	6	4
East South Central	37	0	32	0	0	0	16	[7] 11	42	0
West South Central	4	4	0	13	0	0	0	[8] 5	0	4
Mountain	[2] 0	0	38	0	9	9	9	9	28	9
Pacific	47	19	39	19	25	5	44	19	55	32

TYPHOID FEVER CASE RATES

101 cities	[2] 49	53	[2] 44	44	[3] 39	[3] 42	36	[4] 33	35	[5] 32
New England	29	33	22	9	46	17	26	17	24	[5] 61
Middle Atlantic	35	55	34	45	32	28	31	27	28	26
East North Central	18	29	29	26	[3] 20	[3] 34	21	23	31	15
West North Central	57	26	16	26	35	40	33	22	20	14
South Atlantic	104	81	88	92	50	115	52	[6] 75	65	66
East South Central	194	249	200	166	131	130	163	[7] 154	121	140
West South Central	159	69	97	77	92	47	57	[8] 23	44	26
Mountain	[2] 85	82	[2] 94	36	111	82	120	64	46	46
Pacific	28	35	22	22	28	19	8	22	19	16

INFLUENZA DEATH RATES

95 cities	[2] 5	4	[2] 3	6	[3] 5	[3] 6	3	[9] 4	6	[5] 6
New England	0	0	0	5	0	2	0	0	0	[5] 5
Middle Atlantic	6	3	3	3	3	2	3	3	5	4
East North Central	4	3	4	3	[3] 6	[3] 5	3	2	8	2
West North Central	6	4	4	8	6	0	4	6	6	11
South Atlantic	2	6	2	9	4	9	2	[6] 6	2	8
East South Central	5	5	0	10	16	10	0	[7] 6	16	16
West South Central	10	24	0	24	19	38	15	14	10	14
Mountain	[2] 19	0	[2] 9	9	0	18	9	18	0	27
Pacific	0	7	4	7	0	7	0	0	11	11

PNEUMONIA DEATH RATES

95 cities	[2] 60	53	[2] 54	65	[3] 61	[3] 69	63	[9] 64	90	[5] 78
New England	67	54	53	76	31	87	58	33	93	[5] 79
Middle Atlantic	61	51	66	70	68	71	63	76	94	88
East North Central	44	40	39	45	[3] 44	[3] 58	61	54	89	63
West North Central	45	51	26	55	36	70	45	63	58	53
South Atlantic	81	54	86	79	81	66	71	[6] 61	121	88
East South Central	79	52	42	88	100	109	110	[7] 77	95	52
West South Central	77	123	48	99	63	71	63	94	53	104
Mountain	[2] 113	118	[2] 76	55	139	155	92	55	120	118
Pacific	62	53	51	78	87	28	51	53	80	82

[2] Helena, Mont., not included.
[3] Superior, Wis., not included.
[4] Greenville, S. C., Tampa, Fla., Covington, Ky., and Little Rock, Ark., not included.
[5] Hartford, Conn., not included.
[6] Greenville, S. C., and Tampa, Fla., not included.
[7] Covington, Ky., not included.
[8] Little Rock, Ark., not included.
[9] Greenville, S. C., Tampa, Fla., and Covington, Ky., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1925 and 1926, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1925	1926	1925	1926
Total	101	95	29,900,058	30,427,598	29,221,531	29,733,613
New England	12	12	2,176,124	2,206,124	2,176,124	2,206,124
Middle Atlantic	10	10	10,346,970	10,476,970	10,346,970	10,476,970
East North Central	16	16	7,481,656	7,655,436	7,481,656	7,655,436
West North Central	12	10	2,550,024	2,589,131	2,431,253	2,468,448
South Atlantic	21	21	2,716,070	2,776,070	2,716,070	2,776,070
East South Central	7	7	993,103	1,004,953	993,103	1,004,953
West South Central	8	6	1,184,057	1,212,057	1,078,198	1,103,695
Mountain	9	9	563,912	572,773	563,912	572,773
Pacific	6	4	1,888,142	1,934,084	1,434,245	1,469,144

FOREIGN AND INSULAR

CHOLERA ON VESSEL

Further relative to steamship "Macedonia"—Suez, Egypt, from Yokohama, Japan, via ports—September 26, 1926.[1]—Information received under date of September 26, 1926, from Suez, Egypt, shows the arrival at that port of the steamship *Macedonia* from Yokohama, Japan, via Kobe, Hongkong, Shanghai, and Colombo, with history of having landed seven cases of cholera at Yokohama, August 5, 1926. Previous report had stated the arrival at Yokohama of the vessel with one case of cholera. The medical officer on the vessel stated that the entire crew had received vaccination against cholera.

THE FAR EAST

Reports for week ended October 9, 1926.—The following report for the week ended October 9, 1926, was transmitted by the Far Eastern Bureau of the Secretariat of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Egypt: Alexandria	0	0	0	0	1	0	Dutch East Indies:						
Mauritius: Port Louis	----	1	0	0	0	0	Belawan Deli	0	0	0	0	1	0
Arabia: Aden	0	0	0	0	1	0	Siam: Bangkok	0	0	2	0	3	2
British India:							China:						
Calcutta	----	0	----	14	4	2	Amoy	0	0	18	----	0	0
Bombay	----	1	----	0	3	2	Shanghai	0	0	6	11	0	0
Madras	----	0	----	0	11	1							
Rangoon	----	2	----	0	0	0							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Kamaran, Perim.

Iraq.—Basra.

Persia.—Mohammerah, Bender-Abbas, Bushire.

British India.—Karachi, Chittagong, Cochin, Vizagapatam, Tuticorin, Negapatam.

[1] Public Health Reports, Sept. 10, 1926, p 1984

Ceylon.—Colombo.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Sinpapore, Penang.
Dutch East Indies.—Batavia, Cheribon, Surabaya, Samarang, Palembang, Sabang, Makassar, Banjermasin, Tarakan, Padang, Balik-Papan, Samarinda, Menado.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Saigon and Cholon, Turane, Haïphong.
China.—Hong-Kong.
Formosa.—Keelung.
Japan.—Yokohama, Osaka, Nagasaki, Moji, Kobe, Niigata, Tsuruga, Hakodate, Simonoseki.
Korea.—Chemulpo, Fusan.
Manchuria.—Mukden, Changchun, Harbin, Antung.
Kwantung.—Port Arthur, Dairen.
U.S.S.R.—Vladivostok.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill; Dunedin.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez.
Anglo-Egyptian Sudan.—Port Said, Suakin.
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lorenço-Marques.
Union of South Africa.—Durban, East London, Port Elizabeth, Cape Town.

Reports had not been received in time for distribution from—

Dutch East Indies.—Pontianak.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
Madagascar.—Tamatave, Majunga.

ALGERIA

Plague—Algiers—September 23, 1926.—Information received under date of October 14, 1926, shows the occurrence of a case of plague at Algiers, Algeria, September 23, 1926.

CANADA

Communicable diseases— Week ended October 16, 1926.—The Canadian Ministry of Health reports cases of certain communicable diseases in seven Provinces of Canada for the week ended October 16, 1926, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				2				2
Influenza	12							12
Lethargic encephalitis				2				2
Poliomyelitis				8				8
Smallpox				3		1	6	10
Typhoid fever		5	10	20	7	2	4	48

CUBA

Malaria prevalence—Santiago—July-August, 1926.—On July 12. 1926, 75 cases of malaria were reported present at Santiago de Cuba. Malaria prevalence was continuously reported to October 16, 1926, with 20 cases present on that date. Population, 70,000.

Typhoid and other fevers— Water supply.—Typhoid fever and intestinal fevers were stated to be prevalent and the water supply and sanitary system inadequate.

EGYPT

Typhoid fever prevalence—Alexandria.—Typhoid fever prevalence was reported at Alexandria, Egypt, September 23, 1926. Previous reports show the occurrence of 55 cases of typhoid fever at Alexandria from July 1 to 29 and 128 cases with 10 deaths from July 30 to August 26, 1926.

HAITI

Disease prevalence—Port au Prince.—Disease prevalence has been reported at Port au Prince, Haiti, for the months of July, August, and September, 1926, as follows: Gastroenteritis continuously present and constituting the most important health problem of the community; tuberculosis and typhoid fever present with an unreported number of cases; malaria stated to be present in many sections of the Island. Population, 120,000.

MADAGASCAR

Plague—July, 1926—August 1-15, 1926.—Plague has been reported in the Island of Madagascar as follows: July 1-31, 1926—cases, 17; deaths, 16. The urban occurrence was: *Tamatave* (port) cases, 3; deaths, 3 (bubonic); *Tananarive* (interior)—cases, 4; deaths, 4 (pneumonic).

August 1–15, 1926.—Cases, 30; deaths, 25. The urban occurrence was as follows: *Majunga* (port)—cases, 14; deaths, 10; *Tamatave* (port)—cases, 3; deaths, 2 (bubonic). *Tananarive*—(interior) cases, 3; deaths, 3 (pneumonic, 2; septicemic, 1).

Further relative to plague at Majunga, Tamatave, and Tananarive.—On August 14, 1926, bubonic plague was declared epidemic at Majunga. This locality was stated to be the most important port on the west coast of Madagascar. At Tananarive from August 15 to 24, 1926, two deaths from plague in Europeans, members of the same family, were reported. The last previous occurrence of plague in Europeans was stated to have been in the year 1924.

SALVADOR

Mortality—San Salvador—July, 1926.—During the month of July, 1926, 60 deaths from communicable diseases were reported at San Salvador, Republic of Salvador. Gastroenteritis caused 43 deaths, measles 6, tuberculosis 9, typhoid fever 2. (Population, 85,000.)

Mortality—Malaria—Republic of Salvador.—During the period under report, 3,485 deaths were reported in the Republic of Salvador. The prevailing diseases were stated to be malaria and other tropical fevers. (Population, 1,600,000.)

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

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended November 5, 1926 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Shanghai	Sept. 12–18	2	19	Cases, foreign: Deaths, native and foreign.
India				Aug. 22–28, 1926: Cases, 2,376; deaths, 1,528.
Calcutta	Sept. 5–18	27	27	
Madras	Sept. 19–25	3	3	
Siam				Sept. 5–11, 1926: Cases, 33; deaths 23. Apr. 1–Sept. 11, 1926: Cases, 7,587; deaths, 4,976.
Bangkok	Sept. 5–11	7	4	District.
On vessel:				
S. S. Macedonia	Aug. 5	7		At Yokohama, Japan, from Singapore, July 18. Corrected from report of Sept. 10, 1926. Vessel last reported at Suez.

PLAGUE

Algeria:				
Algiers	Sept. 23	1		
Oran	Sept. 21–30	6	1	
Greece:				
Patras	Sept. 26–Oct. 2	1		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received During Week Ended November 5, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
India				Aug. 22-28, 1926: Cases, 481; deaths, 266.
Bombay	Sept. 12-18	4	3	
Madras Presidency	Aug. 29-Sept. 4	75	51	
Rangoon	Sept. 5-18	18	19	
Iraq:				
Baghdad	Sept. 5-11	2	2	
Madagascar:				
Tananarive Province				July, 1926: Cases, 17; deaths, 16 Bubonic and pneumonia. Aug. 1-15, 1926: Cases, 30; deaths, 25. Bubonic, pneumonic, septicemic.
Towns—				
Majunga	Aug. 1-15	14	10	Bubonic (port).
Tamatave	July 1-31	3	3	Do.
Do	Aug. 1-15	3	2	Do.
Tananarive	July 1-31	4	4	Pneumonic. (Interior.)
Do	Aug. 1-15	3	3	Pneumonic, 2; septicemic, 1.
Siam				Apr. 1-Sept. 11, 1926: Cases, 15; deaths, 10.

SMALLPOX

Brazil:				
Para	Sept. 5-25	11	8	
Pernambuco	Aug. 29-Sept. 11	45	8	
Rio de Janeiro	Sept. 19-25	304	198	From Jan. 1-Sept. 25, 1926: Cases, 3,272; deaths, 1,690.
British South Africa:				
Northern Rhodesia	Sept. 11-17	1		
Canada:				
Alberta	Oct. 9-16	6		
Calgary	do	5		
Ontario	do	3		
Saskatchewan	do	1		
Ceylon:				
Colombo	Sept. 12-18	2		
Great Britain:				
London	Sept. 26-Oct. 2	2		
Newcastle-on-Tyne	Oct. 3-9	1		
South Shields	do			Several cases.
India				Aug. 22-28, 1926: Cases, 1,471; deaths, 407.
Bombay	Sept. 5-18	8	4	
Calcutta	do	4	8	
Madras	Sept. 19-25	4		
Rangoon	Sept. 5-11	1		
Iraq:				
Baghdad	do	1		
Mexico:				
San Luis Potosi	Oct. 3-16		3	
Portugal:				
Lisbon	Sept. 19-25	1		
Siam				Sept. 5-11, 1926: Cases, 7; deaths, 4. Apr. 1-Sept. 11, 1926: Cases 564; deaths, 222.
Bangkok	Sept. 5-11	4	3	District.
Spain:				
Valencia	Sept. 19-25	1		

TYPHUS FEVER

China:				
Antung	Sept. 12-19	2		
Mexico:				
Mexico City	Sept. 26-Oct. 9	15		Including municipalities in Federal District.
Palestine:				
Jaffa District	Sept. 28-Oct. 4	1		
Jerusalem	Sept. 21-27	1		
Union of South Africa:				
Natal—				
Durban	Aug. 8-14	1		

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

Reports Received from June 26 to October 29, 1926 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
Ceylon				Apr. 18–May 29, 1926: Cases, 31; deaths, 29.
China:				
Amoy	Aug. 8–Sept. 18	170		Stated to be present in epidemic form.
Canton	June 1–30	38	14	
Do	July 15–31	54	28	
Foochow	Aug. 15–Sept. 18			Present.
Kulangsu	Sept. 12–18		2	
Manchuria—				
Dairen	Aug. 23–29	1	1	
Nanking	July 25–Aug. 7			Do.
Shanghai	Reported July 20	35	8	
Do	July 25–Sept. 11	34	366	Cases, foreign; deaths, native and foreign.
Swatow	July 11–Sept. 18	36	63	
Tsingtao	July 11–Aug. 30	4	4	Japanese settlements, 10 deaths; Chinese, 30 to 40 deaths daily; estimated.
Chosen:				
North Heian Province	Sept. 3–16	70	30	Deaths estimated.
Shingishu	Sept. 13	19		Including places in vicinity.
French Settlements in India				Mar. 7–June 26, 1926: Cases, 31; deaths, 30.
India				Apr. 25–June 26, 1926: Cases, 18,526; deaths, 11,531. June 27–Aug. 21, 1926: Cases, 16,248; deaths, 10,349.
Bombay	May 30–June 5	1	1	
Do	July 18–Aug. 28	3	3	
Calcutta	Apr. 4–May 29	478	418	
Do	June 13–26	73	69	
Do	June 27–Sept. 4	268	238	
Madras	May 16–June 5	2	1	
Do	Aug. 1–Sept. 18	4	3	
Rangoon	May 9–June 26	67	44	
Do	June 27–Sept. 4	31	29	
Indo-China:				
Saigon	May 2–15	52	48	
Do	May 22–June 26	42	32	
Do	June 27–Aug. 14	31	17	
Japan				To Sept. 10, 1926: Cases, 35.
Ken (Prefecture)—				
Hiroshima	To Sept. 10	1		
Hyogo	do	7		
Kagakawa	do	8		
Kanagawa	do	3		Including Yokohama.
Kochi	do	1		
Ookayama	do	7		
Osaka	do	6		
Taihoku	Sept. 1–10	2		
Wakayama	To Sept. 10	2		
Philippine Islands:				
Manila	May 18–24	2	2	
Do	June 27–Sept. 11	13	3	
Provinces—				
Albay	Apr. 18–24	1	1	
Davao	May 23–29	1		
Mindoro	Feb. 21–Mar. 6	3	3	
Pampanga	July 25–31	1	1	
Rizal	July 18–24	1		
Romblon	Dec. 14–31	42	43	
Do	Jan. 2–Mar. 27	41	35	
Siam				Apr. 1–Sept. 4, 1926: Cases, 7,554; deaths, 4,953.
Bangkok	May 2–June 12	1,325	736	
Do	June 20–26	56	26	
Do	June 27–Sept. 4	82	28	
Straits Settlements:				
Singapore	July 4–17	2	1	
On vessel:				
Steamship Macedonia	Aug. 5	1		At Yokohama, Japan. Vessel sailed from Singapore, July 18, 1926.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received from June 26 to October 29, 1926—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	June 21-30	1		Under date of July 16, 2 cases reported.
Do	July 1-20	1		
Bona	Aug. 14	1		
Philippeville	Sept. 7	1		
Azores:				
Fayal Island—				
Horta	Aug. 2-29	2	2	
St. Michaels Island	May 9-June 26	4	1	
Do	June 27-July 10	3	1	
Brazil:				
Paranagua	Oct. 8			Present.
British East Africa:				
Kisumu	May 16-22	1	1	
Do	Aug. 17-Sept. 11	3	2	
Uganda	Mar. 1-June 30	732	574	
Canary Islands:				
Teneriffe	Aug. 2	2		
Ceylon:				
Colombo	May 29-June 5	1	1	
Chile:				
Iquique	June 20-26		1	
China:				
Amoy	Apr. 18-June 26	40	30	
Do	June 27-Aug. 7	28		
Foochow	June 6-July 31			Several cases. Not epidemic.
Nanking	May 9-Sept. 18			Prevalent.
Swatow	July 25-31	14		
Ecuador				January-June, 1926: Cases, 385; deaths, 154.
Chimborazo	January-June	9	2	Rats taken, 766.
Guayaquil	May 16-June 30	6		Rats taken, 30,914; found infected, 31.
Do	July 1-Sept. 30	16	3	Rats taken, 62,544; found infected, 89.
Leon	January-June	43	19	Localities, 2.
Loja	do	176	75	Cantons, 2.
Tungurahua	do	83	29	At Ambato, Huachi, and Picayhua. Rats taken, 1,542.
Egypt				Jan. 1-Sept. 9, 1926; Cases, 128.
City—				
Alexandria	July 27-Aug. 12	4	1	
Suez	May 21-July 1	9	5	
Do	July 29	2		
Provinces—				
Behera	July 23-Aug. 15	4	1	
Beni-Suef	May 23-June 8	8	2	
Charkiah	July 27	1	1	
Gharbieh	June 2	1	1	
Minieh	July 24	1	1	
Sidi Barani	Sept. 30	12		In western desert.
France:				
Marseille	July 8	1	1	Reported July 24.
St. Denis	Reported Aug. 2	1		Vicinity of Paris.
St. Ouen	Aug. 14	2		Suburb of Paris.
Great Britain:				
Liverpool	Aug. 29-Sept. 4	2	1	
Greece:				
Athens	Apr. 1-May 31	16	4	Including Piræus.
Do	Aug. 1-31	9	2	Do.
Patras	May 27-June 12	4	1	
Do	July 25-Sept. 4	7	4	
Zante	May 17	1		
Hawaii:				
Hamakua	June 9			1 plague rodent trapped near Hamakua Mill.
Paauhau	July 18-24			Plague-infected rat trapped.
India				Apr. 25-June 16, 1926: Cases, 53,001; deaths, 41,576. June 27-Aug. 21, 1926: Cases, 2,245; deaths, 1,366.
Bombay	May 2-June 26	16	15	
Do	July 18-Aug. 21	5	5	
Karachi	May 23-June 26	15	13	
Do	July 11-17	1	1	

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

Reports Received from June 26 to October 29, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
India—Continued.				
Madras Presidency	Apr. 25–June 26	162	93	
Do	July 4–Aug. 28	434	208	
Rangoon	May 9–June 26	20	15	
Do	June 27–Sept. 4	56	44	
Indo-China:				
Saigon	May 23–June 26	8	3	
Do	July 18–Aug. 7	2	1	
Iraq:				
Baghdad	Apr. 18–June 12	161	108	
Do	July 18–31	2	2	
Japan:				
Yokohama	July 2–30	9	5	
Do	Aug. 7	2		Total, July 2–Aug. 10, 1925; Cases, 9; deaths, 8.
Java:				
Batavia	Apr. 21–June 19	65	65	
Do	June 26–Sept. 11	64	62	
Cheribon	Apr. 11–24	3	3	
East Java and Madoera	June 13–19	1	1	
Do	July 25–31	1	1	
Surabaya	Aug. 22–28	17	2	
Madagascar:				
Ambositra Province	May 1–15	4	4	Septicemic.
Antisirabi Province	June 16–30	4	4	
Itasy Province	do	17	10	
Majunga Province	do	10	6	
Mananjary Province	do	1	1	
Moramanga Province	Apr. 1–15	2	2	Do.
Tananarive Province				Apr. 1–June 30, 1926: Cases, 130; deaths, 120.
Tamatave (Port)	May 16–31	1	1	
Tananarive Town	Apr. 1–June 30	7	7	
Mauritius:				
Port Louis	July 31	1	1	
Nigeria				Feb. 1–Apr. 30, 1926: Cases, 115 deaths, 92.
Peru				May–June, 1926: Cases, 57; deaths, 16. July 1–Aug. 31, 1926; Cases, 44; deaths, 16.
Departments—				
Ancash	May 1–31			Present.
Do	July 1–31	2		
Cajamarca	May 1–June 30	10	4	
Do	Aug. 1–31	1		
Ica	May 1–31	1		
Do	July 1–31	1		
Libertad	May 1–31	4		
Lima	May 1–June 30	29	12	
Do	July 1–Aug. 30	40	16	
Piura	June 1–30	13		
Russia				Jan. 1–Mar. 31, 1926: Cases, 37.
Senegal				Nov. 1–30, 1925: Cases, 3; deaths, 2. Mar. 1–Apr. 30, 1926: Cases, 15; deaths, 4.
Siam				Apr. 1–Sept. 4, 1926: Cases, 30; deaths, 20.
Bangkok	May 23–June 26	2	2	
Do	July 18–24	1	1	
Straits Settlements:				
Singapore	May 2–8	1	1	
Do	July 4–17	1	1	
Syria:				
Beirut	July 1–Aug. 10	2		
Do	Oct. 15			Present.
Tunisia	May 11–June 30	174		
Do	July 1–20	12		
Kairouan	June 9	3		9 cases 30 miles south of Kairouan.
Turkey:				
Constantinople	Aug. 1–Sept. 25	7	4	
Union of South Africa:				
Cape Province	May 16–22	5	3	
Calvinia District	June 13–26	12	6	
Do	June 27–Aug. 21	4	3	
Williston District	June 13–26	2		
Do	June 27–July 3	1		

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

Reports Received from June 26 to October 29, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Con.				
Orange Free State—				
Hoopstad District	Aug. 15–21	1		
Protestpan	May 9–22	3	3	
On vessel:				
Steamship Zaria	September, 1926	2	2	At Liverpool, England, from Lagos, Nigeria, West Africa; 29 plague-infected rats found on board.

SMALLPOX

Algeria:				
Algiers	May 21–June 20	14		
Do	July 1–Aug. 31	3		
Belgium:				
Antwerp	Aug. 1–7	1	1	
Bolivia:				
La Paz	May 1–June 30	14	7	
Do	July 1–Aug. 31	16	8	
Brazil:				
Bahia	June 20–26	1		
Do	June 27–Sept. 11	63	36	
Manaos	Apr. 1–30		5	
Para	May 16–June 26	26	25	
Do	June 27–Aug. 14	18	11	
Pernambuco	July 11–Aug. 28	70	10	
Porto Alegre	Aug. 10–31	2		
Rio de Janeiro	May 2–June 19	132	91	
Do	July 4–Sept. 18	2,230	1,135	
Santos	Mar. 1–7		1	
British East Africa:				
Mombasa	July 5–11	5	4	
Tanganyika	May 1–31	252	46	
Uganda	Mar. 1–May 31	3		
British South Africa:				
Northern Rhodesia	May 18–24	17	6	Natives.
Do	June 8–14	5		
Canada				May 30–June 12, 1926: Cases, 46.
Alberta				May 30–June 12, 1926: Cases, 3.
Calgary	Sept. 5–Oct. 9	16		June 27–Oct. 9, 1926: Cases, 47.
British Columbia—				
Vancouver	Aug. 16–Sept. 12	3		
Manitoba				May 30–June 26, 1926: Cases, 15.
Winnipeg	June 6–12	5		June 27–Sept. 25, 1926: Cases, 19.
Do	July 4–Sept. 4	12		
Ontario				May 30–June 26, 1926: Cases, 36. June 27–Oct. 9: Cases, 82.
Fort William	July 25–Aug. 7	2		
Kingston	May 23–June 26	5		
Do	July 11–17	2		
Kitchener	Apr. 26–May 29	3	1	
North Bay	May 2–22	5		
Do	July 25–31	2		
Orillia	Apr. 26–May 29	7		
Ottawa	July 18–24	1		
Packenham	do	10		
Peterboro	Sept. 1–30	10		
Toronto	July 18–Oct. 9	11		
Waterloo	July 18–24	6		
Saskatchewan				May 30–June 26, 1926: Cases, 16.
Regina	July 4–Sept. 25	3		June 27–Oct. 9: Cases, 86.
Ceylon				Mar. 14–May 29, 1926: Cases, 44; deaths, 3.
Chile:				
Antofagasta	June 6–12	1		
China:				
Amoy	May 1–June 26	4	8	
Do	July 4–10	1		
Antung	May 17–June 19	5		
Do	July 4–18	2		
Canton	May 1–31	4	2	
Changsha	Aug. 8–14	1		

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

Reports Received from June 26 to October 29, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued.				
Chungking	May 2-Sept. 4			Present.
Foochow	do			Do.
Hongkong	May 2-June 26	19	10	
Do	June 27-July 3	1	1	
Manchuria	July 4-31	18		Railway stations.
An-shan	May 16-June 12	5		South Manchurian Railway.
Antung	May 16-June 19	5		
Changchun	May 16-June 26	6		Do.
Do	June 27-July 3	1		Do.
Dairen	Apr. 26-June 20	69	16	
Do	June 28-Aug. 8	5	3	
Fushun	May 16-June 5	4		Do.
Harbin	May 14-June 30	21		Do.
Do	July 1-28	12		
Kai-yuan	May 16-June 30	10		Do.
Kungchuling	June 13-19	1		Do.
Liaoyang	May 16-June 30	4		Do.
Mukden	do	4		Do.
Penhsihu	May 16-June 19	4		Do.
Ssupingkai	May 16-June 30	2		Do.
Teshihchiao	do	2		Do.
Wa-feng-tien	do	3		Do.
Nanking	May 8-Sept. 18			Present.
Shanghai	May 2-June 26	10	25	Cases, foreign: deaths, population of international concession, foreign and native.
Do	June 27-July 24	3	3	
Swatow	May 9-Sept. 18			Sporadic.
Tientsin	June 2-26		1	Reported by British municipality.
Wanshien	May 1			Prevalent.
Chosen				Mar. 1-May 31, 1926: Cases, 548; deaths, 121.
Fusan	May 1-31	1		
Seishun	do	2	1	
Egypt:				
Alexandria	May 15-July 1	18	3	
Do	July 23-Aug. 19	11	5	
Cairo	Jan. 29-Apr. 1	16	4	
Esthonia				May 1-June 30, 1926: Cases, 3.
France				Mar. 1-June 30, 1926: Cases, 141.
Paris	Sept. 1-20	21	5	
St. Etienne	Apr. 18-June 15	7	3	
French Settlements in India	Mar. 7-June 26	282	282	
Gold Coast	Mar. 1-May 31	662	13	
Great Britain:				
England and Wales				May 23-June 26, 1926: Cases, 933. June 27-Sept. 25, 1926: Cases, 1,289.
Birmingham	Sept. 26-Oct. 2	1		
Bradford	May 23-29	1		
Do	Aug. 29-Sept. 4	1		
Newcastle-on-Tyne	June 6-12	1		
Do	July 11-Sept. 25	3		At Gateshead, several cases reported.
Nottingham	May 2-June 5	7		
Do	July 18-24	1		
Sheffield	June 13-19	1		
Do	July 4-Oct. 2	9		
Greece:				
Athens	July 1-31	71	6	Including Piræus.
Saloniki	June 1-14		3	
Guatemala:				
Guatemala City	June 1-30		2	
India				Apr. 25-June 26, 1926: Cases, 54,851; deaths, 14,771. June 27-Aug. 21, 1926: Cases, 18,910; deaths, 6,129.
Bombay	May 2-June 26	220	134	
Do	June 27-Sept. 4	104	57	
Calcutta	Apr. 4-May 29	171	152	
Do	June 13-26	24	18	
Do	June 27-Aug. 28	34	29	
Karachi	May 16-June 26	44	18	
Do	June 27-Aug. 21	13	7	
Madras	May 16-June 26	7	4	
Do	June 27-Sept. 18	54	15	
Rangoon	May 9-June 26	10	5	
Do	July 4-Sept. 4	20	4	
Indo-China:				
Saigon	May 9-June 26	2		

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

Reports Received from June 26 to October 29, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Iraq:				
Baghdad	May 9–June 26	8	3	
Do	July 4–Aug. 28	2	1	
Basra	Apr. 18–June 22	34	25	
Do	Aug. 15–21	1		
Italy				Mar. 28–June 26, 1926: Cases, 34.
Catania	Aug. 9–15	2		June 27–July 10, 1926: Cases, 3.
Rome	June 14–20	4		Entire consular district, including island of Sardinia.
Jamaica				Apr. 25–June 26, 1926: Cases, 201. (Reported as alastrim.)
Do				June 27–Sept. 25, 1926: Cases, 238. (Reported as alastrim.)
Japan				Apr. 11–June 19, 1926: Cases, 641.
Kobe	May 30–June 5	1		
Nagoya	May 16–22		1	
Do	July 4–10	1		
Taiwan Island	May 11–20	24		
Do	June 1–20	23		
Do	July 11–Aug. 10	2		
Tokyo	June 26–July 17	3		
Yokohama	May 2–8	2		
Java:				
Batavia	May 15–June 25	2		Province.
Do	July 24–Aug. 28	5		Do.
East Java and Madura	Apr. 11–July 3	100	6	
Do	July 4–Aug. 7	43	1	
Malang	Apr. 4–10	6	1	Interior.
Surabaya	May 16–22	14	1	
Do	July 18–Aug. 28	63	3	
Latvia				Apr. 1–June 30, 1926: Cases, 5.
Mexico				Feb. 1–Apr. 30, 1926: Deaths, 982.
Aguascalientes	June 13–26		5	
Guadalajara	June 8–14		2	
Do	June 29–Sept. 27		8	
Mexico City	May 16–June 5	3		Including municipalities in Federal District.
Do	July 25–Sept. 25	6		Do.
Saltillo	July 18–24		1	
San Antonio de Arenales	Jan. 1–June 30			Present: 100 miles from Chihuahua.
San Luis Potosi	June 13–26		7	
Do	July 4–Oct. 2		15	
Tampico	June 1–10		2	
Torreon	May 1–June 30		17	
Do	July 1–Sept. 30		13	
Netherlands:				
Amsterdam	July 18–24		9	
Nigeria				Feb. 1–Apr. 30, 1926: Cases, 404; deaths, 33.
Persia:				
Teheran	Apr. 21–June 22		7	
Peru:				
Arequipa	June 1–30		1	
Poland				Mar. 28–May 1, 1926: Cases, 12; deaths, 1. June 27–July 24, 1926: Cases, 2; deaths, 1.
Portugal:				
Lisbon	Apr. 26–June 19	10	3	
Do	July 11–Sept. 11	21	6	
Oporto	May 23–June 5	4		
Do	July 11–24	2		
Russia				Jan. 1–Mar. 31, 1926: Cases, 2,103.
Siam				Apr. 1–Sept. 4, 1926: Cases, 557; deaths, 218.
Bangkok	May 2–June 12	23	20	
Do	July 4–Sept. 4	55	44	
Spain:				
Valencia	Aug. 22–28	1		
Straits Settlements:				
Singapore	Apr. 25–May 1	1		
Do	July 11–17	1		
Sumatra:				
Medan	Aug. 22–28			One case varioloid.
Switzerland:				
Lucerne Canton	June 1–30	1		
Do	July 1–31	2		
Tripolitania	Apr. 1–30	11		

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

Reports Received from June 26 to October 29, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Tunisia				Apr. 1-June 30, 1926: Cases, 17.
Tunis	Aug. 11-30	2		
Union of South Africa	June 1-30	8	1	
Cape Province	June 20-26			Outbreaks.
Do	Aug. 15-21			Do.
Idutya district	May 23-29			Do.
Natal	May 30-June 5			Do.
Orange Free State	June 20-Aug. 28			Do.
Transvaal				June 6-12, 1926: Outbreaks in Pietersburg and Rustenburg districts.
Do	Aug. 29-Sept. 4	1		Native.
Johannesburg	May 9-June 12	5		
Do	July 11-Sept. 4	2		
Yugoslavia				Apr. 15-30, 1926: Cases, 2; deaths, 1.
Zagreb	Aug. 9-15	2		
On vessels:				
S. S. Karapara				At Zanzibar, June 7, 1926: One case of smallpox landed. At Durban, Union of South Africa, June 16, 1926: One suspect case landed.
Steamship	July 2	1		Vessel from Glasgow, Scotland, for Canada. Patient from Glasgow; removed at quarantine on outward voyage.

TYPHUS FEVER

Algeria:				
Algiers	May 21-June 30	7	1	
Do	July 21-Aug. 31	3		
Argentina:				
Rosario	Feb. 1-28	2		
Bolivia:				
La Paz	June 1-30		1	
Do	Aug. 1-31	9	1	
Bulgaria				Mar. 1-June 30, 1926: Cases, 87; deaths, 14.
Chile:				
Antofagasta	May 23-June 26	4		
Do	June 27-July 3	1		
Concepcion	June 1-7		1	
Valparaiso	Apr. 29-May 5		1	
Do	Aug. 14-Sept. 18	7		
China:				
Antung	June 14-27	7	1	
Do	June 28-Sept. 12	29	1	
Canton	May 1-31	1		
Chungking	Aug. 29-Sept. 4			Present.
Ichang			1	Reported May 1, 1926. Occurring among troops.
Wanshien				Present among troops, May 1, 1926. Locality in Chungking consular district.
Chosen				Feb. 1-May 31, 1926: Cases, 887; deaths, 91.
Chemulpo	May 1-June 30	38	2	
Do	July 1-31	7	2	
Gensan	June 1-30	1		
Seoul	do	8	3	
Do	July 1-Aug. 31	8		
Czechoslovakia				Jan. 1-June 30, 1926: Cases, 156; deaths, 6.
Egypt:				
Alexandria	July 16-Aug. 19	3		
Cairo	Jan. 29-Mar. 4	74	17	
Do	July 23-Aug. 5	1		
Port Said	June 4-24	4	1	
Do	July 9-Aug. 19	4	1	
Great Britain:				
Scotland—				
Glasgow	July 30-Aug. 21	9	1	
Ireland (Irish Free State):				
Cobh (Queenstown)	May 30 June 5	1		
Do	June 27-July 3	1	1	
Cork	June 5	1		
Kerr County—				
Dingle	June 27-July 3	1		

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

Reports Received from June 26 to October 29, 1926—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Italy				Mar. 28–May 8, 1926: Cases, 3.
Palermo	Sept. 12–18	1		
Japan				Mar. 28–May 29, 1926: Cases, 37.
Latvia				May 1–June 30, 1926: Cases, 19.
Lithuania				Mar. 1–June 30, 1926: Cases, 199; deaths, 22.
Mexico				Feb. 1–Apr. 30, 1926: Deaths, 110.
Durango	July 1–31		1	
Mexico City	May 16–June 5	20		Including municipalities in Federal District.
Do	June 13–19	9		Do.
Do	July 25–31	3		Do.
Do	Aug. 15–Sept. 18	31		Do.
San Luis Potosi	June 13–26			Present city and country.
Morocco				Mar. 1–June 30, 1926: Cases, 426.
Norway:				
Stavanger	Sept. 6–12	1		
Palestine				Mar. 1–June 30, 1926: Cases, 14; deaths, 1. Aug. 10–Sept. 13, 1926: Cases, 5.
Gaza	July 6–12	1		
Haifa	July 13–Aug. 30	5		
Halalal	Aug. 17–23	1		
Jaffa district	June 15–28	5		
Jerusalem	Sept. 14–20	1		
Majdal district	July 13–Aug. 2	2		
Nazareth district	do	3		
Tiberias	Aug. 3–9	1		
Yavneil	Aug. 17–23	1		
Persia:				
Teheran	May 23–June 22		1	
Peru:				
Arequipa	Jan. 1–31		2	
Poland				Mar. 28–June 26, 1926: Cases, 1,272; deaths, 85. June 27–July 24, 1926: Cases, 147; deaths, 11.
Rumania				Mar. 1–May 31, 1926: Cases, 711; deaths, 69.
Russia				Jan. 1–Mar. 31, 1926: Cases, 14,814.
Tunisia				Apr. 1–June 30, 1926: Cases, 110.
Tunis	June 11–30	3		
Turkey:				
Constantinople	June 16–22	1		
Union of South Africa				Apr. 1–May 31, 1926: Cases, 153; deaths, 19.
Do				July 1–31, 1926: Cases, 90; deaths, 17.
Cape Province				Apr. 1–June 30, 1926: Cases, 202; deaths, 24, native. July 1–31, 1926: Cases, 58; deaths, 15.
Glengray district	June 27–July 3			Outbreaks.
Grahamstown	do	1		
Natal				Apr. 1–June 30, 1926: Cases, 28. July 1–31, 1926: Cases, 23; deaths, 2.
Durban	July 25–Aug. 7	9	1	
Orange Free State				Apr. 1–June 30, 1926: Cases, 24; deaths, 4. July 1–31, 1926: Cases, 7.
Transvaal				Apr. 1–June 30, 1926: Cases, 10; deaths, 5. July 1–31, 1926: Cases, 2. Aug. 15–21, 1926: Outbreaks.
Johannesburg	Aug. 29–Sept. 4	1		
Walkkerstroom district	June 20–26			Outbreaks.
Wolmaransstad district	do			Do.
Yugoslavia				Apr. 15–June 30, 1926: Cases, 48; deaths, 7. July 1–Aug. 31, 1926: Cases, 3; deaths, 1.
Zagreb	May 15–21	1		

YELLOW FEVER

Brazil	Reported June 26			Present in interior of Bahia, Pirapora, and Minas.
Bahia	May 9–June 26	10	7	
Do	July 4–10	1		
Gold Coast	Apr. 1–May 31	6	3	