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INFLUENZA PREVALENCE

Information received from the health section of the League of Nations under date of February 10, 1927, shows an increase in influenza prevalence in Bulgaria, with more than 100,000 cases and 400 deaths reported during the first week in February. Increased prevalence was noted especially at Bourgas and Plevna.

One hundred and five great towns of England and Wales report 818 deaths during the first week of February. The disease was decreasing in London.

Moderate increases were reported for Czechoslovakia, eastern Hungary, and Portugal, and marked increase was reported for Japan.

The latest detailed reports relative to influenza in foreign countries are printed on pages 516–519, and a table comparing the prevalence of the disease in the United States during the first four weeks of January of the years 1925, 1926, and 1927 is given on page 503.

PARIS GREEN APPLIED BY AIRPLANE IN THE CONTROL OF ANOPHELES PRODUCTION

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In February, 1926, preparations were made for attempting complete control of mosquitoes at the marine barracks at Quantico, Va. The presence of malaria and the infestation of mosquitoes made such work necessary. The type of endemic malaria in that section is mild, consisting mostly of benign tertian. Men return to the station from duty in Haiti, Cuba, and other tropical posts where virulent types of malaria are prevalent; and without *Anopheles* control there is constant possibility of locally disseminating pernicious malaria.

Prior to the building of the camp no local records were kept. Old inhabitants state that the village of Quantico had the reputation of being the "worst hole for malaria on the Potomac."

Records of the two counties and the post show a moderate amount of malaria for the past few years, as shown in the table below.

	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Prince William County	------	------	------	------	62	33	22	14	26	3
Stafford County	------	------	------	------	27	22	10	27	14	7
Marine barracks	------	------	------	------	------	124	48	30	28	3

Aside from the possibility of malarial transmission, the mosquitoes have been very annoying, at times becoming so numerous as to be almost unbearable. Dr. H. R. Carter (1), in 1917, reported a large flight of pestiferous mosquitoes, necessitating the screening of all barracks. We have been informed by various persons of the post that, even in screened houses, the use of mosquito nets and repellents, such as citronella oil, has been necessary.

Topographical conditions surrounding Quantico, Va., afford an infinite variety of mosquito-breeding areas. The marine barracks are situated on the western bank of the Potomac River, about 30 miles south of Washington. The military reservation comprises 5,500 acres in Prince William and Stafford counties, and is the base for the East Coast Expeditionary Forces. In point of numbers, this is one of the largest military posts within the continental limits of the United States, having a personnel of approximately 5,000—a small city in size.

The western bank of this portion of the Potomac rises abruptly to an elevation of about 20 feet, then flattens out, forming a narrow plateau about one-quarter of a mile wide. From here rises a series of steep, knobby hills and short ridges to an elevation of 150 feet. The hilly section is scarred with numerous deep ravines, dotted with potholes, through which there is no current except during rains. On the plateau the brooks become swamps before entering the river. The creeks are free-running streams until they near the river, when they widen into swamps, then tidal marshes, and finally become comparatively open bays with narrow outlets.

The barracks, quarters, and warehouses are situated on the Potomac between two creeks. To the north is Quantico Creek and to the south is Chopawamsic. Both of these creeks well illustrate the unusual mosquito-breeding facilities of this whole area. About 2 miles west of the Potomac River, each creek becomes a swamp with innumerable pools and sluggish water ways. A mile from the river the tides are felt and the swamp becomes a broad marsh; the lower half mile is a broad bay with a narrow outlet into the Potomac.

Through the post run three smaller streams—Little Creek, Camp Creek, and Muddy Run. The whole area of the reservation is full of depressions, both natural and artificial, which fill during every rain and supply breeding places for enormous numbers of pestiferous mosquitoes.

History of Control Measures

Prior to 1926 all active measures for mosquito control were carried on only in the area between Chopawamsic and Quantico Creeks. Reliance was placed on the thorough screening of barracks and quarters and on the extensive drainage and oiling of the swamps and streams within the post. In 1917 Doctor Carter (1) advised that the eel grass mats in Quantico and Chopawamsic Bays be either raked out or dragged into the current.[1]

The records of 1918 show Ebert's attempt with many bubbling oil cans on the bottom delivering oil beneath the grass mats. Apparently these were unsatisfactory, as there is no record of their further use. Subaqueous saws were being used at that time with success at Chickamauga, Ga. (2), and were used at Quantico during that season. Doctor Carter (3) reported that this saw was successfully used in cutting water lilies, lotus, and eel grass. However, the year's report for 1918 ends with the hope that they might be able next season to cut all of the eel grass with subaqueous saws. No records can be found for 1919 and 1920, and the malaria work for 1921 is dismissed with the statement that the malaria rate among the troops was 51.23 per 1,000.

In 1922 when arsenic was first reported as of use in controlling Anopheles breeding, its application on the bays here must have appealed to those in charge. One hundred pounds of Paris green were purchased and mixed with road dust. This was thrown over Chopawamsic and Little Creeks in six separate dustings during the summer. No check on results was attempted. It was believed to be effective at the time; but there were 124 cases of malaria that season, and the experiment was not repeated. From 1923 through 1925 the records show that large amounts of oil were distributed within the camp proper, and some ditching was done. No serious attempt had as yet been made to control mosquito production from the bays at the mouths of Quantico or Chopawamsic Creeks.

In 1926 work within the camp was carried on as in previous years and, in addition, we controlled the breeding of *Anopheles quadrimaculatus* in Quantico and Chopawamsic Bays. The Marine Corps furnished all the necessary labor, transportation, and larvicides; direction of the work, under the post surgeon, Capt. W. M. Garton, M. C., U. S. Navy, was placed in the hands of the Chief of the Department of Sanitation. The Public Health Service, upon the request of the Bureau of Medicine and Surgery, detailed one officer and two inspectors from its malaria field force to advise the camp authorities and to make a study of the control work and its effectiveness.

[1] We attempted this in 1926 with 16-foot lengths of 2 by 4s studded with nails. They were dragged through the eel grass and lilies until a path approximately 100 feet wide had been covered. This required four hours' time of 15 men with six sickles, a motor boat, and a row boat. At the end of this time, thoroughly wearied, the attempt was abandoned. The path was very poorly cleared.

The cooperating forces mapped out the campaign for the ensuing season in three steps:

(*a*) Drainage within the camp.
(*b*) Oiling for local pest control.
(*c*) The control of Anopheles breeding in the bays of Quantico and Chopawamsic Creeks.

Control Problem for 1926

There are three general types of breeding areas within the reservation, namely, (1) temporary puddles and containers, (2) the swampy upper reaches of Chopawamsic and Quantico Creeks; the lower swampy ends of Little Creek, Camp Creek, and Muddy Run; and (3) the open, bay-like mouths of Chopawamsic and Quantico Creeks.

The first type, temporary pools and containers, will not be discussed here except to say that they were innumerable and that production of the various *Culex*, *Aëdes*, and *Psorphora* which bred therein was controlled with oil-soaked sawdust and oil from spray cans by hand labor.

The second type (swamps) were of interest only where they were close to the inhabited portions of the reservation. Throughout the summer the only mosquitoes produced from these areas were *Anopheles punctipennis* and various *Culex* and *Aëdes*. The breeding of the second type was controlled by drainage, filling, and oiling. This feature of the campaign will not be discussed here, as it was carried on primarily as a measure of control of the pestiferous mosquito.

The third type, at the mouths of Chopawamsic and Quantico Creeks, are tidal areas, the tidal fluctuation being about 2½ feet. Both have comparatviely large areas of typical tidal marsh—i. e., grass-covered flats, bare at low tide and flooded at high—and many acres of open shallow water. The tidal channel meanders through the flats and cuts a deep waterway through the open reaches. There was no perceptible current except in this channel. In the summer of 1926 the shallower portions (from the bank out to a depth of 2 feet) were densely overgrown with large pond lilies (*Nymphaea odorata var. gigantea*, Hort.), arrow head lilies (*Sagittaria latifolia*), water chinquapin (*Nelumbo lutea*), and some pickerel weed (*Pontederia cordata*). Beyond this growth, up to the edge of the channel in 2 to 8 feet of water, grew eel grass (*Vallisneria spiralis*), among which was some *Myriophyllum heterophyllum* and *Elodea canadensis*, and patches of an unidentified closely growing water lily with a small spear-shaped leaf.[2]

The tidal marsh of Quantico Creek is unbroken except for the channel. The marsh of Chopawamsic is dotted with large and small

[2] This is probably *Sagittaria lorata*.

lakes and pools. The largest, known as Robinson's Pond, is very close to the flying field.

Toward the end of July some of the eel grass and spear-leaved lily died and rose to the surface, making a tangled mat of flotage in which grew much algæ. The mats were held stationary by the live eel grass until winds and very high tides dislodged them and carried them to the river. They were soon replaced with more dead eel grass so that flotage was practically always present in these bays until cold weather.

With the advent of eel grass flotage in Chopawamsic and Quantico Bays in late July, *Anopheles quadrimaculatus* appeared. Their larvae were taken wherever dead eel grass was found, both in the open and shaded areas, where it collected among the stems of the large-leaved upstanding lilies. Breeding, however, was heavier and more extensive in the open areas, where the water ranged from 3 to 8 feet in depth. Some larvae were found under the flotage. Most larvae were seen to be lying quietly between the leaves, but often large larvae (fourth stage) were observed perched on top of apparently dry leaves. This was observed most frequently on the hottest of bright midsummer days.

An interesting account of the anopheline breeding found in these bays has been given by Dr. H. R. Carter (1). Doctor Carter examined these areas when the camp was first built and stated that, in 1917, up to the end of July, no production of *Anopheles quadrimaculatus* had been found, except a very few in the pools at the mouth of Camp Creek. On September 3, a number of houses at Quantico were searched and a large number of *Anopheles quadrimaculatus* were found. Four hundred and forty-two specimens were taken in a small isolated group of tents one-third mile from the mouth of Chopawamsic Creek. All other possible breeding places were controlled up to a mile distant from quarters. In Chopawamsic and Quantico Creeks Doctor Carter found acres of wild celery (eel grass) in 2 to 6 feet of water, up to half a mile from shore. Its long blades floated just level with the surface of the water, rising and falling with the tide and pointing down the current. Among the flotage here was found heavy breeding of *Anopheles quadrimaculatus*. As Doctor Carter puts it: "In these creeks there was the heaviest breeding of Anopheles I have ever seen over a large area, and we estimated the average number of larvæ per dip at 8, but one dipper took 52. Also, the same conditions, breeding in deep water, had been noted on Broad River, S. C., and other places in our work on impounded waters, but none so spectacular as this. This problem of control of this breeding is a very difficult one " (1).

During the season of 1926 a careful search was made for adult *Anopheles quadrimaculatus* in or near the camp. The first of this

species were noted on the Chopawamsic Creek side on July 16 and 17, when nine and two, respectively, were taken. The first adults on the Quantico Creek side were taken on July 21, when seven were found.

The first quadrimaculatus larvæ were found in the flotage among the eel grass in Quantico Bay on July 29, when five larvæ were taken in 50 dips.[3]

Chopawamsic Creek was extensively examined on August 3, when two larvæ per 50 dips were found. From this point on, some adult *Anopheles quadrimaculatus* could always be found in favorable roosting places until late in October. Larvæ of *Anopheles quadrimaculatus* were found intermittently in both bays as late as September 29. Throughout the season the only larvæ found in these bays proved to be *Anopheles quadrimaculatus*, with the exception of 11 Culex. Five were unidentified, six being *Culex testaceus*. The larval infestation of these bays was almost exclusively of *Anopheles quadrimaculatus*.

Control Program for 1926

Former attempts at control from land and water having failed, it was determined to attack the problem from the air, by distributing Paris green from an airplane.

Dr. M. A. Barber and T. B. Hayne (4) in 1921, experimenting with Paris green as a larvicide, found it to be entirely effective against anophelines. The application of insecticidal dusts by airplane was first demonstrated by the Army Air Service, in cooperation with the Ohio State Experimental Station (5) in August, 1921. This was both experimental and practical work for the control of the catalpa sphinx. In 1922, the Department of Agriculture and the Army Air Service commenced their extensive experiments in the dusting of cotton from airplanes. Coad, Johnson, and McNeil (6) were in charge and developed a very successful method of dust distribution and demonstrated both the effectiveness of the airplane in distributing insecticidal dusts and the greater economy of this method as against applications from the ground.

Following these developments, Dr. W. V. King and G. H. Bradley (7), Bureau of Entomology, Department of Agriculture, in 1922, 1923, and 1924, carried on successful experiments with the distribution of Paris green from an airplane and demonstrated the effectiveness of such application in controlling production of *Anopheles*.

The commanding officer of the flying field at Quantico was very enthusiastic over the project of mosquito control by airplane, and tendered every possible assistance throughout the season.

[3] In dipping, long-handled white enamel dippers were used, the bowl of which was 4 inches in diameter and held 400 c. c. In making the dips the surface was skimmed until the dipper was nearly full.

Doctor King visited us early in the year and gave freely of the knowledge and experience gained in his experimental work. He materially assisted in formulating our program. We were also fortunate in having a visit from Dr. M. A. Barber and Mr. J. A. Le Prince, both of the United States Public Health Service, to whom we are indebted for many valuable suggestions.

Lieut. F. G. Cowie, United States Marine Corps, engineer officer, of the flying field, was detailed to construct a hopper and equip the plane. He made a hopper of 20-gauge galvanized iron of the following dimensions: 3 feet high by 2 feet wide by 3 feet long, the lower 12 inches sloping to the center of the hopper at an angle of 30°. The hopper was installed forward of the cockpit in a TW–3 airplane. This type of plane has a low landing speed, is easily maneuvered, and, of the planes available, was considered the safest to use in low flights over marshes and wooded swamps.

The filler hole, 7½ inches inside diameter, was equipped with a self-locking top. The opening through which the mixture was discharged was 6½ inches inside diameter. This opening was fitted with a sliding door held shut by means of springs and actuated by a cable control that was carried back into the cockpit and terminated in a handle within easy reach of the operator. This handle was mounted on a racket quadrant to permit the degree of opening to be regulated.

An agitator was installed in the center of the hopper. This was equipped with a spiral vane 12 inches above its lower end. At the lower end of the shaft, fins were attached 90° apart. These fins made a wipe fit with the inside of the outlet.

A venturi tube was installed under the fuselage of the plane. Its dimensions were 4 feet 4 inches long by 12 inches high at the mouth—3¾ inches high at narrowest point—by 25 inches wide. The outlet of the hopper opened into the constriction of he venturi tube, the point of greatest air velocity, from which the dust was blown out in an even cloud. Such a tube traveling through the air at a high rate of speed creates a small volume of high velocity at its narrow portion and a partial vacuum at its outlet. The dust under abnormal air movement is well broken up as it enters the partial vacuum.

The average load carried on the dusting flights was about 200 pounds. The average flying speed was 65 miles per hour. The plane with this load answered to the controls nice y.

The first flights were experimental and were conducted over upper Chopawamsic Swamp, which is almost impenetrable by land. Portions of this swamp are heavily wooded, with tangled underbrush of vines and briars; other areas are a mass of matted grass and briars interspersed with dense thickets. It required two hours to walk 1 mile through this swamp.

It was necessary to cut three paths from north to south, a half mile apart, in order to set out our pans of larvae and slides for testing larval mortality and the distribution of Paris green.

Path No. 1 crossed the upper and wider part of the swamp; No. 2 crossed the center; No. 3 crossed the narrow lower end. Numbered stakes were driven in the paths 25 feet apart and a pan was set near each stake, care being taken to place the pans out of the path and among each type of vegetation in the swamp. Each pan was half filled with water from the swamp and baited with a varying number of *Anopheles* and *Culex* larvae.

At intervals of 2 to 24 hours after each flight the larval mortality was noted.

A 2-inch by 4-inch glass slide was set beside each pan. Subsequently to each flight these slides were collected and examined under a microscope to determine the number of particles of Paris green per square inch. No adhesive material was necessary.

Observation of larval mortality by dipping natural breeding areas in this section was impossible; the undergrowth was too tangled to allow ready access; therefore the lethal effect of the dust was measured by the death of larvae placed in the pans set near the paths across the swamp.

Although Dr. W. V. King had reported on a large number of tests flights made by him for the purpose of determining the necessary amount of Paris green, the effect of wind, and the width of the path covered by Paris green at each trip of the plane, it was thought necessary to check these findings with our equipment and under local conditions.

Experimental Flights

First experiment—June 21, path No. 3

Number of pans: 24.
Larvae per pan: 10 *A. punctipennis* and 10 *Culex* (species undetermined).
Height of flight: 100 feet.
Wind: S. S. E., 11 miles per hour.
Weather: Bright and clear.
Dust mixture: 10 per cent by weight of Paris green with powdered soapstone.

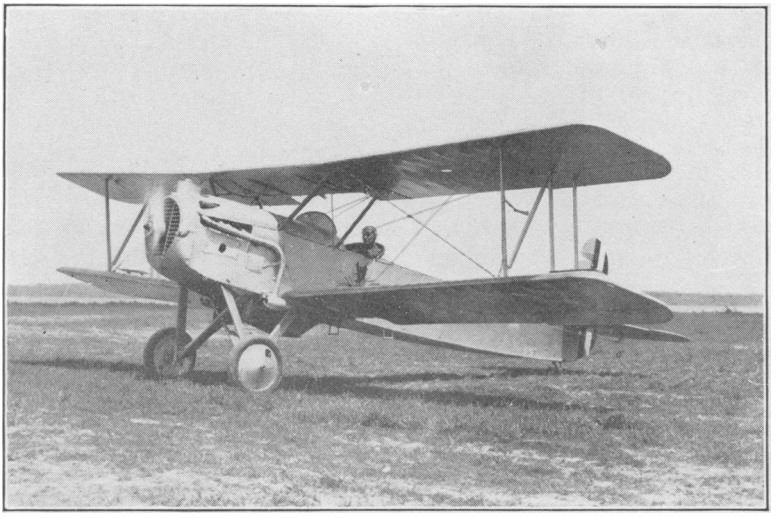
Flight.—The plane crossed the line at right angles, making but one trip.

Results.—Paris green was found fairly evenly distributed from pans 7 to 24, the concentration varying from 5 to 20 particles per square inch. Three hours after dusting, most of the larvæ were alive. At the end of seven hours a few pans showed a 25 per cent mortality.

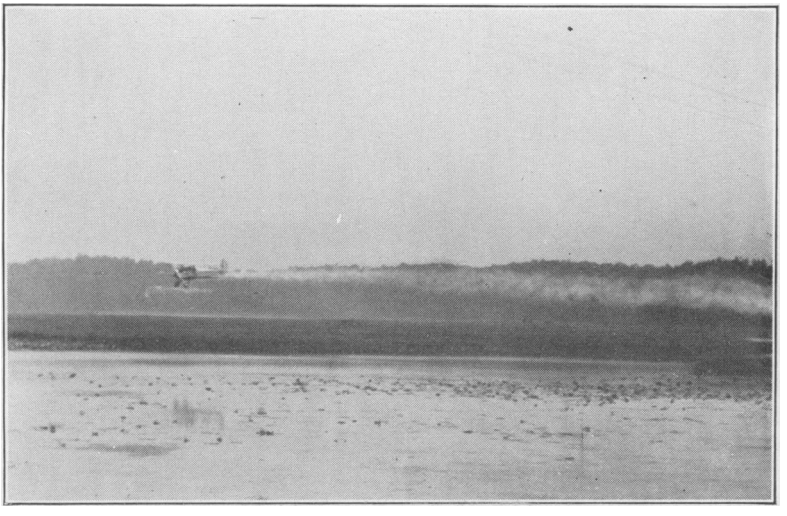
Conclusions.—1. The path of Paris green made by one trip of the plane was approximately 200 yards wide.

Aerial view of Quantico. Flying field in the foreground; Marine Barracks between the two creeks

Dense eel grass mats in Quantico Bay



Dusting plane



Plane releasing dust cloud over swamp

2. Ten per cent Paris green was too great a dilution to use from this plane at a flying altitude of 100 feet and in a wind of 11 miles per hour.

Second experiment—June 22, path No. 3

Number of pans: 24.
Larvæ per each pan: 10 *A. punctipennis*, 10 *Culex* (species undetermined).
Height of flight: 100 feet.
Wind: 7 miles per hour.
Weather: Cloudy—light rain immediately before flight.
Area dusted: 50 acres.
Dust: 50 pounds Paris green with 150 pounds powdered soapstone.
Flight: Aviator attempted to make each trip 200 yards apart, releasing dust just before entering the area and closing valve after passing.

Results.—The distribution was excellent, 11 slides receiving 25 particles of Paris green per square inch, the others varying from 50 to 150. The mortality among the *Anopheles* 17 hours after dusting was very high. The lowest anopheline mortality in the pans was 70 per cent; the next was 80 per cent; 4 showed 90 per cent; and the remainder (16 pans), showed 100 per cent.

Culicine mortality, although variable, was also very high. One pan showed over 50 per cent mortality; one, 60 per cent; two, 70 per cent; three, 90 per cent; and the remainder (13), 100 per cent. (Two pans were spilled.)

This experiment was controlled without the use of Paris green. Nine pans were put in the same location on June 25 and examined at the end of 24 and 42 hours. The mortality was fairly high at the end of 24 hours. One pan showed no larval mortality; two showed 20 per cent; two, 40 per cent; one, 60 per cent; two, 75 per cent; and one, 100 per cent. These figures are for anophelines. The Culex showed approximately the same degree of mortality. At the end of 42 hours the anopheline mortality was much higher: Two showed 20 per cent; one, 40 per cent; three, 75 per cent; and three, 100 per cent. The mortality was practically the same among the Culex.

From this it was apparent that considerable larval death could be expected within the pans after long exposure. The dusted pans, however, yielded a very much higher mortality after 17 hours' exposure to Paris green than did the controls after 42 hours of sun.

Conclusions.—(1) Twenty-five particles of Paris green to the square inch were sufficient to insure death of nearly all *Anopheles* larvæ present.

(2) The required concentration was obtained by using 1 pound of Paris green with 3 pounds of soapstone per acre.

(3) Height of 100 feet satisfactory in 7-mile breeze.

(4) Wet vegetation was not a bar to dusting.

Having established an effective lethal concentration under existing conditions, the next experiment was designed as an attempt to establish a minimal lethal concentration.

Third experiment—July 1, paths Nos. 1, 2, and 3

Number of pans:
Path No. 1: 42.
Path No. 2: 23.
Path No. 3: 24.
Larvæ per pan: 5 *A. punctipennis*, 5 *Culex* (species undetermined).
Height of flight: 100 feet.
Wind: 6 miles per hour.
Weather: Sunny.
Area dusted: 156 acres.
Dust: 78 pounds Paris green with 478 pounds soapstone.
Flight: Aviator was instructed to put the total quantity of dust over the swamp as evenly as possible.

Results.—The dusting flight consumed just 28 minutes, including the necessary time [4] to return to the field for refilling the hopper. A fairly even and effective distribution was observed over the narrow end (No. 3) line. One end of this pan line was missed altogether, as was a small path near the middle. Where the dust was observed, the concentration was found to vary from 8 to 25 particles per square inch, only one slide showing as high as 50 particles. Where the dust fell it killed. The distribution at the middle pan line (No. 2) was very poor. The dust was found only in small quantities and apparently covered only one path approximately 100 yards wide in the center of the line. The remainder of the path was missed altogether.

In line No. 1 both ends were missed and a slightly irregular distribution of dust was seen over the middle half of the line. One slide showed 25 particles, one 20, one 12, and the remainder below 10. The mortality was very low for the most part, only six pans showing 100 per cent.

In this dusting, 16 paths were made by the plane over the swamp. All 16 went over pan line No. 3 at the lower narrow end, an excessive dusting, whereas pan lines Nos. 1 and 2 (the widest portions of the swamp) were crossed but a few times, variously estimated by the observers on duty at two or four trips.

It seemed to us that the quantity (one-half pound per acre) gave an insufficient margin of safety, and that the dilution (14 per cent Paris green) was perhaps too great.

This flight was controlled on July 2, when 10 pans were placed in path No. 1. After four hours of exposure all larvae were living, except in 3 pans, one larva being dead in each of the three. These were checked again at the end of 24 hours, and one pan showed all alive; two showed 20 per cent dead; five, 40 per cent; one, 60 per cent; and one, 80 per cent. Culex were practically the same. In other words, a moderate degree of mortality in the control at the

[4] Generally about 20 minutes were required in landing the plane, filling hopper, and returning to the swamp.

end of 24 hours, contrasted with a very high degree of mortality four hours after the dusting flight of the previous day.

Fourth experiment—July 16, paths Nos. 1 and 3

Number of pans:
Path 1: 29 pans.
Path 3: 24 pans.
Larvae per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 50 to 200 feet.
Wind: 8 miles per hour. Air bumpy.
Weather: Sunny; temperature 66° F.
Area dusted: 156 acres.
Dust: 156 pounds Paris green with 156 pounds soapstone.
Flight: Time, 1 hour, including 2 trips to reload; 9 full paths up and down swamp; 7 paths half way.

The distribution of Paris green was much better than in the previous experiments. In No. 1 line 12 of the pans were missed altogether; the remainder showed 8 to 25 particles of Paris green per square inch. The mortality followed the distribution of Paris green very closely. In line No. 3 only one pan was missed. The others varied from 8 to 25 particles of Paris green per square inch, except on 3 slides, which received 125 each. Mortality was high, though not 100 per cent, in this pan line.

Following the flight of July 16, controls were put out on July 17 and left until July 18. Four and a half hours after being so placed all larvae were living in all pans except two, one of which had 20 per cent mortality and the other 80 per cent. Twenty-one and a half hours afterwards all larvae were living in six pans; one showed 20 per cent mortality; two, 25 per cent; and one, 80 per cent. The pans showing 20 per cent and 80 per cent were the same in both checks. This control was in pan line No. 1. At the same time a control was similarly placed in line No. 3. Here the mortality was higher than in line No. 1. At the end of 9 hours all were living in three pans; two showed 25 per cent mortality; one, 40 per cent; one, 50 per cent; two, 80 per cent; and one, 100 per cent. At the end of 24 hours in no pans were all alive; one showed 50 per cent mortality; one, 75 per cent; four, 80 per cent; and two, 100 per cent. Most of the dusted pans in the same line showed 100 per cent mortality at the end of 6½ hours.

Conclusions.—(1) Bumpy air, requiring higher flights, is no bar to dusting when a concentrated mixture is used.

(2) Fifty per cent dilutions give good distribution of Paris green.

Fifth experiment—July 19, path No. 3

Number of pans: 24.
Larvae per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 25 to 100 feet.
Wind: 6 miles per hour.

Weather: Sunny.
Area dusted: 156 acres.
Dust: 78 pounds Paris green with 234 pounds hydrated lime.

The distribution of Paris green was excellent, only one pan being missed. All other pans received at least 12 particles per square inch—four of them 50, four 150, and two 250. Mortality was high throughout, excepting only the pan that was missed. In four and one-half hours all anophelines were dead in all but six pans. In the five which received Paris green the mortality varied from 50 per cent to 80 per cent.

Sixth experiment—July 27, paths Nos. 1 and 3

Number of pans:
Path No. 1: 26.
Path No. 3: 24.
Larvæ per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 100 feet.
Wind: 4 miles per hour.
Weather: Bright.
Area dusted: 156 acres.
Dust: 156 pounds Paris green with 468 pounds hydrated lime.
Flight: Path No. 1 was crossed 14 times; path No. 3 was crossed 18 times.

The concentration of dust over the lower line was very heavy. The lowest slide received 38 particles per square inch; four received 75 particles per square inch; and the remainder received from 125 to 250 particles per square inch. Examination 6¼ hours after the commencement of dusting showed 100 per cent mortality in each of the 24 pans. The distribution, although good, was less in the upper pan line. Four slides received 8 particles per square inch, 12 received 20 to 25 particles per square inch, and the remainder from 50 to 250 particles per square inch. Five hours after commencement of dusting 16 of the pans showed 100 per cent mortality of anophelines, 5 showed 80 per cent, 3 showed 70 per cent, and 2 showed 50 per cent.

Conclusions.—These last two experiments were for the purpose of testing hydrated lime as a diluting powder. It gave as good a cloud as soapstone and produced an excellent distribution of Paris green. Hydrated lime is but slightly irritating to the eyes of those handling it, and its white color is an advantage in revealing an uneven mixture with Paris green.

Seventh experiment—August 10, paths Nos. 1 and 3

Number of pans:
Path No. 1: 26.
Path No. 3: 24.
Larvæ per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 25 feet to 200 feet.
Wind: 6 miles per hour.

Weather: Sunny.
Area dusted: 156 acres.
Dust: 156 pounds Paris green with 468 pounds soapstone.
Flight: 1 hour, 15 minutes, including two trips for reloading.

The plane made 21 paths over the lower, and 23 over the upper pan lines. The distribution of Paris green was excellent. One slide in the upper line showed 15 particles of Paris green per square inch. All the other slides in both lines showed at least 25 particles of Paris green per square inch, the number varying upward to 250.

Mortality in path No. 3, five hours after dusting, was 100 per cent in every pan except one, which had only 70 per cent. Mortality was more variable in path No. 1, being 60 per cent in 2, 80 per cent in 4, and 100 per cent in 16 pans.

Control pans were set out the next day, 9 pans being placed in path No. 1 and 10 pans in path No. 3. Dead larvæ were not observed in these until after 19 hours' exposure. In path No. 1 two pans showed mortality of 20 per cent; the others, 0 per cent. In path No. 3 four showed 20 per cent; the others, 0 per cent. This emphasizes the very high mortality seen after only five hours' exposure to Paris green.

Conclusions.—(1) One pound Paris green per acre is a sufficient amount.

(2) In wind velocities of not over 6 miles per hour, a 25 per cent concentration is preferable.

The following table includes data from the experimental flights as well as data from pan lines on the bridges during the flights for control as described hereafter:

Per cent of larvae dead in each pan	Number of pans receiving Paris green		
	25 or more particles of Paris green per square inch	10 to 24 particles of Paris green per square inch	9 or less particles of Paris green per square inch
100	58	5	2
95–99	73	0	0
90–94	36	6	9
80–89	41	12	5
60–79	1	12	13
50–59	0	0	----------
Total	209	35	44

This shows that among the pans receiving 25 or more particles of Paris green per square inch, the larval mortality was over 90 per cent in the vast majority of cases; and among the pans receiving less than 25 particles of Paris green per square inch, the vast majority showed a larval mortality of less than 90 per cent, half being less than 80 per cent.

It will be noted that *Culex* has been ignored in this discussion. Mortality among *Culex* in the first three experiments was high. Subsequently Paris green had little or no effect on that genus. The culicines used in the later experiments were identified. Paris green in our pans had no effect on *Culex pippiens*, *Psorophora columbiae*, or *Aëdes vexans*.

Flights for Control of Anopheles Breeding

For the purpose of checking the degree of anopheline control obtained in Quantico, it was necessary to keep under observation some point well beyond flight range, where breeding conditions were similar. For this purpose the region around Aquia Creek, 8 miles south of the reservation, was chosen. The upper reaches of this creek are almost identical with those of the Chopawamsic—comprising a free-flowing stream spreading out into a swampy area and then into a tidal marsh about 2 miles long. Its mouth is almost an exact replica of the entrance of Quantico Creek into the Potomac, in that it widens out into a relatively large tidal bay with much lotus (*Nelumbo lutea*) and eel grass (*Vallisneria spiralis*). About August 1, catches of *Anopheles quadrimaculatus* adults were made at various points about the lower part of this creek. About the middle of August all other places were discontinued and observations were made at a single point opposite the junction of the open bay and tidal marsh. Here was a farmhouse overlooking the water where were found ideal conditions for collecting roosting anophelines. The infestation of *Anopheles quadrimaculatus* was so great that the labor involved in collecting or even counting all the roosting mosquitoes precluded the use of all the excellent roosting places about this farmyard. Therefore between July 31 and October 26, 24 catches were made of all roosting *quadrimaculatus* that were in a double toilet, a hen house, and one-fourth of the underside of the porch around the house.

Active breeding of *Anopheles quadrimaculatus* in the eel-grass mats was noted for the first time in Quantico Bay on July 29. On July 30, larvae were sufficiently prevalent to yield 5 in 50 dips. So on August 5 the first dusting for practical control was made over Quantico Bay. It is not necessary to describe each dusting flight separately as all were similar in detail. In every flight over the bays, the flying altitude varied between 25 and 100 feet, and the dusting mixture used was equal parts (by weight) of Paris green and powdered soapstone.

In each flight the area dusted in Quantico Bay was 300 acres; in Chopawamsic, 500 acres.

Dustings were made under a variety of meteorological conditions—on hot, sunshiny days, just before and after rains, in winds varying

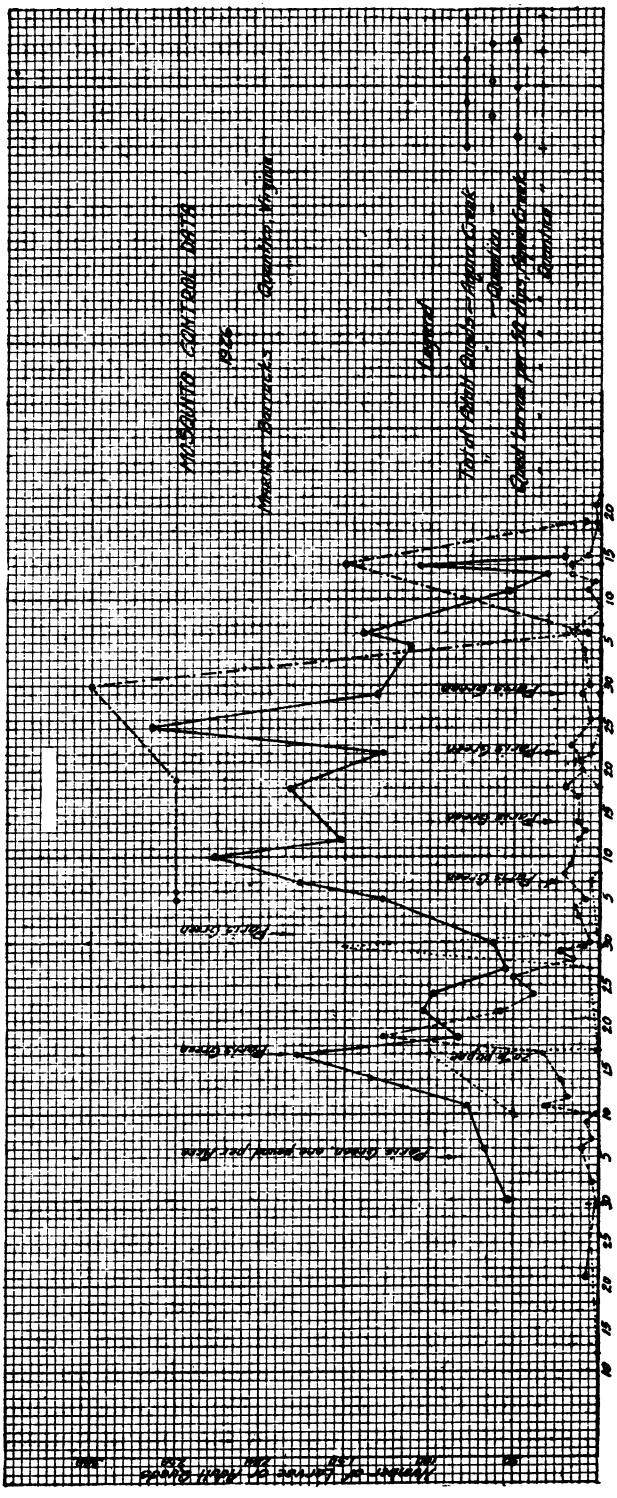


CHART 1.—Comparisons between anopheline prevalence at Aquia and Quantico Creeks

from barely perceptible air currents to velocities of over 5 miles per hour. Over open water, and at flying altitudes of not less than 100 feet, the dust path could be followed easily as it drifted from one-quarter to one-half mile. Under such conditions 50 per cent mixtures of Paris green could be distributed more easily than 10 per cent mixtures, and required much less flying.

The aviator flew "across" the wind, commencing on the windward side of the bay. He observed the drift of the dust cloud, thus determining the path of the return trip. The wind eddies that occur over open waters are constantly changing. These eddies have been seen to shift the dust cloud from north to south, and then suddenly back to north, within a few seconds. The shifting of the dust must be carefully observed by the pilot and taken into consideration in his subsequent trips over the area. This emphasizes the fact that the even distribution of the dust is in the hands of the pilot. We have noted that the pilots who have made a reconnaissance flight over the area before dusting have secured the most even distribution.

The first and second flights were August 5 and 6, over Quantico and Chopawamsic Bays, respectively. The floatage was not dipped at these times; but, as no adult mosquitoes appeared, it was presumed that the poison had been effective.

On August 10, larvæ again appeared in Quantico Creek at the rate of 50 per 50 dips. The larvæ were small and hence dusting was postponed. On August 17, the count had risen to 100 per 50 dips, with one pupa to every four larvæ. (This will be discussed in the consideration of adult Anopheles in the camp.) On this date the plane dusted the area with complete success so far as the larvæ were concerned, but the pupæ remained alive. Search made two hours after dusting yielded a total of nine dead larvæ and no live ones.

Breeding recommenced in the bay on August 27, being 5 per 50 dips. By August 30, the number of larvæ had increased to 150 per 50 dips, and the creek was dusted on the following day. Three hours after dusting, extensive search for two hours yielded a total of but two live larvæ. During September this bay was dusted at weekly intervals, although larvæ appeared only twice, once on September 7 and again on the 21st. Dusting at these times quickly brought the larval count to zero.

In Chopawamsic Bay, larvæ of *Anopheles quadrimaculatus* appeared on August 3, when two were taken in 50 dips. The bay was dusted on August 5 and larvæ did not appear again until the 13th, when the count again showed 2 per 50 dips. On August 27, the larval count was the same, and on September 3 it had fallen to zero—this without dusting. This phenomenon is inexplicable unless it be that heavy rains and high winds affect adversely the breeding conditions of Chopawamsic, even though such was not the case at Quantico Bay.

Chopawamsic was dusted on September 10 as a precautionary measure and on the 13th the count showed but two larvæ per 50 dips. On September 23 the number of Anopheles larvæ in this area rose to 100 per 50 dips, but an application of Paris green immediately reduced this to zero. Again on September 29, the count rose to 100 per 50 dips, only to subside to zero a few hours after the plane applied the dust. Never again during the season were larvæ found in this bay.

The waters of Chopawamsic and Quantico Bays were tested for salinity. At high tide we found chlorine to be 60 parts per million.

As a further check on the distribution of Paris green, pan lines were placed on the bridges over Chopawamsic and Quantico creeks for five of the flights. These showed an excellent distribution of Paris green and a high mortality of larvæ within the pans. They also revealed on two occasions that the edge of the bay had been missed by the dust.

The effectiveness of any mosquito-control method is best measured, not by larval counts, but by adult infestation. This was checked on both sides of the camp as near the two major breeding areas as possible. On the Chopawamsic side we chose two henhouses and a toilet, and on the Quantico side, one large henhouse (the only good place). Regular catches were made at these places and all adult mosquitoes caught were counted and identified. Adult *Anopheles quadrimaculatus* could nearly always be taken in small numbers near these two creeks. The number generally averaged less than 25 from the middle of June to the middle of October. This is a very small number when one considers the large size of the breeding area and realizes that the roosting places were most favorable for Anopheles and were the only good roosting places near the breeding area. It seems probable that on both sides of the camp there are either undiscovered small breeding areas or else, what is more likely, some breeding areas in the creeks from time to time missed being dusted by Paris green. It is also possible that exceptional larvae do not ingest the dust. Indeed this is the only reasonable explanation of the pan-line observations, where four of the five larvæ in each pan often died within three or four hours but the fifth lived 24 to 40 hours.

It is interesting to note that on both the Chopawamsic and Quantico sides of the camp, a few adult *quadrimaculatus* were taken from July 16 to 30, a period during which no *quadrimaculatus* larvæ could be found. With the advent of larvæ in the bays these adults disappeared. It may be possible that these adults were winter hibernators from the previous season. As was to be expected, they disappeared before active breeding was discovered, for, as Herms (8)

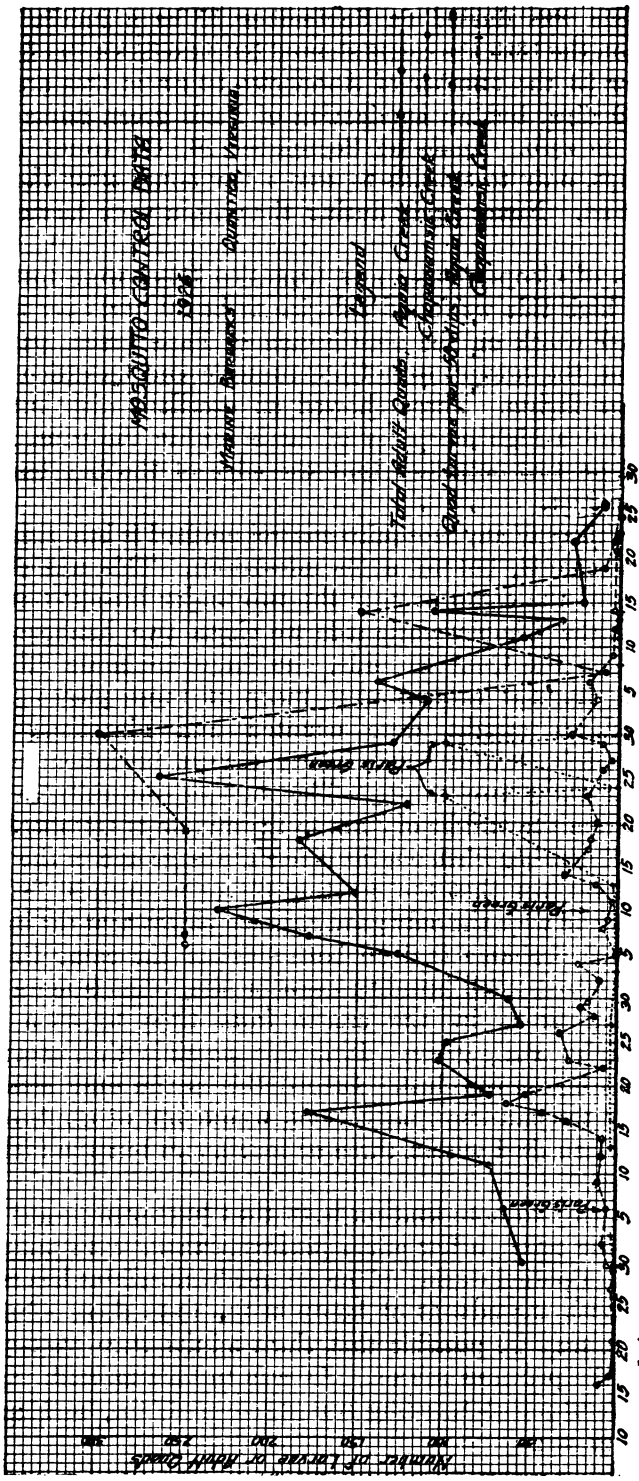


CHART 2.—Comparisons between anopheline prevalence at Aquia and Chopawamsic Creeks

points out, the hibernating fecund adult mosquito dies within a short period after laying her batch of eggs.

Whenever mosquito infestation was reported from quarters, search was made, and in three or four instances one or two *quadrimaculatus* were found. It is of interest to note that the two druggists of the town of Quantico volunteered the information that, whereas in previous years, including 1925, they sold an average of four gallons of citronella and quantities of other mosquito repellents; during the past season they had sold only one gallon.

In the body of the camp, *quadrimaculatus* were practically absent except during the one and only break in technique which occurred during the week of August 10. The first ground-soaking rain of the season fell on August 10, filling all depressions and creating temporary pools. As the *quadrimaculatus* larvæ (50 per 50 dips) in Quantico Bay were first-stage larvæ, it was deemed safe to delay dusting while all efforts were concentrated on the oiling of myriads of temporary pools, which, from their excessive larval content, bade fair to inundate the camp with an enormous influx of *Culex*, *Aëdes*, and *Psorophora*. The creek should have been dusted on the 10th; but when the plane was ordered out on the 15th, some mechanical trouble developed and the flight was delayed until the 17th. On that date larvæ were found in the bay at the rate of 100 per 50 dips. Had all of these been still in the larval stage, the dusting would have been in time. Unfortunately, 20 per cent had pupated. Pupa do not feed and therefore are unaffected by Paris green. The plane dusted the area with complete success as far as larvæ were concerned, but the pupa remained alive. Search made two hours after dusting yielded several dead larvae, no live ones, but a number of pupæ. Apparently these pupa hatched within the next two days, for the adult catch rose suddenly on the 19th to 127.

Over a 10-day period thereafter we had a mild infestation of *Anopheles quadrimaculatus* within the camp. At the end of this time practically all had left the camp proper and the catches at the creek edges had fallen to normal.

Two things of interest were noted during this period: First, this brief infestation was followed by a very great amount of justifiable protest on the part of the personnel of the camp. The annoyance and personal discomfort occasioned by these *quadrimaculatus* was as great as though a sudden cloud of pestiferous mosquitoes had appeared. The second point was that the adult infestation from this crop lasted exactly 10 days. This might lead one to believe that the average life of a single "crop" of Anopheles is not over two weeks. Similar observations have been made by one of the authors,[5] who reported

[5] Unpublished report of L. L. Williams, jr., on the effect of draining the fish pond at Toano, Va., in the summer of 1923.

such a disappearance of adult *Anopheles* two weeks after the cutting of a dam which removed the only breeding area from a certain section in James City County, Va., and who also reported (9) that an infestation of adult *Anopheles quadrimaculatus* about the upper part of Lake Prince, Nansemond County, Va., disappeared in 11 days after the breeding had been suddenly controlled. Of course, these observations do not mean that the natural life of Anopheles in nature is under two weeks. With only one crop of adults their natural enemies will decimate the brood more rapidly than when their falling ranks are constantly replenished by new emergencies. Also, considering the known extrinsic incubation of malaria, the life of a number of individuals must be over two weeks. However, it does indicate that if control operations be started after the first flight of Anopheles, persistence of numbers of adults indicates that some breeding has been missed. For, if all Anopheles breeding be controlled, then adults should disappear within two weeks. It has been the belief of malaria workers in general that Anopheles are not considered in the light of a pest. During the infestation here recorded, they were a pest and were so described frequently. This occurrence indicates that at times *Anopheles quadrimaculatus* may be as great an annoyance as the so-called pestiferous mosquitoes.

Perusal of the records of Aquia Creek, which we chose as our outside mosquito check, gives some idea of what might have occurred at Quantico if no control measures had been applied to Quantico and Chopawamsic Bays. At Aquia during August an average day's catch was about 100, varying from 50 to 175. These were the roosting *Anopheles quadrimaculatus* taken from the double toilet, henhouse, and one-fourth of the underside of the porch, probably 20 per cent of the total roosting *quadrimaculatus* about the farmhouse. In September, the average rose to about 150, fluctuating between 100 and 250. In other words, there was a rather heavy infestation during August, with the peak (177) on August 17, and a very heavy infestation throughout September, with peaks (277) on September 10, and (266) on September 25. In October the number fell rapidly until the end of the month, which saw practically a disappearance of adult *quadrimaculatus*. It was to be expected that a heavy infestation of this description would be accompanied by excessive breeding in the creek (the only possible breeding place within flight range of the farm house where the catches were made); and such was found to be the case. Between September 6 and October 25, nine expeditions were made by boat in lower Aquia Creek, where a search was made for *Anopheles* larvæ. They were easily found in the large floating mats of dead and dying eel grass (*Vallisneria spiralis*) and among the mats formed by floating spear-leaved lilies.[6]

[6] Spear-leaved lily is probably *Sagittaria lorata*.

The number of larvæ was so great that on one occasion after pushing the boat through a mass of eel grass and into the open water, among the lotus (*Nelumbo lutea* and *Sagittaria latifolia*) there were observed seven or eight *quadrimaculatus* larvæ swimming freely on the surface, at least 15 feet from the nearest patch of flotage. The larvæ were found clinging to the stalks of the upstanding lotus. A mat of flotage near by yielded larvae at the rate of 1,250 per 50 dips. Dr. H. R. Carter (10) reported finding *Anopheles* larvae breeding profusely in the lotus beds at Quantico in the summer of 1917. Doubtless this occurs only where breeding is enormous in amount.

It was noticed that among such heavy breeding, few culicines were taken. Throughout the entire season only 14 Culex larvæ were taken in Aquia Creek, Chopawamsic Bay, and Quantico Bay. They all appeared to be the same species, but six only were identified, being *Culex testaceous*.

In dipping Aquia Creek each type of flotage was sampled, the dips were counted, and the number of larvae in each 50 dips was recorded. From September 6 to October 1, larvæ of *Anopheles quadrimaculatus* here averaged from 250 to 300 in 50 dips. Cold weather at the end of this month reduced the number of larvæ as well as adults, the larvæ becoming very scarce. A week of warm weather in early October brought a new crop of larvæ and a brief return of adults, but both rapidly disappeared with a subsequent fall in temperature. The above is a picture of free breeding and heavy adult infestation with *Anopheles quadrimaculatus*. From Doctor Carter's report in 1917, and some observations of officers more recently, it is certain that the camp at Quantico would have shown as great an infestation had no control measures been instituted.

Cost of Materials Used in Chopawamsic and Quantico Bays

Paris green, 3,300 pounds	$556. 05
Soapstone, 4,700 pounds	23. 50
Total	579. 55
Number of acres dusted	800
Average number of dustings for each acre	5. 1
Cost per acre for season	0. 724

Summary and Conclusions

1. From 1917 through 1925, at Quantico, control of mosquito breeding was attempted through the use of drainage and oil within the post only.

2. These measures reduced the mosquito infestation appreciably but did not eliminate malaria convection on the post.

3. During these years the mosquito pest was excessive from the middle of summer until fall.

4. The late summer mosquito infestation was largely *Anopheles quadrimaculatus*, which came from the large breeding areas of the bays at the mouths of Quantico and Chopawamsic Creeks.

5. This mosquito production occurred among the flotage composed of heavy mats of dead and dying eel grass (*Vallisneria spiralis*) and spear-leaved water lilies.

6. In 1926 this mosquito production was controlled by Paris green applied from an airplane.

7. Dusting was effective against *Anopheles* in all types of vegetation, from open marsh to densely wooded swamp. It did not affect other mosquito genera.

8. The effective quantity of Paris green was found to be one pound per acre.

9. Hydrated lime and powdered soapstone were used as diluents and each was found to be satisfactory.

10. With wind velocities of less than 4 miles per hour and flying heights 100 feet or less, a 25 per cent Paris green mixture was effective.

11. In winds of greater velocity and with flying heights of over 100 feet a dilution of 50 per cent was effective.

12. The slides effectively revealed the distribution and concentration of Paris green. The pans of larvæ, although useful, did not give conclusive evidence of the mortality rate.

13. Larvae dipping in natural breeding areas is the most valuable method of determining the minimum lethal dose.

14. When breeding was continuous and heavy it was necessary to dust at weekly intervals.

15. The cost of material was $0.724 per acre.

Bibliography

(1) Carter, H. R.: Breeding of Anopheles Quadrimaculatus in Deep Water and at a Distance from Shore. Pub. Health Repts., April 19, 1918, pp. 571–572.

(2) Gorman, A. E.: Subaqueous Saws. U. S. Public Health Service, Pub. Health Bul. 104, Oct. 1919, pp. 58–63.

(3) Carter, H. R.: Discussion in U. S. Public Health Service. Pub. Health Bul. 104, Oct., 1919, p. 62.

(4) Barber, M. A., and Hayne, T. B.: Arsenic as a Larvicide for Anopheline Larvae. Pub. Health Rept., Dec. 9. 1921, pp. 3027–3034.

(5) Neillie, C. R., and Houser, J. L.: Fighting Insects with Airplanes. Nat. Geog. Mag., vol. 41, No. 3, March, 1922, pp. 232–238.

(6) Coad, B. R., Johnson, E., and McNeil, G. L.: Dusting Cotton from Airplanes. U. S. Dept. of Agric., Dept. Bul. No. 1204, January, 1924.

(7) King, W. V., and Bradley, G. H.: Airplane Dusting in the Control of Malaria Mosquitoes. U. S. Dept. of Agric., Dept. Cir. 376, April, 1926.

(8) Hermes, Wm. B.: Medical and Veterinary Entomology, p. 118.

(9) Williams, L. L. jr.: Effects of Pond Control on Malaria Prevalence. U. S. Public Health Service, Pub. Health Bul. 156, Nov. 25, 1924, p. 62.

(10) Carter, H. R.: Discussion in U. S. Pub. Health Bul. 137, Sept. 1923, p. 34.

PREPARATION AND USE OF INVESTIGATION FORMS

By V. L. ELLICOTT, M. D., Dr. P. H., *Epidemiologist, Baltimore City Health Department*, and ELLEN MURPHY ENGLERT, R N., *formerly Supervising Nurse, New York State Department of Health*

The question of how to draft and use investigation forms is one that, in the opinion of the authors, has received far too little attention, in spite of the fact that the form is one of the most essential parts of any investigation. A glance at some forms now in use will reveal such defects as (1) items with meaning not clear, (2) items after which insufficient writing space is provided, and (3) items arranged in an order inconvenient to the field worker. Defects such as these obviously make additional work for field workers and clerks and greatly detract from the accuracy and completeness of the results of the study.

DRAWING UP FORMS

While it is impossible to lay down rules applicable to the drafting of all types of forms, the following will be found helpful in most cases:

1. Before spending time preparing a new form, estimate the additional departmental work required in connection with a new form and consider whether the form is really worth while. New forms mean additional printing, field work, tabulating, and filing. The advantages of the new form must outweigh the disadvantages of this new work.

2. Go over your subject matter carefully and list all the information you wish to have included. To make this list complete, look over other similar forms to see whether they contain items which your new form should have. Then look over the following list of items which most forms require:

Name.	Color.	Illness.
Street.	Nationality.	Date of onset.
Ward or county.	Marital conditions.	Date of death.
Age.	Occupation.	Physician.
Sex.	School.	Investigator.

3. State the items clearly and definitely. Put yourself in the position of the field worker and consider how the expressions you are using on your form will be interpreted by the field worker. When desirable, suggest words to be used in the blank spaces. Do this by printing these words in parenthesis under the dotted lines. For example:

Type of onset _____
(Sudden, febrile, etc.)

4. Arrange your items in the order most convenient to the field worker—that is, begin with an item familiar to the person interviewed, and group together those items which are related in thought.

Do not consider tabulation when you are at the stage of arranging items.

5. Be sure not to include too many items, particularly if the class of persons interviewed is busy or if the investigation is made by workers not under your own supervision.

6. Let the forms show, preferably by a dotted line, each space that requires a record. If these spaces are conspicuous, the investigator or checker can tell at a glance whether any items have been overlooked.

7. Adopt a standard system of type arrangement so that each kind of type calls for a definite kind of record. The following is suggested:

(*a*) Place a dotted line wherever the investigator is to write out a record. Place the dots directly adjacent to the words to which they apply but separate them from any words to which they do not apply. Example:

Age at death ---------- months ---------- weeks.

(*b*) Place a dot and a dash where an item is to be recorded only when the previous item calls for a record.

Example: Died at *home* or . — . — . — . Thus, if the patient died at home, the word *home* is underlined and no record is called for after "or . — . — . —"; but if the patient did not die at home, the word *home* is checked as negative and the space after "or . — . — . — ." calls for a record for the place of death on the dot-dash line.

(*c*) Italicize words which the field worker is to underscore or check to make his record.

The italicized words are to be underscored by the investigator to denote a positive condition, and are to be marked with a short, straight, slanting line to denote a negative condition. Thus, *dirty* means that the home was dirty, while *dirty'* means that it was not dirty. This underscoring system has two decided advantages over the yes-no system (putting Y/N after words and having the investigator check the proper letter); namely, (1) the marking of the word itself is easier and less likely to be erroneous than the marking of the Y or N after it; (2) the underscored words, if care has been taken to have them represent unusual conditions, tell the reader at a glance where the variations from normal are. For the last reason, the underscoring system is particularly valuable in blanks used for inspection purposes.

8. Unless punch cards are to be used for tabulation, set aside a square or other area for coding purposes. See section below under heading "Forms especially designed for tabulation."

9. Always put a title on the form and a place for serial or index number; also a printer's or mimeographing number used in ordering more forms.

10. Before ordering printed forms try out a number of mimeographed or typewritten forms until you are sure of the items, spacing and arrangement.

INSTRUCTIONS TO FIELD WORKERS

No forms can be drafted so perfectly as to be foolproof against untrained or careless field workers. Every new form should be put into use only after giving specific instructions to field workers. The following suggestions are offered concerning this:

1. Verbal instructions should be used only to supplement written instructions. They should not be depended on alone.

2. When the field workers are not under the direct supervision of the director (investigations by police, for instance), the instructions should be attached to the forms, being printed either on the backs or on the cover sheet of each pad. Simplicity and clearness are doubly important in these directions.

3. If your investigation is to be accurate in all its details, have your directions cover practically every item, even if this makes them lengthy.

4. Instruct the workers to fill in the forms *during* their investigations, not to jot down notes on scraps of paper and fill in the blanks later on. If this is objectionable because of the difficulty of making neat records in the field, give your field workers "dummy" records to fill in in the field and copy in the office. The dummies, however, should be exact duplicates and should be kept temporarily for reference.

5. Instruct workers to fill out all items on the form, leaving no blank spaces. (Few investigators realize how meaningless a blank space is.)

6. Instruct workers to record doubtful data as accurately as possible, using such expressions as "mother thinks about one month," rather than "?", "unknown," etc.

7. Before accepting a record, insist on its being neat, on every item being filled in, and on only the regular symbols being used. Care at this point will make, or lack of care will fail to make, a high standard of accuracy.

8. Do a little test tabulation early in the investigation to see whether the material tabulates satisfactorily.

SORTING VERSUS ITEMIZING

Large-scale investigations require punch cards for tabulation. Small-scale investigations, those having but a few hundred forms, for instance, should be hand tabulated to avoid unnecessary delay.

The usual method of hand tabulation, however, is not satisfactory. This consists of turning over sheets one at a time and counting the number of times that certain particular items occur, and is usually unsatisfactory because it shows only the *total* number of occurrences of each item, not the occurrence of one item in a selected group of

cases.[1] For instance, if about 400 forms of physical examinations of school children are being tabulated, it would be desirable to know not only the total incidence of malnutrition and of enlarged tonsils, but also the incidence of malnutrition *among* children with enlarged tonsils. If these forms were tabulated in the ordinary way, the results would show, say, 20 cases of enlarged tonsils and 48 cases of malnutrition, but they would not show how many of the children with enlarged tonsils were malnourished.

The logical means of overcoming this difficulty is to make hand tabulation by sorting the forms into piles instead of jotting down items from them. To do this, each report sheet is placed on one of a series of piles according to the record found under the item chosen for tabulation. After this is done, one of the piles is simply sorted for records under a second item. In the above example, the reports would first be sorted under the item "tonsils." One of the piles would be composed entirely of enlarged-tonsils records and would have 20 sheets. This pile would then be re-sorted for the item "nutrition," and one of these piles would be composed entirely of malnutrition sheets. The number of sheets in this pile would represent the number of malnutrition cases *among* the enlarged-tonsil group; this being the desired information.

"CODED SQUARE" SHEETS

Sorting into piles, however, is a clumsy process if large record sheets are used. To overcome this mechanical difficulty, the data of each large sheet may be summarized on small cards or on a part of the large sheet set aside for the purpose; the remainder of the sheet being put out of the way by folding. The latter method is preferred because the original data are always attached and at hand for reference.

One of the authors has used a sheet of this kind, which he called the "Coded square" sheet. It is 8½ by 11 inches, and has the items printed on one side in the usual way except that there is a rectangular area set aside and ruled off into about 20 subdivisions. This area is placed so that when the sheet is folded evenly three times it is the only part left exposed. The area is therefore exactly 2¾ by 4¼ inches and occupies the position corresponding to the second quarter measured down the right-hand half of the sheet. In folding, the first fold is horizontal, the second vertical, and the third horizontal, each fold being away from the ruled area.

This form is filled out in the usual way by field workers. A tabulating clerk makes a summary of the record in the coded square by placing a few letters or numbers in each of the ruled spaces. The sheet is then folded as above described and the free margins are fastened together with a clip. When all have been thus completed the tabulations are made by the method of sorting into piles.

[1] See Pearl's "Medical Biometry and Statistics," Chap. IV.

A moment's thought will show that the function of the coded square is very similar to that of the punch card. A punch card has one column (or a group of columns) to each item, each hole in the column designating a particular record of that item. A coded square has a ruled-off space for each item, but instead of a series of holes it has a figure or letter written in the space to designate the record of that item. For small scale work, therefore, such a record has practically all the advantages of punch-cards sorting without the delay incident to the use of punch cards. Avoidance of this delay is of paramount importance. Many surveys "go stale" because of the lapse of too much time between completion of the field work and publication of the findings.

Date of Death	P. D.	Age	Ill.	Onset	Stools	Oth. Mem.	Health	Ac. Ill.	Wt.
Mx. h. Feed	Feed Reg.	Breast Only	Partly Breast	Dairy	No. Br. or Cow	Feed bef. Onset	Home	Files	Intel.

The coded square of an investigation blank used by the Baltimore City Health Department to investigate diarrhea deaths. (Approximately three-quarter size)

SUMMARY

Investigation forms should be drawn up with careful attention to subject matter, arrangement, type, and spacing. Following a set of rules is helpful in drafting forms.

Field workers should be furnished with carefully prepared written instructions before being made to use a new form. The filled-in forms should be carefully checked against omissions and inaccuracies.

For tabulating on a small scale, sorting records into piles is preferable to the usual method of counting items. Sorting into piles has the same advantages as punch-card sorting, without the delay incident to the use of cards. The "coded square" sheet facilitates tabulating by the hand-sorting method.

A COMPARISON OF FULL-TIME AND PART-TIME COUNTY HEALTH DEPARTMENTS IN MISSISSIPPI

The following comparison of full-time and part-time health departments in Mississippi was recently made by Dr. Felix J. Underwood, State health officer, in one of his Weekly Health Suggestions:

"By way of illustrating the work of an organized whole-time county health department and its value to the community at large, consideration will be given to four communicable diseases, namely, typhoid fever, diphtheria, smallpox, and scarlet fever. Comparison will be made of a county in Mississippi that has been operating for a 5-year period under a part-time health department and for a 5-year period under a full-time health department, with the average of three Mississippi counties which have like populations and have operated always under a part-time health officer. In order to deal with concrete figures, the value of a human life is placed at $5,000; the cost of a case of typhoid fever at $500; of diphtheria at $100; of smallpox at $100; of scarlet fever at $100; and of a funeral at $300.

"Since the organization of the above-mentioned full-time county health department on January 1, 1922, painstaking effort has been made to trace to its source of infection every case of each of the four above-mentioned diseases. Records show that no serious epidemic has occurred in said county since the institution of the full-time health unit. The estimated economic loss from these diseases in this full-time county for the 5-year period totals $85,400. Of this loss, $56,400 occurred in 1922 and 1923. The economic loss for the remaining three years, 1924, 1925, and 1926, amounted to $29,000. In these three years not a school child had diphtheria in this county and no person died from any of the four diseases listed.

"The average economic loss per county in the three part-time counties for this 3-year period, 1924, 1925, and 1926, was $68,132, with a total of 26 deaths from the four diseases, typhoid fever, diphtheria, smallpox, and scarlet fever.

"Under the part-time plan, conditions remain essentially the same over each 5-year period, while under the full-time plan marked improvement is shown in the prevention of cases and deaths.

"On the whole, the part-time health officer is poorly financed by his board of supervisors and has given better service than the public had any right to expect, considering the remuneration and the handicaps under which he has worked. Much of the money thus spent has been wasted, since much of the work of the part-time health officer is not in the real prevention of the disease, but in cleaning up outbreaks of communicable diseases.

"It is found, also, that wherever a full-time, active, competent county health officer is appointed he lowers the infant mortality promptly and speedily accelerates the diminution of the death rate

from tuberculosis. He engages in effective measures for the education of the public in health matters and generally succeeds in a striking manner in increasing the span of life of those who reside in the community which he serves.

"At the present time 20 counties in Mississippi are operating full-time health departments. It is hoped that the legislature of 1928 will make it possible to offer aid to at least 10 more counties, making a total of 30 of our 82 counties having the blessings of full-time health service for the next biennium."

BADGES USED TO STIMULATE DIPHTHERIA IMMUNIZATION

According to the Weekly Bulletin issued by the California State Board of Health, Dr. Wm. C. Hassler, city health officer of San Francisco, in order to stimulate enthusiasm in diphtheria immunization, has adopted the policy of giving an attractive badge to each child who has received three doses of toxin-antitoxin. More than a thousand of these badges have been given to children who were immunized during the latter part of the year 1926. The brilliantly colored button appeals to children and there is a widespread interest in the device through which a strong pride of ownership has been developed. Other health departments may be interested in the plan to adopt a particular campaign badge for this purpose.

THE ECONOMIC VALUE OF HEALTH WORK

The results of the application of modern sanitary principles in public-health work can often be demonstrated without placing an economic value on human life or considering the inestimable value of individual health. Some positive data showing the success of preventive measures in antimalaria work on a large estate in the Federated Malay States were presented by Dr. Andrew Balfour, of the Bureau of Hygiene and Tropical Diseases, London, in his address on "Why Hygiene Pays," delivered to the delegates of the West Indies Conference held in London, May 18, 1926. The following summary of Doctor Balfour's address, by Dr. J. F. C. Haslam, is taken from the Bulletin of Hygiene for January, 1927:

Doctor Balfour's address to the delegates to the recent West Indies Conference in London contains stimulus toward hygienic improvement for governing authorities and commercial interests, and, for health officers, encouragement to continued effort. He stressed, as the title indicates, the economic value of health work, pointedly referring to the success achieved in Porto Rico by the Americans * * *. The example quoted from Malay points its lesson with such force that the facts and figures should be brought home throughout our tropical possessions.

"In the case of malaria I propose to take my illustration from Malaya * * *. A commissioner not long ago contrasted the value of expenditure on hygiene (*a*) when the measures employed were crude and the main effort was directed to curing infected coolies, and (*b*) when the steps taken were guided by a knowledge

of prophylactic principles and the main effort was the prevention of disease. The estate chosen was, and is, potentially as unhealthy as any estate in the Federated Malay States.

"In 1911 the staff consisted of seven unhealthy Europeans, constantly sick, given to liquor, and taking no interest in bungalows or gardens. In 1923 there were four healthy Europeans (three married and one engaged), three healthy children, pretty gardens, comfortable bungalows, no drinking, and no absences on account of sick leave.

"In 1911 there were 870 coolies with practically no dependents. They were miserable, crawling wrecks with narrow shoulders and prominent bellies. They lived in squalid, dirty lines, void of gardens. They possessed no livestock and, saddest thing of all, perhaps, no children born alive—a miserable and degraded folk without hope, without ambition. In 1923 there were only 450 coolies, but these were doing thrice the work accomplished in 1911. Their dependents were represented by 220 healthy old people and young children. Births, as the report puts it, have become a chronic habit. The coolies were fat, well liking, and clean. They had fine gardens, over 60 head of cattle, hundreds of goats, and thousands of chickens.

"In 1911 the tappers (it was a rubber estate) were sent out to new tasks every day, and one-third to one-half of the tasks had to be completed in the evening, as the coolies returned sick or too weak to finish the work. In 1923 a coolie was not taken off his task for months, and never had to finish his work off in the evening. In 1911 a gang was sent out to dig graves every day, yet never dug sufficient for requirements, as coolies were constantly dying in the field. In conclusion, the estate in 1923 had become one of the cheapest producers in the Federated Malay States and the cost of production compared favorably with Ceylon and Java."

	1911	1923
Average cultivated	1,632 acres.	2,650 acres.
Average labor force	870 Indians only.*	450 (all labor.)
Dependents	Practically nil, due to deaths.	220.
F. O. B. cost	$1.09.	18.64 cents.
Yield	83,000 pounds.	778,000 pounds.
Total expenditures	$240,215.38.	$145,018.44.
Medical (cure)	$12,444.	$6,208.67.
Medical (prevention)	Nil.	$9,531.20.
Death rate	232 per mille.	3 per mille.
Number of deaths	202.	2.
Staff (Europeans)	7.	4.
Hospital	Overflowing.	Empty.
Total loss of labor	862.	186.
Percentage loss of labor	100.	30.
Check-roll average	30 (15 per cent below standard).	35.5 (standard).
Hospital admissions for a year	1,084.	275.

Doctor Haslam comments:

"The success of the antimalaria methods adopted in this work can not be gainsaid and should be widely known. Pessimism as to the value of well-understood methods has recently been expressed by some theorists who adopt an attitude of detachment, if not of scorn, toward the work of those whose inclination and whose duty is to fight the disease *now*, with weapons already proved useful albeit imperfect, rather than to fold the hands while awaiting a problematical *therapia magna* of the future."

* There was also a large but unknown number of Chinese.

LESS MALARIA ON THE ISTHMUS

RATE FOR EMPLOYEES OF THE PANAMA CANAL DURING 1926 IS THE LOWEST ON RECORD

The accompanying figures, just released by Col. W. P. Chamberlain, Chief Health Officer of the Panama Canal, show that the calendar year 1926 was one of the most favorable as regards malaria prevention on the Isthmus. Sanitary regulations on the Zone and in Panama and Colon require that all cases of malaria be reported to the chief health officer. On receipt of each report a careful investigation is made by the Health Department of the Panama Canal with a view to confirming the diagnosis, if necessary, and determining where the infection probably took place. The figures are carefully tabulated each week, the cases being charged to the localities where infection is considered to have taken place.

The statistics for employees of the Panama Canal are the most accurate and complete which are received by the health department, because any illness resulting in inability to do a full day's work is sure to be made of record and can be carefully investigated. The accompanying table shows the remarkable reduction in malaria among Canal employees which has been made since 1904. The rate for 1926, 14.1 per 1,000, is the best ever recorded, being slightly below the figures for the favorable years 1917 and 1921.

Cases of malaria among employees of the Panama Canal

[Total for each calendar year [1]]

Year	Force strength	Cases			Rate per 1,000
		White	Black	Total	
1904	6,213	----------	----------	777	125.0
1905	16,511	----------	----------	8,483	514.0
1906	26,547	5,134	16,659	21,793	820.9
1907	39,238	7,973	8,682	16,655	424.5
1908	43,890	6,352	6,020	12,372	281.9
1909	47,167	4,347	5,822	10,169	215.6
1910	50,802	4,884	4,603	9,487	186.7
1911	48,876	4,175	4,812	8,987	183.9
1912	50,893	2,746	2,877	5,623	110.5
1913	56,654	1,477	2,807	4,284	75.6
1914	44,329	950	2,664	3,614	81.5
1915	34,785	606	1,175	1,781	51.2
1916	33,176	180	367	547	16.5
1917	32,589	127	346	473	14.5
1918	25,520	64	410	474	18.6
1919	24,204	103	649	752	31.1
1920	20,673	85	316	401	19.4
1921	14,389	70	144	214	14.9
1922	10,447	56	120	176	16.8
1923	10,976	57	155	212	19.3
1924	11,625	55	135	190	16.3
1925	12,180	84	246	330	27.1
		[2] 77	[2] 119	[2] 196	[2] 16.1
1926	12,732	58	121	179	14.1

[1] Number of cases from 1904 to 1913, inclusive, are those admitted to hospital only. Those shown in 1914, and since, are all cases, whether or not admitted to hospital.

[2] Excluding Bruja Point, where a gang of workmen (nominally Canal employees) was installing large guns in 1925. Over half of these men acquired malaria in 5 months. Since then the area has been sanitated by the Army and very few cases occurred among these workmen in 1926.

Among 3,121 white employees, only 58 cases of malaria occurred in 1926. Twenty-six of these 58 cases obtained their infection outside the sanitated towns, and it is probable that a complete knowledge of all the facts would show that some of the 32 others should have been charged to unsanitated areas.

There have been but two deaths from malaria among employees of the Panama Canal during the last six calendar years, both occurring in 1924. One of these was of a colored man and the other of a white American who refused to see a physician until nearly moribund. Both worked at night dredging unsanitated areas.

Colonel Chamberlain warns:

"The people who are fortunate enough to live in the sanitated towns of the Canal Zone, and in the cities of Panama and Colon, should never forget that the safe areas extend less than a mile from the town or city borders. Visits outside the towns at or after sunset are always dangerous."

PUBLIC HEALTH ENGINEERING ABSTRACTS

Legislation Relating to Fruit and Vegetable Preservation. Report of Committee on Fruits, Vegetables, and their Products. *American Journal of Public Health*, Vol. 16, No. 11, November, 1926, pp. 1085–1087. (Abstract by E. S. Tisdale.)

A compilation of data from 44 States, the Territory of Hawaii, Porto Rico, and District of Columbia, regarding the legislation governing fruit and vegetable preservation. Department of Health enforces the law in 20 States, the Department of Agriculture in 23, and especially elected or appointed food commissioners in 3. This article describes somewhat in detail the nature of legislation in the various States, the methods of inspection, and some of the replies to the questionnaires. The subject of reportable food poisoning diseases and the prevalence of food poisoning is discussed; also considerable data regarding these diseases are given.

Sanitary Survey of the Coal Mines of Alabama. Surgeon F. V. Meriwether, Bureau of Mines. Serial No. 2746, Bureau of Mines, April, 1926, 20 pages. (Abstract by Isador W. Mendelsohn.)

This report considers the sanitary and health conditions of 21 towns and 4 mine villages according to surveys made in the past few years under the following headings: Population; general description of towns; water supply; sewage disposal; industrial waste; health department; communicable diseases; medical inspection of schools; control of food supplies; general sanitation of public places; housing conditions; garbage and refuse disposal; stable and bath houses.

Water supply.—The sources of water supply are streams, springs, and wells. Bored wells are 40 to 850 feet deep; dug wells are 25 to

60 feet deep. Water from some of the streams and springs is used untreated. Where bored wells are used, 30 per cent have pumps, and 70 per cent bottom valve buckets and chains.

Sewage disposal.—None of the towns have sewerage systems. Five per cent of the towns use septic tanks, 45 per cent pail privies, 15 per cent pit privies, 25 per cent open-surface privies, and 10 per cent pit and pail.

Industrial wastes.—According to a study made at the Auburn State Agricultural College, soil treated with coal mine water is favorable for the raising of corn.

Recreational Use of San Diego's Water-Supply Reservoirs. R. C. Wueste. *Engineering News Record*, Vol. 97, No. 10, September 2, 1926, pp. 386–388. (Abstract by Paul S. Fox.)

Privately owned water companies in San Diego County, as well as in the city, are featuring recreational use of their reservoirs. The cost to the city, including interest and depreciation on equipment used, and operating salaries, amounts to about 25 per cent of the gross receipts. There has been cooperation with the California Game and Fish Commission. Water fowl hunting has been regulated. Facilities for campers have been provided.

The sanitary control measures are: (1) Shore-line toilets of pan type at half-mile intervals; (2) parking of automobiles restricted to designated areas marked by signs and provided with garbage cans and pan toilets; (3) overnight camping restricted to station headquarters on an area draining away from the reservoir, and provided with garbage cans, flush toilets, street lights, and other conveniences and attractions; (4) daily shore and water patrol by car and motor boat for supervision and surveillance of permittees; (5) maintenance of all elements in a high state of cleanliness and orderliness.

Water Softening by Zeolite Method. C. W. Sturdevant. *Water Works*, Vol. 65, No. 11, November, 1926, pp. 519–520. (Abstract by L. D. Bell.)

This article describes the experience of the Southern Pacific Railroad in the use of zeolite for softening water to be used in locomotive boilers. Useful information is given in regard to the cost of this method of treatment, the kinds and quantities of chemicals used, and the nature of the water treated. The waters which are being treated are, by analysis, similar to those found elsewhere.

In some cases trouble has been caused by foaming which results when the salt water dissolves the old boiler scale and forms a heavy sludge within the boiler. However, with reasonable care in blowing off and washing the boiler properly at regular intervals, little if any difficulty will be experienced, and the old scale will soon disappear.

Results obtained through experimental tests and through actual experience have, in general, been highly satisfactory and a marked reduction in the maintenance cost of boiler has resulted through the use of this method of treatment as well as savings due to reduction in boiler washings.

Experimental Water Purification Plant. Frederic J. Moss. *Water Works*, Vol 65, No. 11. November, 1926, pp. 523–528. (Abstract by L. D. Bell.)

The experimental water purification plant of the United States Public Health Service at Cincinnati is discussed in this article under the following main heads: (1) History of experiment; (2) object of the plant; (3) features of design; (4) experimental features; (5) intake (6) river water pumps; (7) force main; (8) sewage and dilution water; (9) mixing device; (10) coagulation basin; (11) filters; (12) clear water reservoirs; (13) chlorinator; (14) wash water storage; (15) coagulant system; (16) piping; (17) operation schedule; (18) sample collections; (19) laboratory control.

The primary purpose in conducting this experiment was to determine the efficiency of the modern filter plant in producing from a raw water of various degrees of pollution, an effluent conforming to accepted standards of bacterial quality. "Provision is made for continuous supplies of sewage, and, likewise, of filtered water for dilution purposes, thus making it possible, by mixing either one or both of these supplies with the river water, to obtain a raw water ranging from sewage to a highly diluted river water."

"The plant is of the rapid sand type, similar in its main features to most of the full scale plants found along the Ohio River and on other inland streams of the United States. Although every effort was made to have the plant conform to current practice in its design, in order that the results obtained from its operation might be fairly representative of those to be expected from full scale plants of similar type, it exhibits some features, designed especially for experimental purposes, which are unusual to municipal plants engaged in the active service of supplying water to domestic consumers."

Submerged Contact-Aerators for Sewage Treatment. Dr. Karl Imhoff, chief engineer of the Ruhrverband, Essen, Germany. *Engineering News-Record*, Vol. 97, No. 24, December 9, 1926, pp. 948–949. (Abstract by H. R. Crohurst.)

Doctor Imhoff describes contact-aerators installed in a two-story tank at Kettwig in the Ruhr district of Germany. The aerator consists of brushwood suspended in a wooden form in the upper compartment of the tank beneath which is a moving air pipe suspended as a pendulum. In operation, the mixture of air and sewage

being lighter than the sewage outside, there is a circulation up through the brushwood bringing sewage in contact with the biological growths on the material of the aerator. The efficiency of the aerators with short periods of treatment is said to be surprisingly high. Construction costs are only 5 to 10 per cent of the cost of the two-story tanks, and the power consumption is only 1 to 1½ hp. per million United States gallons, the air quantity being 0.1 cu. ft. per U. S. gallon. It is uncertain whether the contact aerators would be economical where full biological treatment equal to the efficiency of a good activated-sludge plant is necessary, but they promise to be economical for certain conditions, as—(1) For partial purification that occurs where settling is not sufficient and full biological treatment is not necessary; (2) for preliminary treatment in trickling filter plants or activated-sludge plants to increase capacity; (3) for city sewage containing objectionable industrial wastes, as the aerators are less sensible to disturbances than are other devices.

Sewage Treatment at Fitchburg, Mass. Herbert B. Allen. *Public Works*, Vol. 57, No. 9, October, 1926, pp. 343–344. (Abstract by M. S. Foreman.)

This article is a synopsis of a report of Herbert B. Allen, chemist in charge of the sewage disposal works at Fitchburg, Mass., to the commissioner of public works.

The Imhoff tanks were characterized by no foaming in the vents and no congestion of the digestion compartments. Another significant feature was that the surface of sewage in the tanks was continuously free from gas-lifted sludge. "Analysis of the effluent indicated a removal of total suspended matter varying from 63.2 per cent in April to 84.2 per cent in June, with an average of 75.1 per cent for the year."

Waste crank-case oil has increased in the last few years to such an extent that it has caused considerable trouble by decreasing good biological action. In order to eliminate the oil before it passed to the sprinkling filters, a flushing device was installed in each of the Imhoff tanks.

A diagram of the flushing device is given, which consists of several fan shaped jets of water that play on the surface of the sewage in the tanks. All of the grease and other floating material is forced to one corner and eliminated. Odors are eliminated during the hot weather by operating the flushing device twice a day. "The yearly cost of sewage disposal was $15,649, equivalent to $13.25 per million gallons of sewage treated and to $0.392 per capita served."

More Camps Approved. Anon. *Ohio Health News*, Vol. 2, No. 14, July 16, 1926, pp. 3–4. (Abstract by I. W. Mendelsohn.)

In June, 1926, 56 additional tourist camps and filling stations in 26 counties were approved by the Ohio State Department of Health as having met departmental requirements in sanitation, making 103 in all. A complete list of approved tourist camps and filling stations is given. In addition, the department has approved one labor camp, in Mahoning County, and 39 private camps, which include Y. M. C. A. and Y. W. C. A. camps, etc., scattered in 12 counties.

Examination for Entrance into the Regular Corps of the United States Public Health Service

Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

Washington, D. C.	May 2, 1927
Chicago, Ill.	May 2, 1927
New Orleans, La.	May 2, 1927
San Francisco, Calif.	May 2, 1927

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

DEATHS DURING WEEK ENDED FEBRUARY 5, 1927

Summary of information received by telegraph from industrial insurance companies for week ended February 5, 1927, and corresponding week of 1926. (From the Weekly Health Index, February 9, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 5, 1927	Corresponding week, 1926
Policies in force	66, 658, 783	63, 335, 002
Number of death claims	13, 939	12, 377
Death claims per 1,000 policies in force, annual rate	10. 9	10. 2

Deaths from all causes in certain large cities of the United States during the week ended February 5, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, February 9, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 5, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 5, 1927 [2]
	Total deaths	Death rate [1]		Week ended Feb. 5, 1927	Corresponding week, 1926	
Total (68 cities)	7,885	13.8	14.9	879	911	[3] 74
Albany [4]	37	16.1	14.5	4	1	83
Atlanta	80			10	8	
White	44			3	4	
Colored	36	(5)		7	4	
Baltimore [4]	247	15.7	21.9	24	26	74
White	186		19.6	16	19	62
Colored	61	(5)	35.1	8	7	124
Birmingham	70	17.0	24.2	10	9	
White	32		20.4	1	3	
Colored	38	(5)	30.2	9	6	
Boston	236	15.5	15.1	26	30	73
Bridgeport	39			1	2	19
Buffalo	158	15.0	14.9	13	19	55
Cambridge	34	14.3	12.4	7	1	124
Camden	35	13.7	16.7	6	5	103
Canton	15	6.9	11.4	3	6	71
Chicago [4]	775	13.0	12.9	104	86	90
Cincinnati	142	18.0	20.7	18	10	112
Cleveland	191	10.1	12.9	16	25	42
Columbus	81	14.5	15.4	12	7	112
Dallas	54	13.5	14.6	7	7	
White	38		13.0	4	5	
Colored	16	(5)	25.1	3	2	
Dayton	54	15.6	8.8	4	2	66
Denver	84	15.1	16.8	11	9	
Des Moines	20	7.0	16.1	3	4	50
Detroit	260	11.3	12.6	45	57	71
Duluth	23	10.4	11.1	1	4	22
El Paso	32	14.6	27.3	4	11	
Erie	31			3	3	59
Fall River [4]	31	12.2	12.7	3	7	53
Flint	34	12.4	10.4	10	4	163
Fort Worth	35	11.1	14.4	4	6	
White	32		13.4	4	5	
Colored	3	(5)	22.0	0	1	
Grand Rapids	33	10.8	10.7	7	5	103
Houston	51			11	6	
White	38			9	5	
Colored	13	(5)		2	1	
Indianapolis	102	14.2	12.9	11	5	86
White	89		12.4	9	5	81
Colored	13	(5)	16.6	2	0	122
Jersey City	74	12.0	15.4	7	15	52
Kansas City, Kans	30	13.4	14.3	6	2	117
White	26		15.1	5	2	111
Colored	4	(5)	10.2	1	0	152
Kansas City, Mo	99	13.5	17.1	18	12	
Los Angeles	285			21	23	60
Louisville	94	15.3	14.8	4	8	34
White	66		14.0	1	6	10
Colored	28	(5)	18.9	3	2	210
Lowell	30	14.2	19.9	4	2	77
Lynn	30	14.9	11.5	2	1	53
Memphis	57	16.6	22.1	4	3	
White	32		15.6	0	2	
Colored	25	(5)	33.9	4	1	
Milwaukee	111	11.0	11.9	15	15	70
Minneapolis	100	11.8	11.9	9	17	51
Nashville [4]	52	19.6	22.8	7	10	
White	36		21.8	7	8	
Colored	16	(5)	25.4	0	2	
New Bedford	48	20.9	10.0	8	5	139
New Haven	44	12.4	12.3	2	3	28
New Orleans	140	17.2	27.4	16	21	
White	88		21.7	9	11	
Colored	52	(5)	43.5	7	10	

(Footnotes at bottom of p. 496)

Deaths from all causes in certain large cities of the United States during the week ended February 5, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Feb. 5, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 5, 1924 [2]
	Total deaths	Death rate [1]		Week ended Feb. 5, 1927	Corresponding week, 1926	
New York	1,573	13.7	14.6	172	183	71
Bronx Borough	204	11.5	11.1	17	19	54
Brooklyn Borough	536	12.3	12.2	65	74	67
Manhattan Borough	636	18.3	20.2	70	75	82
Queens Borough	154	9.9	11.1	18	11	77
Richmond Borough	43	15.3	18.6	2	4	37
Newark, N. J.	112	12.5	13.5	15	18	74
Norfolk	30	8.7	9.0	5	2	101
White	13		5.6	1	1	33
Colored	17	(3)	14.9	4	1	212
Oakland	58	11.3	11.6	5	3	59
Oklahoma City	33			5	2	
Omaha	73	17.4	12.1	7	8	78
Paterson	45	16.3	18.2	4	4	71
Philadelphia	575	14.7	15.4	51	62	68
Pittsburgh	226	18.3	14.7	29	19	101
Portland, Oreg.	94			9	4	95
Providence	68	12.6	16.1	7	11	59
Richmond	57	15.5	13.8	2	7	26
White	35		10.9	0	4	0
Colored	22	(3)	20.9	2	3	76
Rochester	84	13.5	12.3	9	9	76
St. Louis	229	14.2	14.4	13	25	
St. Paul	46	9.6	11.4	7	3	64
Salt Lake City [4]	42	16.1	19.2	5	9	76
San Antonio	60	14.8	20.1	5	12	
San Diego	42	19.0	22.8	4	1	85
San Francisco	199	18.0	18.1	10	6	62
Schenectady	24	13.5	17.9	3	2	90
Seattle	75			5	6	52
Somerville	19	9.7	8.9	3	2	108
Spokane	26	12.4	12.0	2	1	50
Springfield, Mass.	36	12.8	16.2	4	5	62
Syracuse	61	16.1	14.1	9	3	116
Tacoma	23	11.2	13.8	2	3	47
Toledo	68	11.7	11.7	8	6	77
Trenton	40	15.2	16.7	3	5	52
Utica	38	19.2	14.2	5	1	114
Washington, D. C.	165	15.9	18.6	17	19	98
White	100		15.7	9	10	76
Colored	65	(3)	26.9	8	9	147
Waterbury	26			5	2	118
Wilmington, Del.	22	9.1	15.1	0	1	0
Worcester	57	15.2	14.6	5	7	60
Yonkers	20	8.8	9.9	7	4	159
Youngstown	45	13.9	10.1	6	10	84

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, Feb. 4, 1927.
[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 February 12, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	3
Chicken pox	65
Diphtheria	36
Influenza	131
Malaria	1
Measles	180
Mumps	21
Ophthalmia neonatorum	1
Pellagra	2
Pneumonia	109
Scarlet fever	16
Smallpox	57
Trachoma	4
Tuberculosis	39
Typhoid fever	4
Whooping cough	69

ARIZONA

Cerebrospinal meningitis	1
Chicken pox	66
Diphtheria	1
Measles	29
Mumps	6
Scarlet fever	58
Smallpox	1
Tuberculosis	13
Whooping cough	14

ARKANSAS

Chicken pox	109
Diphtheria	10
Influenza	99
Malaria	19
Measles	16
Mumps	47
Pellagra	6
Scarlet fever	19
Smallpox	3
Tuberculosis	7
Typhoid fever	6
Whooping cough	46

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Contra Costa County	1
Los Angeles	2
Oakland	1
Sacramento	1
San Francisco	1
Visalia	1
Chicken pox	668
Diphtheria	139
Influenza	101
Lethargic encephalitis	3
Measles	2,377
Mumps	257
Poliomyelitis:	
Los Angeles	1
Palo Alto	1
Scarlet fever	267
Smallpox	21
Tuberculosis	181
Typhoid fever	10
Whooping cough	93

CONNECTICUT

Crebrospinal meningitis	2
Chicken pox	103
Conjunctivitis (infectious)	1
Diphtheria	31
German measles	5
Influenza	5
Lethargic encephalitis	4
Measles	121
Mumps	50
Pneumonia (broncho)	39
Pneumonia (lobar)	34
Scarlet fever	101
Septic sore throat	3
Tuberculosis (all forms)	31
Whooping cough	54

DELAWARE

	Cases
Diphtheria	2
Influenza	1
Measles	4
Pneumonia	1
Scarlet fever	28
Tuberculosis	1
Whooping cough	3

FLORIDA

Cerebrospinal meningitis	2
Chicken pox	63
Diphtheria	48
Hookworm disease	26
Influenza	18
Malaria	3
Measles	35
Mumps	20
Pneumonia	12
Scarlet fever	10
Smallpox	59
Tetanus	1
Tuberculosis	25
Typhoid fever	5
Whooping cough	14

GEORGIA

Cerebrospinal meningitis	1
Chicken pox	51
Conjunctivitis (infectious)	2
Diphtheria	25
Dysentery	2
Influenza	174
Malaria	17
Measles	139
Mumps	13
Pellagra	1
Pneumonia	48
Scarlet fever	32
Septic sore throat	4
Smallpox	143
Tuberculosis	34
Typhoid fever	4
Typhus fever	1
Whooping cough	47

IDAHO

Cerebrospinal meningitis—Kellogg	1
Chicken pox	8
Conjunctivitis	1
Diphtheria	1
Measles	93
Mumps	8
Scarlet fever	30
Smallpox	3
Typhoid fever	2
Whooping cough	6

ILLINOIS

Cerebrospinal meningitis:	
Cook County	1
Winnebago County	1
Chicken pox	418
Diphtheria	111
Influenza	87

ILLINOIS—continued

	Cases
Lethargic encephalitis:	
Cook County	1
Effingham County	1
Saline County	1
Whiteside County	1
Measles	1,854
Mumps	328
Pneumonia	329
Poliomyelitis—Knox County	1
Scarlet fever	326
Smallpox	38
Tuberculosis	228
Typhoid fever	16
Whooping cough	199

INDIANA

Chicken pox	112
Diphtheria	31
Influenza	44
Measles	261
Mumps	3
Pneumonia	21
Scarlet fever	451
Smallpox	128
Tuberculosis	23
Typhoid fever	5
Whooping cough	44

IOWA

Cerebrospinal meningitis:	
Hopkinton	1
Iowa City	1
Chicken pox	45
Diphtheria	28
German measles	3
Measles	425
Mumps	22
Poliomyelitis—Bellevue	1
Scarlet fever	78
Septic sore throat	3
Smallpox	10
Tuberculosis	12
Whooping cough	18

KANSAS

Chicken pox	240
Diphtheria	31
German measles	4
Influenza	2
Malaria	1
Measles	387
Mumps	62
Pneumonia	39
Poliomyelitis—Wellington	1
Scarlet fever	183
Septic sore throat	7
Smallpox:	
Topeka	17
Scattering	32
Tetanus	1
Tuberculosis	56
Typhoid fever	1
Whooping cough	90

LOUISIANA

	Cases
Diphtheria	28
Influenza	41
Leprosy	1
Malaria	4
Measles	110
Pneumonia	29
Scarlet fever	15
Smallpox	6
Tuberculosis	11
Typhoid fever	12
Whooping cough	11

MAINE

Chicken pox	75
Diphtheria	1
German measles	33
Influenza	12
Measles	280
Mumps	8
Paratyphoid fever	1
Pellagra	1
Pneumonia	25
Scarlet fever	17
Tuberculosis	8
Typhoid fever	3
Vincent's angina	5
Whooping cough	47

MARYLAND [1]

Chicken pox	171
Diphtheria	55
Dysentery	1
German measles	1
Impetigo contagiosa	1
Influenza	63
Measles	24
Mumps	23
Paratyphoid fever	1
Pneumonia (broncho)	55
Pneumonia (lobar)	50
Scarlet fever	99
Septic sore throat	7
Tuberculosis	39
Typhoid fever	11
Vincent's angina	1
Whooping cough	116

MASSACHUSETTS

Chicken pox	361
Conjunctivitis (suppurative)	7
Diphtheria	116
German measles	6
Influenza	17
Lethargic encephalitis	2
Measles	265
Mumps	282
Ophthalmia neonatorum	10
Pneumonia (lobar)	127
Poliomyelitis	1
Scarlet fever	499
Septic sore throat	8
Trachoma	2
Tuberculosis (pulmonary)	165
Tuberculosis (other forms)	23
Typhoid fever	9
Whooping cough	183

[1] Week ended Friday.

MICHIGAN

	Cases
Diphtheria	103
Measles	117
Pneumonia	137
Scarlet fever	328
Smallpox	38
Tuberculosis	36
Typhoid fever	6
Whooping cough	117

MINNESOTA

Cerebrospinal meningitis	2
Chicken pox	152
Diphtheria	32
Influenza	5
Lethargic encephalitis	2
Measles	446
Pneumonia	2
Scarlet fever	281
Smallpox	19
Tuberculosis	52
Typhoid fever	4
Whooping cough	22

MISSISSIPPI

Diphtheria	12
Scarlet fever	11
Smallpox	11
Typhoid fever	5

MISSOURI

(Exclusive of Kansas City)

Cerebrospinal meningitis	1
Chicken pox	63
Diphtheria	57
Influenza	11
Measles	169
Mumps	39
Pneumonia	2
Scarlet fever	122
Tetanus	1
Tuberculosis	27
Typhoid fever	6
Whooping cough	36

MONTANA

Cerebrospinal meningitis	1
Chicken pox	19
Diphtheria	5
Measles	113
Mumps	19
Scarlet fever	113
Smallpox	7

NEBRASKA

Cerebrospinal meningitis	1
Chicken pox	41
Diphtheria	4
German measles	25
Influenza	25
Measles	204
Mumps	44
Pneumonia	2
Scarlet fever	41
Smallpox	15
Typhoid fever	1
Whooping cough	20

NEW JERSEY	Cases
Cerebrospinal meningitis	2
Chicken pox	322
Diphtheria	106
Influenza	31
Measles	49
Pneumonia	123
Scarlet fever	296
Trachoma	1
Typhoid fever	3
Whooping cough	207

NEW MEXICO	
Chicken pox	58
Conjunctivitis	1
Diphtheria	4
German measles	46
Influenza	5
Measles	21
Mumps	22
Pneumonia	8
Scarlet fever	32
Smallpox	4
Trachoma	2
Tuberculosis	28
Typhoid fever	4
Whooping cough	5

NEW YORK (Exclusive of New York City)	
Anthrax	1
Cerebrospinal meningitis	3
Chicken pox	466
Diphtheria	59
German measles	194
Lethargic encephalitis	1
Malaria	2
Measles	676
Mumps	319
Ophthalmia neonatorum	2
Pneumonia	258
Poliomyelitis	3
Scarlet fever	238
Septic sore throat	5
Smallpox	10
Tetanus	2
Typhoid fever	11
Vincent's angina	15
Whooping cough	275

NORTH CAROLINA	
Cerebrospinal meningitis	1
Chicken pox	238
Diphtheria	34
German measles	16
Measles	227
Scarlet fever	56
Septic sore throat	4
Smallpox	45
Typhoid fever	5
Whooping cough	707

OKLAHOMA (Exclusive of Oklahoma City and Tulsa)	
Cerebrospinal meningitis	1
Chicken pox	28
Diphtheria	22
Influenza	236

OKLAHOMA—continued	Cases
Measles	125
Mumps	10
Pneumonia	99
Scarlet fever	47
Smallpox:	
Grady County	23
Scattering	21
Typhoid fever	17
Whooping cough	14

OREGON	
Cerebrospinal meningitis	1
Chicken pox	37
Diphtheria	17
Influenza	331
Measles	75
Mumps	24
Pneumonia	[3] 13
Scarlet fever	46
Septic sore throat	3
Smallpox	11
Tuberculosis	[3] 3
Typhoid fever	8
Whooping cough	2

PENNSYLVANIA	
Cerebrospinal meningitis—	
Greene County	1
Philadelphia	2
Chicken pox	837
Diphtheria	204
German measles	80
Impetigo contagiosa	10
Lethargic encephalitis	1
Measles	942
Mumps	327
Ophthalmia neonatorum	6
Pneumonia	260
Rabies—Harrisburg	1
Scabies	9
Scarlet fever	724
Smallpox	1
Tuberculosis	131
Typhoid fever	33
Whooping cough	290

RHODE ISLAND	
Chicken pox	17
Diphtheria	6
German measles	1
Mumps	9
Ophthalmia neonatorum	1
Pneumonia	2
Scarlet fever	21
Tuberculosis	5

SOUTH CAROLINA	
Chicken pox	149
Dengue	2
Diphtheria	28
Hookworm disease	32
Influenza	1,363
Malaria	129
Measles	29
Pellagra	41
Poliomyelitis	3
Scarlet fever	17

[3] Deaths.

SOUTH CAROLINA—continued

	Cases
Smallpox	7
Tuberculosis	75
Typhoid fever	7
Whooping cough	111

SOUTH DAKOTA

Chicken pox	31
Diphtheria	11
Influenza	2
Measles	130
Mumps	8
Pneumonia	11
Scarlet fever	106
Smallpox	2
Tuberculosis	3
Whooping cough	2

TENNESSEE

Cerebrospinal meningitis:	
Memphis	1
Nashville	2
Trousdale County	1
Chicken pox	102
Diphtheria	13
Influenza	70
Measles	72
Mumps	6
Ophthalmia neonatorum	1
Pellagra	6
Pneumonia	75
Scarlet fever	65
Smallpox	14
Tuberculosis	29
Typhoid fever	12
Whooping cough	82

TEXAS

Chicken pox	144
Diphtheria	57
Influenza	70
Leprosy	1
Measles	18
Mumps	91
Pneumonia	11
Scarlet fever	52
Smallpox	56
Tetanus	1
Trachoma	10
Tuberculosis	34
Typhus fever	1
Whooping cough	13

UTAH

Chicken pox	29
Diphtheria	4
German measles	46
Influenza	3
Measles	263
Mumps	21
Pneumonia	1
Scarlet fever	17
Smallpox	1
Typhoid fever	1
Whooping cough	1

VERMONT

Chicken pox	20
Diphtheria	3

VERMONT—continued

	Cases
Measles	101
Mumps	25
Scarlet fever	8
Whooping cough	74

WASHINGTON

Cerebrospinal meningitis	6
Chicken pox	101
Diphtheria	37
German measles	98
Influenza	7
Measles	259
Mumps	80
Pneumonia	2
Scarlet fever	128
Smallpox	39
Trachoma	1
Tuberculosis	59
Typhoid fever	2
Whooping cough	20

WEST VIRGINIA

Chicken pox	98
Diphtheria	27
Influenza	37
Measles	164
Scarlet fever	70
Smallpox	12
Tuberculosis	11
Typhoid fever	17
Whooping cough	122

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	2
Chicken pox	110
Diphtheria	26
Influenza	1
Measles	39
Mumps	46
Pneumonia	20
Scarlet fever	55
Smallpox	1
Tuberculosis	7
Whooping cough	38
Scattering:	
Cerebrospinal meningitis	8
Chicken pox	146
Diphtheria	15
German measles	22
Influenza	130
Measles	726
Mumps	142
Pneumonia	15
Scarlet fever	177
Smallpox	10
Trachoma	1
Tuberculosis	23
Whooping cough	79

WYOMING

Chicken pox	9
Diphtheria	3
German measles	20
Influenza	1
Measles	379
Pneumonia	1
Scarlet fever	23
Whooping cough	2

Reports for Week Ended February 5, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	71
Diphtheria	12
Influenza	2
Lethargic encephalitis	1
Measles	5
Pneumonia	27
Scarlet fever	25
Smallpox	2
Tuberculosis	27
Whooping cough	16

NORTH DAKOTA

Cerebrospinal meningitis	1
Chicken pox	23
Diphtheria	4
Measles	94
Mumps	8
Ophthalmia neonatorum	1

NORTH DAKOTA—continued

	Cases
Pneumonia	3
Scarlet fever	61
Smallpox	3
Tuberculosis	2
Typhoid fever	2

SOUTH DAKOTA

Chicken pox	19
Diphtheria	7
Influenza	7
Measles	183
Mumps	15
Pneumonia	30
Poliomyelitis	1
Scarlet fever	80
Smallpox	12
Tuberculosis	2
Whooping cough	28

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
December, 1926										
Colorado	-------	96	8	-------	250	-------	0	538	61	6
Hawaii Territory	-------	27	5	-------	105	-------	2	1	0	17
January, 1927										
Arizona	-------	14	16	-------	68	-------	1	36	0	1
Connecticut	5	140	97	-------	145	-------	2	430	0	12
Massachusetts	5	461	74	-------	719	1	6	2,150	0	36
Nebraska	1	28	33	-------	425	-------	1	256	107	6
Vermont	0	10	-------	-------	529	-------	0	42	0	1

December, 1926	Cases
Angina:	
Colorado	2
Chicken pox:	
Colorado	181
Hawaii Territory	9
Conjunctivitis (follicular):	
Hawaii Territory	57
Dysentery:	
Colorado	1
German measles:	
Colorado	6
Hookworm disease:	
Hawaii Territory	1
Leprosy:	
Hawaii Territory	1
Mumps:	
Colorado	12
Paratyphoid fever:	
Hawaii Territory	1
Scabies:	
Colorado	1
Tetanus:	
Hawaii Territory	3
Trachoma:	
Hawaii Territory	120
Whooping cough:	
Colorado	14
Hawaii Territory	38

January, 1927	
Actinomycosis:	
Massachusetts	1
Anthrax:	
Massachusetts	1
Chicken pox:	
Arizona	57
Connecticut	507
Massachusetts	1,729
Nebraska	237
Vermont	166
Conjunctivitis (infectious):	
Connecticut	2

	Cases
German measles:	
Connecticut	16
Massachusetts	62
Nebraska	24
Lethargic encephalitis:	
Connecticut	4
Massachusetts	6
Nebraska	1
Mumps:	
Arizona	3
Connecticut	143
Massachusetts	1,272
Nebraska	144
Vermont	129
Ophthalmia neonatorum:	
Massachusetts	161
Paratyphoid fever:	
Connecticut	2
Rabies in animals:	
Connecticut	1
Septic sore throat:	
Connecticut	13
Massachusetts	24
Nebraska	13
Vermont	2
Tetanus:	
Massachusetts	1
Trachoma:	
Arizona	81
Connecticut	1
Massachusetts	4
Whooping cough:	
Arizona	7
Connecticut	242
Massachusetts	641
Nebraska	46
Vermont	227

INFLUENZA IN THE UNITED STATES, JANUARY 1925, 1926, AND 1927

The following table gives a comparison of the numbers of cases of influenza reported by State health officers during four weeks of January of the years 1925, 1926, and 1927. The reports are obviously incomplete. Some States do not require reports of cases of this disease, and many cases, especially those of mild type, are not reported. However, the figures furnish an index of the trend of the disease.

Influenza cases reported by State health officers for four weeks of January, 1925, 1926, and 1927

	Week ended—											
	Jan. 10, 1925	Jan. 9, 1926	Jan. 8, 1927	Jan. 17, 1925	Jan. 16, 1926	Jan. 15, 1927	Jan. 24, 1925	Jan. 23, 1926	Jan. 22, 1927	Jan. 31, 1925	Jan. 30, 1926	Jan. 29, 1927
Alabama	210	204	74	277	147	99	467	183	100	610	326	91
Arkansas	151	126	109	218	174	121	201	199	121	293	211	100
California	37	355	37	22	614	41	53	881	39	72	755	44
Connecticut	3	9	12	5	5	24	4	9	28	7	12	31
Delaware	2	5	0	1	4	1	0	4	2	4	0	1
District of Columbia	2	5	2	4	6	10	0	2	1	1	6	1
Florida	16	22	1	49	11	0	63	22	5	25	25	45
Georgia	26	138	101	44	335	107	115	342	173	242	448	159
Illinois	33	34	47	23	29	88	37	42	100	39	43	53
Indiana	79	83	79	75	50	139	62	49	89	45	42	73
Kansas	11	20	12	23	25	22	4	19	8	12	50	9
Louisiana	33	28	27	31	41	21	67	51	28	86	120	53
Maine	13	3	24	8	3	5	17	3	40	6	14	2*
Maryland	158	82	61	200	96	96	128	454	82	105	1,073	115
Massachusetts	11	17	15	13	12	12	124	11	17	21	16	27
Minnesota	0	1	0	0	2	3	0	3	2	0	3	2
Missouri	34	39	51	120	19	2	24	6	18	32	22	9
Montana	0	0	1	0	0	0	0	1	0	0	1	0
Nebraska	0	5	1	0	2	5	0	1	0	5	2	27
New Jersey	15	21	23	22	24	28	14	39	44	17	21	40
New Mexico	2	(*)	0	15	5	(*)	7	2	16	29	3	8
Oklahoma	(*)	281	265	(*)	308	274	(*)	421	403	582	451	297
Oregon	9	7	30	8	21	23	(*)	62	43	1	49	111
South Carolina	(*)	(*)	779	(*)	(*)	914	(*)	1,450	1,005	(*)	1,460	1,299
Tennessee	(*)	107	57	(*)	180	83	(*)	94	69	(*)	137	147
Texas	473	14	42	419	91	408	4,226	47	59	887	114	248
Utah	(*)	0	0	(*)	14	0	(*)	116	2	0	662	2
Wisconsin	37	42	38	24	42	35	35	30	60	43	52	51
Wyoming	0	0	9	0	4	0	0	4	1	1	10	0

* No report.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,900,000. The estimated population of the cities reporting deaths is more than 30,280,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 29, 1927, January 30, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	1,588	2,001	----------
101 cities	831	1,055	1,116
Measles:			
40 States	14,367	9,764	----------
101 cities	8,084	2,473	----------
Poliomyelitis:			
43 States	25	25	----------
Scarlet fever:			
43 States	4,669	5,964	----------
101 cities	1,673	2,292	1,363
Smallpox:			
43 States	945	1,070	----------
101 cities [1]	234	155	125
Typhoid fever:			
43 States	244	217	----------
101 cities	47	44	49
Deaths reported			
Influenza and pneumonia:			
95 cities	1,309	1,065	----------

[1] No deaths from smallpox were reported by these cities for the week this year.

City reports for week ended January 29, 1927

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 1918 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	28	2	0	0	0	2	0	7
New Hampshire:									
Concord	22,546	0	0	0	0	0	62	0	0
Manchester	83,097	0	2	1	0	2	0	0	7
Vermont:									
Barre	10,008	1	0	1	0	0	27	0	0
Burlington	24,089	6	1	1	0	0	0	0	1
Massachusetts:									
Boston	779,620	106	66	38	9	1	35	95	21
Fall River	128,993	10	6	6	1	1	1	8	4
Springfield	142,065	18	3	6	1	0	1	2	3
Worcester	190,757	11	6	3	0	0	2	13	6
Rhode Island:									
Pawtucket	69,760	5	1	0	0	0	0	0	1
Providence	267,918	0	10	4	0	1	0	0	4
Connecticut:									
Bridgeport	(1)	1	9	11	1	1	8	0	4
Hartford	160,197	14	8	1	1	0	0	3	8
New Haven	178,927	26	3	0	0	0	1	1	10
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	43	14	11	-------	1	3	12	20
New York	5,873,356	351	207	269	169	23	26	374	189
Rochester	316,786	9	12	11	-------	1	3	1	6
Syracuse	182,003	15	7	2	-------	0	10	5	8
New Jersey:									
Camden	128,642	3	5	16	2	0	2	0	2
Newark	452,513	44	24	9	20	2	5	33	15
Trenton	132,020	7	7	1	0	0	0	0	4
Pennsylvania:									
Philadelphia	1,979,364	199	81	64	-------	14	6	84	59
Pittsburgh	631,563	57	20	11	-------	3	35	1	44
Reading	112,707	11	5	0	-------	0	3	7	6
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	17	9	6	0	5	2	31	19
Cleveland	936,485	158	35	49	5	1	2	9	16
Columbus	279,836	5	4	1	0	0	1	0	8
Toledo	287,380	74	8	2	3	3	12	9	9
Indiana:									
Fort Wayne	97,846	6	4	0	0	0	9	0	2
Indianapolis	358,819	54	12	9	0	2	10	4	12
South Bend	80,091	6	1	3	0	0	29	0	3
Terre Haute	71,071	3	1	0	0	0	0	0	3
Illinois:									
Chicago	2,995,239	166	105	87	47	18	533	57	68
Peoria	81,564	4	1	0	0	1	58	8	7
Springfield	63,923	13	1	2	0	0	105	0	2

[1] No estimate made.

City reports for week ended January 29, 1927—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			
EAST NORTH CENTRAL—continued									
Michigan:									
Detroit	1,245,824	101	66	69	10	5	6	53	42
Flint	130,316	23	7	3	0	0	3	1	4
Grand Rapids	153,698	17	4	1	0	0	3	0	2
Wisconsin:									
Kenosha	50,891	23	2	0	0	0	58	35	1
Madison	46,385	46	1	0	0	0	3	0	0
Milwaukee	509,192	115	21	32	2	1	40	50	14
Racine	67,707	22	1	0	0	0	1	15	2
Superior	39,671	2	1	0	0	0	2	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	1	2	3	0	0	25	0	3
Minneapolis	425,435	133	22	17	0	0	15	0	12
St. Paul	246,001	24	15	0	0	1	4	1	11
Iowa:									
Davenport	52,469	3	1	0	0	-------	25	0	-------
Des Moines	141,441	0	3	1	0	-------	0	0	-------
Sioux City	76,411	12	1	1	0	-------	-------	1	-------
Waterloo	36,771	18	1	0	0	-------	19	0	-------
Missouri:									
Kansas City	367,481	81	10	4	0	0	15	2	14
St. Joseph	78,342	3	3	0	0	0	2	0	3
St. Louis	821,543	53	53	33	0	0	9	26	-------
North Dakota:									
Fargo	26,403	1	0	0	0	0	5	0	1
Grand Forks	14,811	5	0	0	0	-------	0	0	-------
South Dakota:									
Aberdeen	15,036	8	0	0	0	-------	4	2	-------
Sioux Falls	30,127	0	0	0	0	-------	1	0	-------
Nebraska:									
Lincoln	60,941	14	2	0	0	2	15	1	2
Omaha	211,768	10	5	2	0	0	55	8	3
Kansas:									
Topeka	55,411	16	2	2	0	1	1	0	8
Wichita	88,367	18	4	2	0	0	0	2	6
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	3	3	3	0	0	0	0	5
Maryland:									
Baltimore	796,296	153	32	48	34	5	5	7	38
Cumberland	33,741	0	0	2	1	1	1	0	1
Frederick	12,035	0	0	3	0	0	0	0	1
District of Columbia:									
Washington	497,906	69	21	24	1	3	1	0	23
Virginia:									
Lynchburg	30,395	1	1	2	0	0	1	0	3
Norfolk	(1)	18	2	2	9	0	8	1	2
Richmond	186,403	2	5	6	0	3	41	0	5
Roanoke	58,208	6	2	0	0	0	1	0	3
West Virginia:									
Charleston	49,019	11	1	0	1	2	1	2	0
Wheeling	56,208	4	1	1	0	0	6	0	1
North Carolina:									
Raleigh	30,371	24	1	2	0	0	2	0	4
Wilmington	37,061	14	0	1	0	1	0	6	4
Winston-Salem	69,031	13	1	1	0	0	0	26	1
South Carolina:									
Charleston	73,125	2	0	2	22	2	0	0	2
Columbia	41,225	7	1	2	0	-------	2	2	-------
Greenville	27,311	3	0	0	0	1	0	0	2
Georgia:									
Atlanta	(1)	11	3	6	47	7	64	2	6
Brunswick	16,809	0	0	0	3	0	0	2	0
Savannah	93,134	5	1	1	12	2	0	1	1
Florida:									
Miami	69,754	7	-------	4	2	0	1	2	2
St. Petersburg	26,847	-------	0	-------	--	0	-------	-------	0
Tampa	94,743	4	1	--	--	0	9	0	3

[1] No estimate made.

City reports for week ended January 29, 1927—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			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	1	1	3	0	0	0	1	3
Louisville	305,935	19	7	4	2	0	1	3	12
Tennessee:									
Memphis	174,533	13	4	5	0	1	8	0	6
Nashville	136,220	2	1	1	0	1	0	0	10
Alabama:									
Birmingham	205,670	5	3	4	12	4	15	4	8
Mobile	65,955	1	0	0	0	0	10	0	1
Montgomery	46,481	2	0	3	0	0	3	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	11	1	1	0	----	1	11	----
Little Rock	74,216	4	1	1	0	1	0	0	0
Louisiana:									
New Orleans	414,493	3	13	9	11	10	79	0	22
Shreveport	57,857	11	0	3	0	0	1	6	1
Oklahoma:									
Oklahoma City	(1)	----	1	----	----	0	----	----	11
Texas:									
Dallas	194,450	4	7	17	2	3	9	2	5
Galveston	48,375	0	1	1	0	0	0	2	1
Houston	164,954	5	5	10	0	1	0	1	6
San Antonio	198,069	3	2	7	0	2	1	1	12
MOUNTAIN									
Montana:									
Billings	17,971	0	1	0	0	0	4	0	2
Great Falls	29,883	6	1	1	0	0	9	1	1
Helena	12,637	2	0	4	0	0	0	0	0
Missoula	12,668	4	0	0	0	0	0	19	0
Idaho:									
Boise	23,042	4	0	0	0	0	63	3	0
Colorado:									
Denver	280,911	35	12	9	----	7	228	0	13
Pueblo	43,787	0	2	2	0	1	1	0	0
New Mexico:									
Albuquerque	21,000	3	0	0	0	0	20	3	1
Arizona:									
Phoenix	38,669	0	1	0	0	0	0	0	5
Utah:									
Salt Lake City	130,948	32	3	6	0	0	191	0	3
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	53	8	1	0	----	23	48	----
Spokane	108,897	21	5	0	0	----	128	0	----
Takoma	104,455	20	4	6	0	1	8	0	0
Oregon:									
Portland	282,383	25	10	6	26	1	23	2	10
California:									
Los Angeles	(1)	102	46	36	13	1	215	11	22
Sacramento	72,260	0	3	1	0	1	111	14	4
San Francisco	557,530	23	22	20	4	1	91	47	5

[1] No estimate made.

City reports for week ended January 29, 1927—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		
NEW ENGLAND											
Maine:											
Portland	3	3	0	0	0	0	0	0	0	15	35
New Hampshire:											
Concord	0	0	0	0	0	1	0	0	0	1	12
Manchester	3	2	0	0	0	1	0	0	0	0	26
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	2	2
Burlington	1	0	0	0	0	2	0	0	0	9	14
Massachusetts:											
Boston	65	167	0	0	0	10	1	1	0	17	220
Fall River	3	4	0	0	0	2	0	0	0	3	34
Springfield	10	4	0	0	0	0	0	0	0	7	47
Worcester	11	8	0	0	0	2	0	0	0	0	51
Rhode Island:											
Pawtucket	1	2	0	0	0	1	0	0	0	0	----
Providence	8	14	0	0	0	1	0	0	0	9	57
Connecticut:											
Bridgeport	9	19	0	0	0	2	0	0	0	1	29
Hartford	7	5	0	0	0	2	1	1	2	1	45
New Haven	11	6	0	0	0	3	1	0	0	0	61
MIDDLE ATLANTIC											
New York:											
Buffalo	27	25	0	0	0	9	2	0	1	9	151
New York	234	517	1	0	0	[1] 197	9	7	1	106	1,389
Rochester	13	13	0	0	0	2	0	0	0	11	65
Syracuse	16	6	0	1	0	1	1	0	0	10	57
New Jersey:											
Camden	5	4	0	0	0	4	0	0	0	0	38
Newark	26	70	0	0	0	9	0	0	0	45	106
Trenton	5	4	0	0	0	1	0	0	0	1	44
Pennsylvania:											
Philadelphia	90	103	1	0	0	30	3	1	0	31	548
Pittsburgh	45	22	0	0	0	8	1	0	0	6	180
Reading	1	4	0	0	0	0	1	0	0	3	29
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	35	1	1	0	17	0	0	0	3	130
Cleveland	40	44	2	0	0	22	1	2	0	27	197
Columbus	13	10	1	1	0	4	1	0	0	2	87
Toledo	15	11	1	0	0	7	1	0	0	23	84
Indiana:											
Fort Wayne	6	14	0	0	0	0	0	0	0	3	27
Indianapolis	10	17	12	23	0	6	0	0	0	11	77
South Bend	3	3	0	0	0	1	0	0	0	0	14
Terre Haute	3	7	1	0	0	2	0	0	0	3	19
Illinois:											
Chicago	141	139	3	0	0	55	3	0	0	56	719
Peoria	6	2	0	0	0	1	0	0	0	3	34
Springfield	2	6	0	0	0	0	1	0	0	2	19
Michigan:											
Detroit	98	123	3	1	0	38	1	0	0	60	344
Flint	9	29	1	0	0	0	0	0	0	2	25
Grand Rapids	11	31	0	0	0	2	0	0	0	3	22
Wisconsin:											
Kenosha	1	15	1	0	0	0	0	0	0	14	7
Madison	3	6	0	0	0	0	0	0	0	5	11
Milwaukee	30	40	2	0	0	4	1	1	0	57	110
Racine	7	2	0	0	0	0	0	0	0	5	4
Superior	3	6	4	0	0	0	0	0	0	0	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	14	1	0	0	2	1	0	0	0	20
Minneapolis	54	69	14	3	0	7	1	1	0	4	100
St. Paul	34	35	9	0	0	0	0	0	0	0	53

[1] Pulmonary tuberculosis only.

City reports for week ended January 29, 1927—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		
WEST NORTH CENTRAL—continued											
Iowa:											
Davenport	1	3	2	0	----	----	0	0	----	0	----
Des Moines	6	8	2	0	----	----	0	0	----	0	----
Sioux City	2	10	2	2	----	----	0	2	----	1	----
Waterloo	2	0	0	1	----	----	0	0	----	2	----
Missouri:											
Kansas City	14	34	2	9	0	8	0	1	1	5	108
St. Joseph	3	5	1	0	0	0	0	0	0	1	16
St. Louis	39	45	4	0	0	11	1	0	0	29	241
North Dakota:											
Fargo	1	2	0	0	0	1	0	0	0	1	5
Grand Forks	0	0	1	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	1	2	0	0	----	----	0	0	----	1	----
Sioux Falls	2	5	0	0	----	----	0	0	----	0	----
Nebraska:											
Lincoln	3	6	0	0	0	0	0	0	0	1	17
Omaha	5	24	9	5	0	2	0	0	0	0	48
Kansas:											
Topeka	2	2	0	20	0	0	0	0	0	20	17
Wichita	4	6	0	0	0	0	0	0	0	4	29
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	26	0	0	0	2	0	0	0	0	35
Maryland:											
Baltimore	42	28	1	0	0	16	2	2	1	82	245
Cumberland	1	3	0	0	0	0	0	0	0	2	8
Frederick	1	3	0	0	0	0	0	0	0	1	5
District of Col.:											
Washington	27	32	1	0	0	13	1	0	0	9	148
Virginia:											
Lynchburg	0	1	0	0	0	0	0	0	0	0	11
Norfolk	2	5	0	0	0	3	0	1	1	9	----
Richmond	5	7	0	0	0	7	0	0	0	9	52
Roanoke	1	4	0	0	0	0	0	1	0	1	18
West Virginia:											
Charleston	1	2	0	0	0	0	1	0	0	1	19
Wheeling	1	3	0	0	0	0	0	0	1	5	13
North Carolina:											
Raleigh	0	4	0	0	0	0	0	0	0	8	14
Wilmington	1	2	0	0	0	0	0	0	0	6	12
Winston-Salem	1	5	4	2	0	0	0	0	1	26	14
South Carolina:											
Charleston	1	0	0	0	0	3	0	4	0	1	30
Columbia	1	0	1	1	----	----	0	0	----	22	----
Greenville	1	0	0	1	0	1	0	0	0	0	10
Georgia:											
Atlanta	3	10	2	16	0	0	0	0	0	9	79
Brunswick	0	2	0	3	0	0	0	0	0	0	8
Savannah	1	0	0	9	0	2	1	0	0	0	28
Florida:											
Miami	----	2	----	0	0	2	----	0	0	8	35
St. Petersburg	0	----	0	----	0	1	0	----	0	----	22
Tampa	0	3	0	1	0	2	1	2	0	0	19
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	1	0	0	0	1	0	0	0	0	14
Louisville	5	27	1	2	0	6	1	1	0	76	70
Tennessee:											
Memphis	5	24	2	3	0	6	0	0	0	13	66
Nashville	3	2	0	0	0	5	0	1	1	3	53
Alabama:											
Birmingham	3	5	4	9	0	6	1	5	1	2	76
Mobile	0	3	1	0	0	3	0	0	0	0	25
Montgomery	0	1	1	3	0	0	0	0	0	1	11

City reports for week ended January 29, 1927—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		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	-------	-------	0	0	-------	1	12
Little Rock	2	0	0	1	0	4	0	0	0	3	-------
Louisiana:											
New Orleans	6	9	1	0	0	15	2	0	0	1	162
Shreveport	0	2	2	0	0	1	0	0	0	0	16
Oklahoma:											
Oklahom City	2	-------	3	-------	0	0	0	-------	0	-------	33
Texas:											
Dallas	3	8	1	5	0	1	1	0	0	0	48
Galveston	0	0	0	0	0	1	0	0	0	0	15
Houston	1	8	1	4	0	8	1	0	0	0	62
San Antonio	1	0	0	0	0	7	0	0	0	0	62
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	0	0	0	0	5
Great Falls	2	12	2	0	0	0	0	0	0	0	12
Helena	0	1	0	0	0	0	0	2	0	0	5
Missoula	1	24	0	0	0	0	0	0	0	0	4
Idaho:											
Boise	1	0	0	1	0	0	0	0	0	0	3
Colorado:											
Denver	13	124	2	0	0	12	1	0	0	0	100
Pueblo	2	9	0	0	0	0	0	0	0	0	14
New Mexico:											
Albuquerque	1	4	0	0	0	3	0	0	0	0	19
Arizona:											
Phoenix	0	2	0	0	0	17	0	0	0	0	32
Utah:											
Salt Lake City	4	9	3	0	0	0	0	0	0	1	37
Nevada:											
Reno	0	0	1	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	12	14	4	1	-------	-------	0	1	-------	6	-------
Spokane	4	27	4	1	-------	-------	0	0	-------	1	-------
Tacoma	3	3	3	22	0	0	1	1	0	2	27
Oregon:											
Portland	6	12	8	0	0	4	1	1	0	1	84
California:											
Los Angeles	25	50	5	0	0	30	2	1	0	11	262
Sacramento	2	1	1	1	0	3	1	0	0	1	26
San Francisco	15	30	3	2	0	15	1	5	0	5	183

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	0	2	0
Fall River	1	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	5	3	4	3	0	0	1	2	1
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	0	0

City reports for week ended January 29, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio: [1]									
Cincinnati [1]	0	1	0	0	0	0	0	0	0
Columbus	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	1	2	2	1	0	0	1	0	0
Michigan:									
Detroit	0	1	3	1	0	0	0	0	1
Wisconsin:									
Milwaukee	6	3	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	0	0	1	0	0	0	0	0
Missouri:									
St. Louis	0	1	0	0	0	0	0	0	0
Nebraska:									
Omaha	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	2	0	0	0	0	0	0
West Virginia:									
Charleston	1	0	0	0	0	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	1	0	0	0
Florida:									
Miami	0	0	0	0	2	0	-------	1	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham	0	0	1	0	0	0	0	0	0
Mobile	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	1	0	0	0	0	4	0	0	0
Louisiana:									
New Orleans	0	0	0	0	2	2	0	0	0
Shreveport	0	1	0	0	0	0	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	1	0	0	0	0
MOUNTAIN									
Montana:									
Helena	1	2	0	0	0	0	0	0	0
Missoula	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	3	-------	0	-------	0	-------	0	0	-------
Tacoma	2	2	0	0	0	0	0	0	0
California:									
Los Angeles	1	1	0	1	1	1	1	1	0
Sacramento	1	0	0	0	0	0	0	0	0
San Francisco	0	0	0	1	0	0	0	0	0

[1] Rabies (human): 1 case at Cincinnati, Ohio, and 1 case and 1 death at Cleveland, Ohio.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended January 29, 1927, compared with those for a like period ended January 30, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had

estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. 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, December 26, 1926, to January 29, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26[1]

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927
101 cities	132	177	170	[3] 199	146	[3] 187	142	176	142	178
New England	141	158	139	158	144	174	132	151	118	163
Middle Atlantic	126	171	182	183	151	177	138	192	130	194
East North Central	132	193	151	223	135	189	131	170	138	175
West North Central	160	165	288	189	258	159	210	147	259	127
South Atlantic	129	175	177	[2] 232	140	216	151	161	115	199
East South Central	110	187	52	138	67	250	72	153	41	102
West South Central	150	224	189	256	120	247	155	172	142	206
Mountain	111	137	182	126	128	[3] 122	155	117	264	198
Pacific	127	156	96	230	80	194	139	233	166	168

MEASLES CASE RATES

101 cities	613	222	1,147	[3] 284	974	[3] 329	1,336	445	1,385	417
New England	2,406	184	3,087	253	2,861	195	2,566	548	2,745	323
Middle Atlantic	558	22	997	31	846	38	1,090	49	1,187	46
East North Central	753	260	1,763	416	1,303	380	2,071	516	2,091	500
West North Central	61	60	151	260	129	193	153	278	280	298
South Atlantic	470	180	1,278	[2] 214	1,345	203	2,457	303	2,261	257
East South Central	105	78	52	107	238	97	284	204	393	188
West South Central	0	13	0	189	17	306	13	453	26	382
Mountain	83	3,541	55	5,241	91	[3] 3,334	118	5,988	109	4,459
Pacific	47	701	64	1,521	51	1,482	64	1,346	72	1,508

SCARLET FEVER CASE RATES

101 cities	225	268	269	[3] 319	286	[3] 367	292	383	287	386
New England	304	357	295	490	380	478	300	536	377	539
Middle Atlantic	168	234	210	286	238	339	237	369	235	379
East North Central	249	245	334	283	322	344	326	330	300	342
West North Central	509	385	583	451	557	558	678	518	666	488
South Atlantic	140	240	156	[2] 243	184	259	184	281	183	254
East South Central	160	176	119	234	140	214	202	336	109	321
West South Central	119	151	112	155	90	143	69	197	69	113
Mountain	250	392	237	963	319	[3] 1,161	374	1,349	255	1,609
Pacific	210	253	241	340	268	377	254	319	332	327

SMALLPOX CASE RATES

101 cities	24	14	33	[3] 23	47	[3] 22	35	20	40	26
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	1	1	0	0	2	1	0	1	1	0
East North Central	28	7	48	32	37	21	33	17	43	17
West North Central	18	40	63	58	52	69	34	60	54	79
South Atlantic	25	41	43	[2] 29	67	51	56	34	58	60
East South Central	74	47	47	41	57	87	47	25	21	87
West South Central	22	22	52	42	146	25	99	68	125	42
Mountain	37	9	36	0	18	[3] 0	27	0	18	9
Pacific	152	22	110	69	264	37	198	63	264	71

[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, 1926 and 1927, respectively.
[2] Norfolk, Va., not included.
[3] Boise, Idaho, not included.

Summary of weekly reports from cities, December 26, 1926, to January 29, 1927.—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26 [1]—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 9, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927
101 cities	10	12	13	[2] 8	11	[3] 9	9	7	8	7
New England	7	24	31	9	2	21	9	2	9	5
Middle Atlantic	7	7	14	6	16	8	10	5	9	4
East North Central	6	5	11	5	8	1	3	6	4	2
West North Central	6	4	2	8	4	6	4	4	2	8
South Atlantic	12	34	9	[2] 8	7	16	7	7	9	18
East South Central	32	21	16	25	16	15	5	10	10	36
West South Central	48	17	21	25	13	17	47	4	17	0
Mountain	9	27	9	9	9	[3] 9	0	27	18	18
Pacific	8	16	11	8	13	21	16	21	11	21

INFLUENZA DEATH RATES

95 cities	15	17	21	[2] 20	23	[4] 21	20	21	29	25
New England	12	21	9	16	14	14	7	5	17	9
Middle Atlantic	10	21	18	18	16	20	14	20	18	22
East North Central	8	15	12	17	11	16	8	25	12	21
West North Central	15	8	8	15	19	10	11	4	13	4
South Atlantic	19	17	15	[3] 18	23	24	40	20	36	50
East South Central	32	26	83	46	88	36	57	15	72	31
West South Central	44	14	44	43	75	43	88	43	141	73
Mountain	28	46	46	63	64	[3] 103	18	54	73	72
Pacific	40	0	57	10	46	[5] 15	39	31	78	14

PNEUMONIA DEATH RATES

95 cities	186	163	220	[2] 196	211	[4] 180	199	183	201	159
New England	213	173	245	181	208	190	210	207	144	158
Middle Atlantic	188	179	229	209	236	205	228	197	218	174
East North Central	145	134	177	170	153	152	139	138	166	132
West North Central	127	118	141	116	127	125	82	116	110	127
South Atlantic	267	186	291	[3] 237	278	193	289	283	286	193
East South Central	263	192	331	204	284	199	228	245	207	204
West South Central	276	151	313	241	331	181	291	202	415	202
Mountain	268	200	128	369	328	[3] 206	273	216	164	171
Pacific	138	199	219	210	166	[5] 178	184	134	173	107

[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, 1926, and 1927, respectively.
[2] Norfolk, Va., not included.
[3] Boise, Idaho, not included.
[4] Boise, Idaho, and Tacoma, Wash., not included.
[5] Tacoma, Wash., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, 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	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Reports for weeks ended January 15 and January 22, 1927.—The following reports for the weeks ended January 15 and January 22, 1927, respectively, were transmitted by the Eastern Bureau of the Secretariat of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

WEEK ENDED JANUARY 15, 1927

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	1	0	0	0	0	0
British India:						
Karachi	....	0	....	0	1	0
Bombay	....	0	....	1	21	15
Madras	....	0	....	0	7	1
Calcutta	....	0	....	65	84	87
Rangoon	....	3	....	0	6	0
Negapatam	....	0	....	5	5	1
Straits Settlements:						
Singapore	0	0	0	0	2	3
Dutch East Indies:						
Surabaya	1	1	0	0	0	0
Padang	0	0	0	0	2	0
Cheribon	0	0	0	0	0	0
Siam: Bangkok	0	0	5	0	3	7
French Indo-China:						
Haiphong	0	0	....	3	0	0
Turane	0	0	1	1	0	0
U. S. S. R.: Vladivostok	0	0	0	0	16	0
Manchuria:						
Changchun	0	0	0	0	1	0
Mukden	0	0	0	0	1	0
Egypt: Alexandria	0	0	0	0	1	0
Réunion: Saint-Denis	3	3	0	0	0	0
Mauritius: Port Louis	3	2	0	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.—Aden, Jeddah, Kamaran, Perim.
Iraq.—Basrah.
Persia.—Mohammerah, Bender-Abbas, Bushire.
British India.—Chittagong, Cochin, Tuticorin, Vizagapatam.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang.
Dutch East Indies.—Batavia, Sabang, Samarinda, Balikpapan, Palembang, Belawan-Deli, Pontianak, Semarang, Tarakan, Menado, Banjermasin, Macassar.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Saigon and Cholon.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy, Shanghai (International Settlement).
Hongkong.
Macao.
Formosa.—Keelung.
Chosen.—Chemulpo, Fusan.
Manchuria.—Harbin, Antung, Yingkow.
Kwantung.—Port Arthur, Dairen.
Japan.—Yokohoma, Osaka, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga.

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 and Kokopo.
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 Sudan, 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, Lourenco, Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from:

Madagascar.—Tamatave, Majunga.

Belated information

Week ended January 8—

Reunion.—St. Denis, plague, 5 cases; 5 deaths.

WEEK ENDED JANUARY 22, 1927

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	10	3	0	0	0	0
British India:						
Karachi		0		0	2	0
Tuticorin		0		0	6	0
Madras		0		0	77	1
Calcutta		0		58	101	82
Rangoon		7		1	4	4
Negapatam		0		5	0	0
Vizagapatam		0		0	3	0
Dutch East Indies:						
Surabaya	1	1	0	0	3	1
Padang	0	0	0	0	5	0
Macasser	1	1	0	0	0	0
Siam: Bangkok	0	0	0	1	2	2
China: Shanghai	0	0	0	0	1	1
U. S. S. R.: Vladivostok	0	0	0	0	11	0
Japan: Osaka	0	0	1	0	0	0
Reunion: Saint-Denis	4	4	0	0	0	0
Mauritius: Port Louis	1	0	0	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.—Aden, Jeddah, Kamaran, Perim.
Iraq.—Basrah.
Persia.—Mohammerah, Bender-Abbas, Bushire
British India.—Chittagong, Cochin.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang, Singapore.
Dutch East Indies.—Batavia, Sabang, Samarinda, Balikpapan, Palembang, Belawan-Deli, Pontianak, Semarang, Tarakan, Menado, Banjermasin, Cheribon.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Saigon and Cholon, Haiphong, Turane.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy.
Hongkong.
Macao.
Formosa.—Keelung.
Chosen.—Chemulpo, Fusan.
Manchuria.—Harbin, Antung, Yingkow, Changchun, Mukden.
Kwantung.—Port Arthur, Dairen.
Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga.

AUSTRALASIA AND OCEANIA

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

AFRICA

Egypt.—Port Said, Suez, Alexandria.
Anglo-Egyptian Sudan.—Port Sudan, 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, Lourenço Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from—

Madagascar.—Tamatave, Majunga.
British India.—Bombay.

Belated information

Week ended January 1—

French India.—Pondicherry, smallpox, one case, one death.

Week ended January 8—

French India.—Pondicherry smallpox, one case, one death.

Other epidemiological information received by the Singapore Bureau—

Hongkong.—First case of smallpox occurred on January 25.
Padang.—Steamship *Talma* arrived on January 14 from Madras infected with smallpox.
Singapore.—Steamship *Tairea* arrived on January 19 from Calcutta infected with smallpox.

INFLUENZA IN FOREIGN COUNTRIES

The health section of the secretariat of the League of Nations has published the following information relative to the prevalence of influenza in foreign countries. The data were obtained from the health administrations of the several countries. Earlier reports will be found in the Public Health Reports of February 4, 1927, page 283, and February 11, 1927, page 367.

Bulgaria.—(January 25.) The number of influenza cases reported in Bulgaria is increasing but the form generally remains mild. In groups of population for which statistics are available, 25 per cent are reported suffering from influenza since January 7 at Burgas. There were seven deaths in this town due to complications of influenza from January 1 to 19. An increase of influenza is reported among the pupils and soldiers at Satra-Zagora. Fifteen per cent of the pupils at Sofia have been ill from influenza since their return from vacations. The number of cases is increasing at Nicopoli.

Czechoslovakia.—(January 25.) The influenza epidemic appeared in Bohemia only during the second week of January. Reports for the period from January 1 to 15 have been received from 101 municipalities of Bohemia, in which 6,621 cases and 4 deaths were reported. Among these cases 1,699 were among children under 14 years of age. The type of the cases is given as follows: 68 cases of simple fever, 6,507 cases of catarrhal type, 27 broncho-pneumonia, 34 gastro-intestinal, 12 nervous.

Of the above cases 2,363 were reported at Prague and the remainder in smaller towns and villages.

The Central Social Insurance Fund at Prague states that, during the week ended January 22, there were among its members in the town of Prague alone 3,234 cases of simple catarrhal influenza, 83 cases with pulmonary complications, of which 2 were fatal, 4 cases of gastro-intestinal, and 2 of cerebral type.

Denmark.—(January 26.) There were 37,241 influenza cases reported during the week ended January 15, as against 16,150 cases during the previous week. There were 6,725 new cases at Copenhagen during the week ended January 22, as compared with 5,455 during the preceding week.

England and Wales.—(January 25.) Official reports for the week ended January 22 indicate that a widespread prevalence of what is variously termed influenza, influenzal cold, and catarrhal fever continues. The cases are mostly of mild type, the febrile period short and catarrhal symptoms prevailing. The recovery is

usually rapid and the sequelæ infrequent. The outbreak is occurring principally in the southern and eastern part of the country. The northwestern districts are still comparatively free. Provisional returns for the said week are: Deaths from influenza in 105 large towns including London, 470; in London, 197. Pneumonia notifications numbered 1,886 in the whole country and 377 in London.

France.—Forty-one deaths from influenza were reported at Paris between January 11 and 20, as against 75 deaths during the previous 10 days. The number of deaths from all causes decreased from 1,593 during the first 10 days of January to 1,443 deaths during the second 10-day period, which is a fairly normal figure for the season.

Three deaths from influenza were reported at Lille during the week ended January 8, as against six during the previous week.

It is reported that the epidemic is decreasing practically everywhere in France.

Germany.—Statistics of causes of death for large towns show a moderate increase of the general mortality and of the deaths from respiratory diseases during the week ended January 1. The number of deaths attributed to influenza increased from 37 during the previous week to 83.

Hungary.—The number of mild influenza cases is very high at Budapest as well as in the remainder of the country. The disease is more prevalent in the western than in the eastern counties. Complications are generally rare and fatal cases few. There have been 2,079 cases, of which 33 were qualified as serious, and 1 death in the army (35,000 men). Notification of influenza cases has been made compulsory. At Budapest, 732 cases, of which 57 were with complications, and 14 deaths were reported during the week ended January 22. There were 10 deaths from influenza during the previous week.

India.—The following numbers of influenza cases and deaths were reported during the week ending January 1: 27 cases and 10 deaths in Bengal, 2 deaths in Bihar and Orissa, 73 cases and 21 deaths in the Punjab, and 188 cases and 6 deaths in the Province of Assam. During the week ended January 8, there were 5 deaths from influenza in Bengal, 3 in Burma, and 1 in the Punjab. Seven deaths from influenza were reported at Calcutta during the week ended January 22.

Ireland.—No epidemic has so far been reported either in the Irish Free State or in Northern Ireland. There were two deaths from influenza at Dublin and five at Belfast during the week ended January 15.

Italy.—(January 19.) Limited sporadic manifestations of benign influenza, not constituting epidemic centers, have been reported during the last two days from a few Provinces. These outbreaks have not in any way modified the health conditions of the Kingdom, which have remained perfectly normal, the mortality not exceeding its usual height during the winter season.

Japan.—The health administration informs the Singapore bureau that 142 deaths from influenza were reported in the nine principal maritime towns of Japan (Hakodate, Kobe, Moji, Nagasaki, Niigata, Osaka, Shimonoseki, Tsuruga, and Yokohama) from January 1 to 10.

Lithuania.—(January 25.) The influenza epidemic is not extending markedly; 386 cases and 2 deaths were reported from January 1 to 21.

Netherlands.—(January 21.) Influenza remains very prevalent but it continues to be of benign type, although complications (pneumonia) are not infrequent among persons of advanced age. The local health services of Amsterdam, The Hague, and Rotterdam reported on January 17 that the epidemic showed a tendency to diminish. At Amsterdam there were 35 deaths attributed to influenza during the first week of January, as compared with 13 during the previous week. The situation appears to be unchanged at Utrecht, where 20 per cent of the personnel of the public services are stated to be sick. At Arnhem (80,000 inhabitants) there are from 1,300 to 1,400 sick. A number of

smaller towns and villages are seriously affected. No special measures have been taken, excepting that the schools are closed in many municipalities.

Norway.—(January 27.) Influenza has not increased sensibly nor has the type become aggravated. It appears to be decreasing at Oslo.

Nine deaths from influenza were reported at Oslo and 4 at Bergen during the 2 weeks ended January 15, as against 0 and 3, respectively, during the 2 preceding weeks.

Russia (U. S. S. R.).—Three hundred and ten influenza cases, of which 3 were fatal, were reported at Leningrad during the week ended December 11. There were 183 cases and 2 deaths attributed to influenza during the previous week.

Scotland.—The registrar-general of Scotland states (January 24) that there were 18 deaths attributed to influenza in the 16 principal towns of Scotland during the week ended January 22, as compared with 13 during the previous week. The general death rate remains normal for the season (15.5 per 1,000 inhabitants).

Spain.—(January 23.) Telegrams received from the various Provinces show a marked diminution of the influenza epidemic during the week ended January 23 in all the infected Provinces. The character of the disease remains benign, and children and old people particularly are affected. The mortality has been diminishing at Madrid, Valencia, San Sebastian, Bilbao, and Tarragona during the said week and now approaches the normal for the winter season.

Switzerland.—One hundred and fifty-nine deaths were attributed to influenza in Swiss towns of more than 10,000 inhabitants during the week ended January 8, as compared with 80 during the previous week. The largest number of deaths, 60, was returned from Geneva, where there had been 30 deaths from influenza during the previous week.

The number of deaths occurring in each town is specified below, as well as the distribution of the deaths by age and sex:

Deaths from influenza in Swiss towns during the week ended January 8, 1927

Zurich	10	Lucerne	5	Coire	1
Basel	38	Chaux-de-Fonds	5	Herisau	1
Geneva	60	Bienne	3	Olten	1
Berne	3	Neuchatel	4	Bellinzona	2
Lausanne	14	Friburg	4	Aarau	1
St. Gall	1	Baden	1		
Winterthur	1	Montreux	4	Total	159

Deaths from influenza by age and sex in Swiss towns during the week ended January 8, 1927

Age groups	Male	Female	Total	Age groups	Male	Female	Total
0 year	4	1	5	50–59	9	8	17
1–4	1	3	4	60–69	12	15	27
5–14		1	1	70–79	15	37	52
15–19	2		2	80 and over	8	14	22
20–29	2	2	4				
30–39	3	8	11		62	97	159
40–49	6	8	14				

Deaths from all causes in Swiss towns numbered 487 and at Geneva 108 during the week ended January 8, as against 274 and 27, respectively, during the corresponding week of 1926, in both cases exclusive of deaths of nonresidents.

Influenza cases reported to the health services in the whole of Switzerland numbered 22,726 during the week ended January 15 as compared with 17,008 during the previous week. The table below shows that the epidemic is decreas-

ing at Geneva, Basel, and Soleure, but gaining in the cantons infected more recently.

Influenza cases reported in certain cantons of Switzerland, December 26, 1926–January 15, 1927

Canton	Dec. 26, 1926–Jan. 1, 1927	Jan. 2–8, 1927	Jan. 9–15, 1927
Berne	561	961	1,493
Basel	5,126	3,821	1,591
Geneva	2,533	3,149	1,973
Zurich	256	2,472	5,828
Soleure	458	2,292	1,409
Lucerne	54	1,135	1,521
Argovie	37	881	2,662
Thurgovie	58	517	763
St. Gall	4	428	1,904
Valais	0	19	1,095

ALGERIA

Plague—Bona—January 19, 1927.—Under date of January 19, 1927, two fatal cases of plague were reported at Bona, Algeria.

BRAZIL

Malaria mortality—Para.—Mortality from malaria has been reported at Para, Brazil, as follows: November 27–December 25, 1926—deaths, 16; December 27, 1926–January 16, 1927—deaths, 19. Population, 236,402.

Prevailing diseases.—During the periods under reports gastroenteritis, leprosy, malarial fevers, and tuberculosis were reported to be the prevailing diseases at Para.

Smallpox—Rio de Janeiro—January 1, 1926–January 1, 1927.—During the period January 1, 1926, to January 1, 1927, 4,083 cases of smallpox with 2,180 deaths were reported at Rio de Janeiro, Brazil.

BRITISH EAST AFRICA

Influenza mortality—Tanganyika Territory—November 28–December 4, 1926.—During the week ended December 4, 1926, 209 deaths from influenza were reported in Tanganyika Territory, British East Africa.

CANADA

Communicable diseases—Week ended January 29, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases in six Provinces of Canada for the week ended January 29, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Total
Cerebrospinal fever			3	2		1	6
Influenza	53				1		54
Lethargic encephalitis	1			1			2
Smallpox				37	1	6	44
Typhoid fever	1		16	20	12	3	52

Communicable diseases—Sydney, Nova Scotia—Year 1926.—During the year 1926, communicable diseases were reported at Sydney, Nova Scotia, Canada, as follows:

Disease	Cases	Disease	Cases
Chicken pox	6	Syphilis	22
Diphtheria	9	Tuberculosis	24
Gonnorhea	13	Typhoid fever	6
Scarlet fever	32	Whooping cough	14

Population, estimated: 21,874. Total mortality from all causes—365.

CUBA

Communicable diseases—Habana—January, 1927.—During the month of January, 1927, communicable diseases were reported at Habana, Cuba, as follows:

Disease	New cases	Deaths	Remaining under treatment Jan. 31, 1927
Beriberi			2
Chicken pox	19		10
Diphtheria	18	1	7
Leprosy			11
Malaria [1]	92	4	57
Measles	27	1	12
Scarlet fever	6		6
Paratyphoid fever	2		2
Typhoid fever [1]	40	7	21

[1] Many of these cases from the interior.

Malaria—Camaguey and Oriente Provinces—July 1–December 31, 1926.—The following table shows the number of cases of malaria reported in the Provinces of Camaguey and Oriente, Cuba, during the last six months of the year 1926.

Inspectors have been appointed in each Province, and special measures taken in the attempt to cure and prevent the disease.

Province	July	August	September	October	November	December
Camaguey	97	160	194	321	742	1,596
Oriente	481	327	171	335	559	1,644
Total	578	487	365	656	1,301	3,240

ECUADOR

Plague—Guayaquil—January 1–15, 1927.—During the period January 1 to 15, 1927, 5 cases of plague with 3 deaths were reported at Guayaquil, Ecuador.

Plague-infected rats.—During the same period, 10,261 rats were reported taken and 53 rats found plague infected.

EGYPT

Plague—January 1-7, 1927.—During the week ended January 7, 1927, 12 cases of plague were reported in Egypt, of which 10 cases occurred in the district of Marsa Matrah, and one each in the districts of Tanta and Zagazig.[1]

MAURITIUS

Plague—October, 1926.—During the month of October, 1926, nine cases of plague with nine deaths were reported in the island of Mauritius. Of these, two cases occurred in Plaines Wilhems District and seven cases in the town of Port Louis.

UNION OF SOUTH AFRICA

Plague—Cape Province—Orange Free State—December 19-25, 1926.—During the week ended December 25, 1925, plague was reported in the Union of South Africa as follows: *Cape Province*—Hanover District—one fatal case, native; *Orange Free State*—one case, native, Hoopstad District; Vredefort District, 10 cases with 5 deaths, native.

Further relative to outbreak in Vredefort District, Orange Free State.—The outbreak, which resulted in 10 cases, with 5 deaths, occurred on Diamand Farm, all the cases being in natives and close contacts, and all bubonic in type. The first case occurred in a herd boy December 1, 1926. The outbreak was reported December 17, 1926.

VIRGIN ISLANDS

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid	3	
Chicken pox	2	
Gonorrhea	2	One imported.
Syphilis	3	Primary, 2; secondary, 1.
Tuberculosis	1	Chronic pulmonary.
Uncinariasis	1	Necator americanus.
St. Croix:		
Chancroid	1	
Filariasis	2	Bancrofti.
Leprosy	1	
Tuberculosis	1	Chronic pulmonary.

[1] Public Health Reports, Feb. 11, 1927, p. 447

YUGOSLAVIA

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	15	1	Rabies	2	2
Cerebrospinal meningitis	11	4	Scarlet fever	608	98
Diphtheria	221	52	Tetanus	10	4
Dysentery	68	11	Typhoid fever	523	73
Glanders	5	5	Typhus fever	21	2
Leprosy	1		Whooping cough	322	7
Measles	780	2			

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 February 18, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Nov. 13–27, 1926: Cases, 3,646; deaths, 2,234.
Madras	Dec. 26–Jan. 1	2	2	
Rangoon	Dec. 12–25	4	2	
Siam				Dec. 5–11, 1926: Cases, 9; deaths, 8. Apr. 1–Dec. 13, 1926: Cases, 7,801; deaths, 5,138.
Bangkok	Dec. 5–11	2	1	District.

PLAGUE

Algeria:				
Bona	Jan. 19	2	2	
British East Africa:				
Tanganyika Territory	Dec. 12–18		6	
Ecuador:				
Guayaquil	Jan. 1–15	5	3	Rats taken, 10,261; found infected, 53.
Egypt				Jan. 1–7, 1927: Cases, 12. (P. H. R., Feb. 11, 1927, p. 452.)
India				Nov. 14–27, 1926: Cases, 2,608; deaths, 1,577.
Rangoon	Dec. 12–25	4	3	
Java:				
Batavia	Dec. 19–25	15	16	Batavia Province.
Do	Dec. 26–Jan. 1	13	13	Do.
Surabaya	Dec. 5–18	5	5	
Mauritius				Oct. 1–31, 1926: Cases, 9; deaths, 9.
Plaines Wilhems	October, 1926	2	2	
Port Louis	do	7	7	
Siam				Dec. 5–11, 1925: Cases, 4; deaths, 3. Apr. 1–Dec. 11, 1926: Cases, 24; deaths, 17.
Syria:				
Beirut	Dec. 14–20	1		
Union of South Africa:				
Cape Province—				
Hanover District	Dec. 19–25	1	1	Native.
Orange Free State—				
Hoopstad District	do	1		Do.
Vredefort District	do	10	5	Native, on Diamand Farm; first case occurred Dec. 1, 1926; reported Dec. 17.

[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 February 18, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Brazil:				
Pernambuco	Dec. 11-25	1	1	
Rio de Janeiro				Jan. 1, 1926-Jan. 1, 1927: Cases, 4,083; deaths, 2,180.
Canada				Jan. 23-29, 1927: Cases, 44.
Alberta—				
Calgary	Jan. 16-29	5		
Manitoba	Jan. 23-29	1		
Winnipeg	Jan. 30-Feb. 5	2		
Ontario	Jan. 23-29	37		
Ottawa	do	3		
Toronto	Jan. 16-22	10		
Saskatchewan	Jan. 23-29	6		
China:				
Chungking	Dec. 12-25			Present.
Manchuria—				
Harbin	Dec. 26-31	2		
Shanghai	Dec. 12-18		1	
France:				
Paris	Jan. 1-10	1		
Great Britain:				
England and Wales—				
Bradford	Jan. 9-22	2		
Newcastle on Tyne	Jan. 9-15	6		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Jan. 2-8	20		
India				Nov. 14-27, 1926: Cases, 3,915; deaths, 871.
Bombay	Dec. 19-25	7	5	
Madras	Dec. 26-Jan. 1	9		
Rangoon	Dec. 19-25	1		
Iraq:				
Baghdad	Nov. 21-27	3	1	
Italy:				
Genoa	Jan. 1-10	2		
Mexico:				
Torreon	Jan. 16-22		1	
Peru:				
Laredo	Dec. 1			Severe outbreak reported. Vicinity of Trujillo.
Portugal:				
Lisbon	Jan. 9-15	2		
Senegal:				
Dakar	do	1		
Siam				Dec. 5-11, 1926: Cases, 8; deaths, 4. Apr. 1-Dec. 11, 1926: Cases, 705; deaths, 265.
Bangkok	Dec. 5-11	4	1	

TYPHUS FEVER

Chile:				
Valparaiso	Jan. 2-8	3		
Egypt:				
Cairo	Oct. 29-Nov. 4	1	1	
Ireland (Irish Free State):				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Mexico:				
Durango	January, 1927		1	
Mexico City	Jan. 9-15	12		Including municipalities in Federal District.
Palestine				Dec. 28, 1926-Jan. 10, 1927: Cases, 10.
Acre	Dec. 28-Jan. 3	1		
Haifa	Dec. 28-Jan. 10	4		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	do	3		
Safad	do	1		
Yugoslavia				Dec. 1-31, 1926: Cases, 21; deaths, 2.

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

Reports Received from January 1 to February 11, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 14–20			Present.
Tsingtao	Nov. 14–Dec. 11			Do.
Chosen	Sept. 1–30	231	143	
French Settlements in India	Aug. 29–Oct. 30	128	94	
India	Oct. 10–Nov. 13			Cases, 7,093; deaths, 4,170.
Calcutta	Oct. 31–Dec. 18	257	198	
Rangoon	Nov. 21–Dec. 11	4	3	
Indo-China	July 1–31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31–Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: One case.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Japan:				
Hiogo	Nov. 14–20	3		
Philippine Islands:				
Manila	Oct. 31–Nov. 6	1		
Russia	Aug. 1–31	1		
Siam	Oct. 31–Nov. 6			Case, 1.
Do	Apr. 1–Dec. 18			Cases, 7,806; deaths, 5,142.
Bangkok	Oct. 31–Dec. 18	8	2	
Straits Settlements	July 25–Oct. 16		60	
Singapore	Nov. 21–Dec. 4	3	2	

PLAGUE

Algeria:				
Algiers	Reported Nov. 26	1		
Bona	Jan. 11	1		
Oran	Nov. 21–Dec. 10	32	22	
Tarafaraoui	Nov. 1–Dec. 9	10	9	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28–Dec. 4	2	2	
Do	Dec. 26–Jan. 1	1	1	On vessel in harbor.
British East Africa:				
Tanganyika Territory	Nov. 21–27	6	6	
Uganda	Sept. 1–30	117	110	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Ceylon:				
Colombo	Nov. 14–Dec. 11	3	1	2 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31–Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1–Dec. 31	26	8	Rats taken, 50,616; found infected, 184.
Egypt	Jan. 1–Dec. 9			Cases, 149.
Alexandria	Nov. 19–Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3–9	2		
Marsa Matrah	Dec. 23–29	10		
Tanta District	Nov. 19–Dec. 20	3		
Greece	Nov. 1–30	10	1	Athens and Piræus.
Athens	Nov. 1–Dec. 31	9	4	
Patras	Nov. 28–Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10–Nov. 13			Cases, 7,985; deaths, 4,660.
Bombay	Nov. 21–27	1	1	
Madras	Oct. 31–Dec. 4	415	212	
Rangoon	Nov. 14–Dec. 4	7	6	

[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 January 1 to February 11, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7-Dec. 18	63	61	Province.
Surabaya	Oct. 24-Dec. 4	9	9	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	Oct. 16-Nov. 15	8	8	
Maevatanana	Oct. 16-31	10	10	
Moramanga	Oct. 16-Nov. 15	38	26	
Tamatave	Oct. 16-31	3	1	
Tananarive	Oct. 16-Nov. 15			Cases, 180; deaths, 167.
Tananarive Town	Oct. 16-Nov. 15	26	25	
Nigeria	Aug. 1-Sept. 30	492	441	
Peru	Nov. 1-30			Cases, 24; deaths, 4.
Departments—				
Cajamarca	do			Present.
Ica—				
Chincha	do	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Lima	do			Cases, 30; deaths, 4. Present in Cajatambo and Chancay Provinces.
Canete Province	do	10	3	
Chancay Province	do	3		
Lima Province	do	7	1	
Portuguese West Africa:				
Angola—				
Benguela	Oct. 16-31	8	4	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Aug. 31	19		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Dec. 18			Cases, 26; deaths, 21.
Syria:				
Beirut	Nov. 11-Dec. 20	3		
Tunisia:				
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar District	Nov. 21-27	1		Native.
Hanover District	Nov. 14-20	1		Native. On farm.
Middleburg District	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville District	Dec. 5-18	2	1	
Hoopstad District	Nov. 7-13	1	1	Native.
Do	Dec. 5-11	1	1	Do.

SMALLPOX

Algeria	Sept. 21-Nov. 20			Cases, 477.
Algiers	Dec. 11-31	4		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 11	57	3	
Rio de Janeiro	Nov. 14-Dec. 25	140	64	
Sao Paulo	Aug. 23-Oct. 24	12	9	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.

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

Reports Received from January 1 to February 11, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-22	137		
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-22	28		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-17	7		
Edmonton	Dec. 1-31	4		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-22	7		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-22	3		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-22	87		
Kingston	Jan. 1-7	1		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-15	1		
Toronto	Dec. 14-25	14		
Do	Jan. 1-15	25	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-22	15		
Regina	Jan. 16-22	1		
China:				
Chungking	Nov. 7-Dec. 11			Present.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Manchuria—				
Harbin	Dec. 16-22	1		
Mukden	Dec. 5-11	1		
Swatow	Nov. 21-27			Do.
Nanking	Dec. 12-25			Do.
Chosen	Aug. 1-Sept. 30	42	14	
Seoul	Nov. 1-30	2		
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Oct. 31	165		
Paris	Dec. 1-31	10	3	
French Settlements in India	Aug. 29-Nov. 30	83	83	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Jan. 1			Cases, 2,262.
Do	Jan. 2-8			Cases, 412.
Newcastle-on-Tyne	Dec. 5-11	2		
Do	Jan. 2-8	1		
Sheffield	Nov. 28-Jan. 1	60		
Greece	Nov. 1-30	20		
Athens	Dec. 1-31	14	2	
Guatamala:				
Guatemala City	Nov. 1-Dec. 31		15	
India	Oct. 10-Nov. 13			Cases, 3,967; deaths, 988.
Bombay	Nov. 7-Dec. 18	22	16	
Calcutta	Oct. 31-Dec. 18	239	160	
Karachi	Dec. 19-25	1	1	
Madras	Nov. 21-Dec. 25	23	2	
Rangoon	Nov. 28-Dec. 11	1	1	
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31-Dec. 4	4	3	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Oct. 23	12		
Genoa	Dec. 20-31	1		
Jamaica	Nov. 26-Dec. 25	24		Reported as alastrim.
Japan:				
Kobe	Nov. 14-20	1		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24-Nov. 27	10	1	

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

Reports Received from January 1 to February 11, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Luxemburg	Nov. 1-30	1		
Mexico	July 1-Aug. 31		331	
Chihuahua	Dec. 31			Several cases; mild.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Jan. 8	1		Do.
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-15		2	
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-8		4	
Nigeria	Aug. 1-Sept. 30	61	3	
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-30			Cases, 30.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-8	3		
Portuguese West Africa:				
Angola	Oct. 1-15			Present in Congo district.
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Aug. 31	629		
Siam	Apr. 1-Dec. 18			Cases, 708, deaths, 266.
Bangkok	Oct. 31-Dec. 18	21	7	
Sierra Leone:				
Manowa	Dec. 1-15	1		Pendembu district.
Straits Settlements:				
Singapore	Oct. 31-Nov. 27	3		
Tunisia	Oct. 1-Nov. 20	7		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak; cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

TYPHUS FEVER

Algeria	Sept. 21-Nov. 20	22		
Bulgaria	July 1-Oct. 31	23	3	
Chile:				
Valparaiso	Nov. 21-Dec. 25	6		
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug. 1-Sept. 30	15		
Seoul	Nov. 1-30	1		
Egypt:				
Alexandria	Dec. 3-9		1	
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 30	15	2	
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokio Prefecture	Dec. 5-25	9		
Tokio city	do	5	1	
Lithuania	Sept. 1-Oct. 31	17	2	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-15	1		
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Do	Jan. 2-8	4		Do.
Nigeria	Sept. 1-30	1		

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

Reports Received from January 1 to February 11, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Palestine:				
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Jaffa	Nov. 23-Dec. 20	6		
Jerusalem	Sept. 1-Oct. 30	19		
Nazareth	Nov. 16-Dec. 20	7		
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Rumania	Aug. 1-Oct. 31	114	6	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	2,364		
Turkey:				
Constantinople	Dec. 12-25	3		
Tunisia	Oct. 1-20	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 18			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district.	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-30	9		

YELLOW FEVER

French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-30	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27	1	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		