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INCIDENCE OF ILLNESS AMONG MALE INDUSTRIAL EMPLOYEES IN 1932 AS COMPARED WITH EARLIER YEARS

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In 1932 as a whole the frequency of cases of disabling sickness lasting 8 days or longer among a sample group of male industrial employees differed little from the incidence recorded for the preceding year. In each of the past 3 years, in fact, the sickness rates for this group have exhibited remarkable stability at a lower incidence level than during the 1927–29 period.

For certain causes of disability, however, greater changes in frequency may be noted. The respiratory disease rate was higher in 1932 than in either of the 2 immediately preceding years, due chiefly to an unusual prevalence of influenza in March and again in December 1932. On this account the rate of sickness exclusive of influenza is of particular interest as an index of health conditions aside from influenza. For the group under observation no year of record (1921 to date) shows a lower rate of sickness exclusive of influenza than that for 1932.[1]

TABLE 1.—*Frequency of specified causes of disability lasting 8 consecutive calendar days or longer per 1,000 male industrial workers representing various industries, by years, from 1927 to 1932, inclusive*

Year in which disability began	Sickness and nonindustrial injuries [1]		Sickness		Respiratory diseases [2]		Sickness exclusive of influenza		Nonrespiratory diseases		Average number of men, all reporting establishments
	A [3]	B [3]	A [3]	B [3]	A [3]	B [3]	A [3]	B [3]	A [3]	B [3]	
1927	103.7	102.0	92.3	90.5	40.2	39.8	74.6	73.0	52.1	50.7	165,465
1928	113.4	111.2	102.5	100.2	50.6	48.8	73.4	72.7	51.9	51.4	163,557
1929	112.4	110.6	99.9	98.1	47.8	46.7	73.9	72.0	52.1	51.4	194,451
1930	94.1	93.9	81.8	81.7	32.0	32.3	68.5	68.3	49.8	49.4	188,714
1931	94.6	93.3	82.2	81.2	34.9	34.8	63.3	62.2	47.3	46.4	171,694
1932	97.5	94.7	84.9	82.3	37.6	37.0	62.9	60.4	47.3	45.3	163,979
5 preceding years [4]	103.6	102.2	91.7	90.3	41.1	40.5	70.7	69.6	50.6	49.8	176,776

[1] Industrial accidents and the venereal diseases are not reported.
[2] Title numbers 11, 23, 104–115a, in the International List of the Causes of Death, fourth revision, Paris, 1929.
[3] In the tables of this article A = all reporting establishments; B = establishments which reported throughout the 6 years ending Dec. 31, 1932.
[4] 1927–31 inclusive.

[1] For the record 1921 to 1927 see Public Health Reports, vol. 47, no. 18, April 29, 1932, pp. 997–1001.

TABLE 2.—*Frequency of specified respiratory diseases which caused disability for 8 consecutive calendar days or longer per 1,000 industrial workers representing various industries, by years, from 1927 to 1932, inclusive* [1]

Year in which disability began	Influenza, grippe (11)		Bronchitis, acute and chronic (106)		Diseases of the pharynx and tonsils (115a)		Pneumonia, all forms (107–109)		Tuberculosis of the respiratory system (23)		Other diseases of the respiratory system (104, 105, 110–114)	
	A	B	A	B	A	B	A	B	A	B	A	B
1927	17.7	17.5	6.0	6.0	6.4	6.1	3.3	3.4	1.6	1.6	5.2	5.2
1928	29.1	27.5	5.7	5.7	5.9	5.6	3.4	3.4	1.1	1.2	5.4	5.4
1929	26.0	26.1	5.3	5.2	7.2	6.3	3.1	3.2	1.2	1.1	5.0	4.8
1930	13.3	13.4	4.6	4.8	6.0	5.8	2.5	2.7	1.1	1.1	4.5	4.5
1931	18.9	19.0	3.6	3.6	5.2	5.0	2.1	2.2	1.0	1.0	4.1	4.0
1932	22.0	21.9	3.6	3.5	4.5	4.4	2.0	2.0	1.0	1.0	4.5	4.2
5 preceding years	21.0	20.7	5.0	5.0	6.1	5.8	2.9	3.0	1.2	1.2	4.8	4.8

[1] In the tables of this article the numbers shown in parentheses are disease title numbers from the International List of the Causes of Death, fourth revision, Paris, 1929.

Although the influenza rate was higher in 1932 than in 1931, there was no increase in pneumonia. This result conforms with the record of mortality in the industrial population. Deaths from pneumonia dropped in 1932 to a new minimum which represented a decline from the previous low point recorded in 1931.[2] There was no change in the frequency of new cases of tuberculosis of the respiratory system in 1932 as compared with the preceding year among the men included in the record of sickness. Mortality records also show favorable rates for tuberculosis.

Other disease groups showing relatively low sickness incidence rates in 1932 in the sample available for the industrial population include digestive diseases as a whole, diseases of the skin, and the infectious and parasitic group of diseases.

The 1932 morbidity record was less favorable for certain disease groups, including diseases of the circulatory system and especially for diseases of the heart, for certain "general" diseases, and for non-industrial injuries.

As has been pointed out in previous communications, these sickness rates are based on the reports of a group of about 40 industrial establishment sick-benefit funds, and apply in the main to employed men, although many work only on a part-time basis. For information concerning the health of the unemployed, other data obviously are required.

TABLE 3.—*Frequency of specified diseases of the digestive system which caused disability for 8 consecutive calendar days or longer per 1,000 male industrial workers representing various industries, by years from 1927 to 1932, inclusive*

Year in which disability began	Digestive diseases, total (115b–129)		Diseases of the stomach except cancer (117, 118)		Diarrhea and enteritis (120)		Appendicitis (121)		Hernia (122a)		Other digestive diseases (115b, 116, 122b–129)	
	A	B	A	B	A	B	A	B	A	B	A	B
1927	15.1	14.9	5.0	5.0	1.4	1.3	4.5	4.4	1.6	1.6	2.6	2.6
1928	14.6	14.5	4.7	4.8	1.3	1.2	4.2	4.2	1.8	1.7	2.6	2.6
1929	15.6	15.6	4.7	4.7	1.5	1.4	4.5	4.5	1.8	1.9	3.1	3.1
1930	14.8	14.5	4.7	4.7	1.5	1.5	4.0	3.7	1.7	1.8	2.9	2.8
1931	13.4	12.9	4.0	3.6	1.2	1.2	3.7	3.5	1.8	1.9	2.7	2.7
1932	13.3	12.6	4.0	3.7	1.0	1.0	3.4	3.3	1.9	1.9	3.0	2.7
5 preceding years	14.7	14.5	4.6	4.5	1.6	1.3	4.2	4.1	1.7	1.8	2.8	2.8

[2] *Cf.* Statistical Bulletin, Metropolitan Life Insurance Co., vol. 14, no. 2, Jan. 1933, p. 4.

TABLE 4.—*Frequency of specified nonrespiratory, nondigestive diseases which caused disability for 8 consecutive calendar days or longer per 1,000 male industrial workers representing various industries, by years, from 1927 to 1932, inclusive*

Year in which disability began	Nonrespiratory, nondigestive diseases, total		Diseases of the circulatory system, except diseases of the veins (90–99, 101–103)		Diseases of the veins (100)		Diseases of the heart (90–95)		Nephritis, acute and chronic (130–132)	
	A	B	A	B	A	B	A	B	A	B
1927	37.0	35.8	3.2	3.2	1.5	1.4	2.1	2.0	0.8	0.8
1928	37.3	36.9	3.4	3.5	1.7	1.7	2.1	2.1	.8	.8
1929	36.5	35.8	3.4	3.6	1.7	1.7	2.2	2.3	.8	.8
1930	35.0	34.9	3.4	3.5	1.6	1.6	2.1	2.2	.7	.7
1931	33.9	33.5	3.2	3.3	1.8	1.5	2.0	2.1	.7	.7
1932	34.0	32.7	3.7	3.6	1.8	1.7	2.5	2.4	.8	.8
5 preceding years	35.9	35.3	3.3	3.4	1.7	1.6	2.1	2.1	.8	.7

Year in which disability began	Other diseases of the genito-urinary system and annexa (133–138)		Neuralgia, neuritis, sciatica (87a)		Neurasthenia and the like (87b)		Other diseases of the nervous system (78–85)		Diseases of the organs of vision (88)	
	A	B	A	B	A	B	A	B	A	B
1927	2.2	2.0	2.3	2.3	1.4	1.4	1.0	1.0	1.4	1.4
1928	2.2	2.2	2.2	2.2	1.4	1.4	1.0	1.0	1.1	1.1
1929	2.2	2.1	2.5	2.5	1.3	1.2	1.1	1.0	1.0	1.0
1930	2.4	2.3	2.3	2.2	1.2	1.2	1.0	1.1	1.1	1.1
1931	2.3	2.2	2.1	2.1	1.5	1.4	1.1	1.3	1.0	1.0
1932	2.3	2.1	2.3	2.3	1.3	1.1	1.2	1.2	.9	.8
5 preceding years	2.3	2.1	2.3	2.3	1.4	1.3	1.0	1.1	1.1	1.1

Year in which disability began	Diseases of the ear and of the mastoid process (89)		Rheumatism, acute and chronic (56, 57)		Diseases of the organs of locomotion except diseases of the joints (156b)		Diseases of the skin (151–153)		Infectious and parasitic diseases [1] (1–10, 12–22, 24–33, 36–44)	
	A	B	A	B	A	B	A	B	A	B
1927	0.5	0.5	6.3	6.2	3.5	3.2	4.7	4.6	3.8	3.5
1928	.7	.7	6.4	6.3	4.0	3.9	4.4	4.3	4.0	3.9
1929	.7	.6	5.6	5.6	3.9	3.9	4.2	4.2	3.9	3.5
1930	.5	.5	5.6	5.7	3.5	3.5	3.8	3.8	3.8	3.5
1931	.7	.6	5.4	5.4	3.3	3.5	3.2	3.3	3.3	2.9
1932	.7	.7	5.3	5.5	3.3	3.6	2.7	2.7	2.7	2.1
5 preceding years	.6	.6	5.9	5.8	3.6	3.6	4.1	4.0	3.8	3.5

Year in which disability began	Cancer, all forms (45–53)		Other general diseases [2] (54, 55, 59–77)		Diseases of the bones and joints (154–156a)		Ill-defined and unknown causes of disability (200)		Nonindustrial injuries	
	A	B	A	B	A	B	A	B	A	B
1927	0.6	0.6	1.3	1.2	1.0	1.1	1.5	1.4	11.4	11.5
1928	.4	.4	1.2	1.1	.7	.7	1.7	1.7	10.9	11.0
1929	.4	.4	1.2	1.2	.8	.7	1.8	1.8	12.5	12.5
1930	.5	.5	1.2	1.2	.7	.8	1.7	1.7	12.3	12.2
1931	.6	.6	1.2	1.2	.6	.6	1.9	1.9	12.4	12.1
1932	.6	.6	1.7	1.7	.4	.5	2.3	1.7	12.6	12.4
5 preceding years	.5	.5	1.2	1.2	.8	.8	1.7	1.7	11.9	11.9

[1] Except influenza, respiratory tuberculosis, and the venereal diseases.
[2] Includes nutritional diseases, diseases of the endocrine glands, diseases of the blood and blood-making organs, chronic poisonings, and intoxications.

DERMATITIS FROM CHEMICALS USED IN REMOVING VELVET PILE

By Louis Schwartz, *Senior Surgeon, United States Public Health Service,* and Louis Tulipan, M.D., New York City

During the summer of 1932, a new style of designs on velvet came into vogue. Pile was removed from the velvet in the shape of the design desired, by means of a chemical velvet remover. A number of firms in New York City and elsewhere were engaged in the manufacture of this new product.

The removal of pile by a chemical requires the use of one fiber in the pile and another in the foundation.

In the processes investigated, there was a silk foundation with a regenerated cellulose rayon pile and the pile was removed in most shops by the use of aluminum chloride, but some of the shops used sulphuric acid, and some others, hydrochloric acid. When aluminum chloride is used, it is mixed in water to form about a 30-percent solution, a sufficient amount of gum tragacanth is added to make a mucilage, and a small amount of formaldehyde is added as a preservative. The jelly-like mixture which results is brushed over the material through a stencil. The material is then placed in a dryer, where carbonization of the pile is completed. After removal from the dryer, the charred pile is scraped off with a spoon, exposing the foundation in the required design.

Other chemicals may be used if the fiber combinations of pile and foundation are different. For instance, a silk pile with a cotton foundation would require the removal of the silk with calcium thiocyanate or caustic soda. A cellulose acetate rayon pile with a regenerated cellulose rayon foundation would require acetone to remove the cellulose acetate rayon pile. A wool or silk foundation having a cotton or regenerated cellulose rayon pile would require hydrochloric acid or aluminum chloride or sulphuric acid to remove the pile. The cases reported occurred while the patients were working with the latter combination.

Where sulphuric or hydrochloric acid is used, a solution of about 7 percent strength is made in water and sprayed with a spray nozzle on the material through a stencil and then treated in the same way as when aluminum chloride is used.

CASES REPORTED

Three cases of dermatitis occurring in 2 girls and 1 man who worked for a firm engaged in manufacturing this material came for treatment to the office of one of the writers. The girls were engaged in removing the charred pile from the designs by means of scraping with a spoon. The man was engaged in spraying a 7 percent solution of sulphuric acid on the velvet through a stencil by means of a spray gun.

Case 1.—R.F., female, age 18; occupation, scraper of velvet which had been sprayed with acid and then baked. After working about 1 week at this occupation, patient noticed a red spot on the left hand. This gradually spread, and in a short time the forearms to the elbow of both arms were involved.

The patient presented on the dorsa of both hands and surfaces of the forearms a scarlatinaform eruption consisting of closely aggregated erythematous papules. This disappeared after a few days under calamine lotion and after stopping work. At the time of this report she was engaged in another occupation and is well.

Case 2.—H.F., female, age 19; occupation, velvet pile remover.

For the 3 weeks preceding the investigation, patient had been employed at scraping off velvet pile which had been sprayed with acid and then baked. After the first week, she noticed an eruption on her hands and arms.

On the palms and the palmar surfaces of the fingers, there were yellowish-brown irregular patches. On the dorsa of the hands were discrete reddish papules in confluent patches, more marked on the right hand. Three days following the first examination, a maculopapular eruption developed on the chest and abdomen. Similar lesions were also present on back of the neck, the forearms, and the cubital fossae. The tongue and mouth showed no changes, and there was no elevation of temperature. The eruption showed some resemblance to a toxic erythema. Under treatment with a calamine lotion and absence from work, the rash completely disappeared in 1 week. At the time of this report she was free from rash and was engaged in another occupation.

Case 3.—L.B., male, age 46; occupation, patternmaker.

For 2 weeks patient had worked on an experimental process for preparing designs on artificial velvet by spraying a sulphuric acid solution from an air gun onto a frame holding the velvet. He held the gun with his right hand and steadied the frame with the left. The acid spray caused him to sneeze "just like hay fever."

The patient presented on the forearms a confluent erythematous papular and bullous eruption which was most marked on the flexor surfaces and more severe on the left than on the right forearm. There were no lesions on the hands. This man continued working while he had the eruption, which became steadily worse until he had to stop working. The eruption improved, but reappeared when he returned to work. He had to give up the occupation altogether.

Inquiry at the factory revealed that 3 girls and 1 man worked in the pile-removing department, and that dermatitis developed in all 4 of them, but the fourth worker, a woman, had only a mild case on her arms and neck and did not seek the advice of a physician. After the occurrence of these cases, the firm substituted aluminum chloride

paste for the dilute sulphuric acid and also changed from white to colored workers. Since that time no more cases have developed.

The manufacturer of the spray gun, being interviewed, stated that he knew of some cases of workers with his spray gun employed in the process of velvet removal whose skins became severely inflamed as a result of this occupation. None of these cases was seen by the writer.

The manufacturer of the aluminum chloride jelly was interviewed, and he stated that he obtained the formula which he is now using from the Bureau of Standards, and that it consisted of about 30 percent solution of ammonium chloride in water, to which there was added a small amount of gum tragacanth for thickening purposes, and a small portion of formaldehyde solution as a preservative. He stated that he had personally known of 2 cases of dermatitis developing from the use of the velvet remover which his firm manufactured. He stated that in these cases the irritation resulted because the persons working with the velvet remover had their arms moist with the remover and that they went to the dryer with their hands and arms wet, and the heat of the dryer changed the moisture on the skin to hydrochloric acid, which produced the irritation.

The chief of the division of industrial hygiene of the State of Connecticut stated in an interview that 5 such cases had been reported to him as occuring in Connecticut, and that they were attributed to the use of aluminum chloride in the form of a jelly, as described above.

DISCUSSION

The skin irritant in the 3 cases cited was the 7 percent solution of sulphuric acid used in the air gun. Although complete carbonization is supposed to take place in the drying oven, yet the pile scraped off the velvet by the girls had an irritating action on the skin. All the materials which are used for removal of pile from the various materials are skin irritants. Even the small amount of formaldehyde used as a preservative in the aluminum chloride-tragacanth combination may be a skin irritant to hypersensitive individuals.

The Connecticut cases occurred among users of the aluminum chloride-tragacanth-formaldehyde mixture.

The use of acid solutions as a spray seems to be more hazardous than the use of the aluminum chloride jelly. In the manufacturing concern where the patients in the 3 cases here reported worked, the substitution of the aluminum chloride jelly for the sulphuric acid solution and the employment of colored persons stopped the occurrence of dermatitis. Whether the skins of colored people are less sensitive to this material than the skins of white people has not yet been determined.

Workers in this process should be protected by wearing rubber gloves and long sleeves, and those using the spray gun and scraping

the charred pile should do such work under an exhaust hood and, in addition, should wear rubber gloves and long sleeves.

ADDITIONAL NOTES ON THE PREPARATION AND EXAMINATION OF THICK BLOOD FILMS FOR MALARIA DIAGNOSIS[1]

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This paper is intended to supplement a previous article on the preparation and examination of thick blood films by Dr. M. A. Barber and the author (1). Several points mentioned in that paper are here treated more fully, and certain additional matters of technique and of equipment for field surveys which have been found useful are described.

PREPARATION OF SLIDES

Clean slides by bringing them to a boil in a strong solution of soap powder. It is important to cover the slides completely with the solution, as otherwise those only partially covered may be etched. It is well to use a generous amount of solution (which may be used for successive batches) and to stir the slides gently from time to time. They should then be rinsed in several changes of water, and allowed to dry. They are then immersed in 95 percent ethyl alcohol in a small photo-developing tray, several hundred at a time. Each slide is wiped free from alcohol with a lintless cheesecloth rag and placed in a slide box holding 25 slides. When the box is filled it is inverted and the slides are dumped onto a strip of paper (three sheets of ordinary roll toilet paper do well) and wrapped to form a dust-proof package. This is bound with a rubber band, replaced in the box, and the lid is put on. A scouring powder may be used instead of the soap powder, in which case a thin film of the powder is allowed to dry on the slides. This is rubbed off with a soft cloth. This method dispenses with the alcohol.

The grade of slides known as "half-white" and of medium thickness should be used, as white slides scratch and etch more readily than do those with a slightly greenish tint, and slides which are too thick have an annoying tendency to stick in the grooves of the slide boxes when they are inverted. The method outlined above gives an opportunity to test the slides for thickness and length; all should be rejected which are too short or too thick to fit the slide box.

COLLECTING BLOOD SPECIMENS

Gauze, not cotton, wet, not merely moistened, with ethyl alcohol, should be used to clean the skin of the dorsal surface of the middle

[1] Manuscript received for publication in March 1931.

finger of the left hand, at the base of the nail. Rub dry with clean gauze. Be sure that the skin and needle are dry before pricking the finger; otherwise some of the blood-corpuscles may be fixed by the alcohol. The skin should be punctured with a light, quick prick, deeply enough to cause the blood to appear at once, but not so deeply that the blood will flow freely. The end of the finger is then squeezed until a large drop of blood is obtained. It is essential that the "sticking" be accomplished with a minimum of trauma, as in school surveys small children easily become nervous at the sight of their comrades' gory fingers, and in populations being resurveyed at short intervals many refusals will be met unless the blood is obtained as painlessly as possible. For this work the use of the Moore blood lancet is not recommended. The needle found to give the best results is a heavy (No. 10) worsted needle, the end of which, previously heated in a flame, is ground to a point, forming a fairly obtuse triangular pyramid. This needle is easily kept sharp by grinding its three faces at frequent intervals on a fine carborundum stone. The needle should be fixed in a cork at least an inch and a quarter in diameter, and kept in a wide-mouth bottle partly filled with ethyl alcohol. Before taking the blood on the slide, give the slide a quick wipe on a small piece of gauze pinned to the left coat sleeve. Touch the top of the drop of blood with the slide, and carefully draw a circle with the blood, about three quarters of an inch in diameter (about as big as a dime), and about a quarter of an inch from the end of the slide. Squeeze the finger again if necessary to draw more blood, and fill in the circle with blood obtained from the top of the drop. Avoid touching the skin with the slide. Do not make the film too thin. This is the most common error of beginners in using this technique. The second common error is in obtaining too little blood, and the third is in neglecting instructions relative to cleanliness of finger and slide, and thereby mixing dirt and bacteria in the thick film. It is unnecessary to spread the blood with the needle or with the corner of another slide. Keep the slides from becoming warmed in the sun; otherwise the blood will dry too quickly, and may crack and flake off from the thicker parts of the film. Avoid overdrying the blood films before staining, as partial fixation of the film may result.

POOLED FILM METHOD

A time-saving method of pooling the blood of two or more individuals which has proved useful in experienced hands, but which is not recommended for general use, is the following: The first drop of blood from the puncture is placed towards the edge of the slide near one end, and the rest of the blood from the puncture is spread in the usual thick film near the other edge of the slide, at the same end. The first drop of blood from the next individual to be examined is

then placed alongside the first drop, nearer the middle of the slide. The remainder of the blood from the second individual is pooled with that of the first in the thick film. There will then be three films of blood on the same slide. If the pooled blood film is found positive, then both individual drops must be examined to determine whose blood is infected. If the thick film is negative, both individuals are counted negative, thus saving half the technician's time in the examination of slides. The writer has had success with the pooling of the bloods of as many as three individuals on one slide, checking the accuracy of the method by examining the individual films from each donor. This method of course finds its greatest usefulness in surveying populations with low parasite rates, say 10 percent or less; otherwise nearly as much time would be consumed in examining the individual films as would be used if they were on separate slides.

MARKING THE SLIDES

A blue china-marking pencil has been found best for numbering slides. Later findings as to parasites and types may then be noted with a red pencil. Make the figures large, using an initial distinguishing letter or symbol for each group surveyed. If a definite number of specimens only is to be obtained, much time will be saved if the slides are numbered beforehand. If a large number of slides is to be obtained, the first and the last slides only in each box need be numbered, leaving the remainder to be marked later.

DRYING FILMS

Put the slides in the slide box with the film side down, the blood films all toward the left, and the numbers toward the right. Start to fill the box from the bottom, as this will help prevent tipping over. The most convenient support for the slide box consists of two pieces of soft wood, each about as long and wide as a slide box, and about half an inch thick. One piece is fastened perpendicular to the other at its middle, forming an inverted T. Two slide boxes are placed back to back on this support, and held by a heavy rubber band.[2]

In warm weather, slides collected one afternoon may be stained the next. In cooler weather, after the slides have been placed in blocks (see next section), they may be placed in a metal tray and left in the sun for half an hour, if an incubator is not available. Avoid overdrying, in any case. Best results will be obtained if specimens are stained as soon as possible after collection. Loss of a portion of the film may be due to insufficient drying, greasy slides, or to too violent manipulation during staining or decolorizing. Insufficient drying is responsible for most of this trouble.

[2] I am indebted to Dr. H. E. Meleney, Vanderbilt University, for this suggestion.

STAINING

While it is more convenient to use prepared stain, for thick films I prefer a Giemsa stain made up omitting the Azur II component. The formula is as follows: Dissolve 0.3 grams Azur II eosin in 13 cc of C.P. anhydrous glycerin at 60° C. (140° F.) on a waterbath; then add 37 cc of C.P. acetone-free methyl alcohol at the same temperature. Several stain powders have been found satisfactory. The slides in the boxes have the blood-films all to the left and the numbered ends to the right. Pasteboard separators are placed between the numbered ends, and slides and separators are dumped on to the cover of the slide-box, as described in the previous paper (1). Separators of uniform and proper thickness may be made from the cardboard used in packing plates and films, and is obtainable from photographers anywhere. "Separators should not be more than an inch and a quarter long. If they are longer they may reach and absorb the stain, swell and stretch the rubber bands, sometimes even breaking them. Sometimes the wet pasteboard may stick to the wax-pencil marking and remove it when the slides are separated after drying." [3] A most satisfactory substitute for pasteboard separators, free from many of their objectionable characteristics, may be made from old discarded 1- by 3-inch microscope slides of proper thickness. These are broken in half after being scratched across the middle with a diamond, and any sharp edges left are ground off. These glass separators do not absorb moisture, and the wax-pencil markings do not adhere to them. Old photographic plates, from which the film has been removed, may be cut up into separators. Because of their more uniform thickness and freedom from flaws, these are more suitable for this use than ordinary glass. "If rubber bands are used to hold the block of slides and separators together, avoid cutting the rubber bands against the sharp edges of the slides by wrapping the block with a narrow strip of heavy paper before putting on the bands. The paper strips should be narrow to keep them out of the stain, heavy to avoid the use of more than one strip to the block, and hard finished to prevent absorption of moisture too easily. One of the separators may be marked with name, number or symbol, and any other necessary data, and placed under the rubber bands on the outside of each block of slides, providing an easy means of identification of each block. The film side of the first slide of the block should be turned inward to avoid scraping off the film during staining and decolorizing." [3]

The best fastener for the blocks of slides and separators is a small ring of ¼-inch width elastic webbing. Never depend on rubber bands to hold the block together longer than necessary to stain the slides.

A convenient dish in which to stain a number of slides economically is a white-enameled sterilizing tray 3 by 8 inches by 1½ inches deep.

[3] Suggestions by Miss Aimee Wilcox, microscopist, United States Public Health Service.

This holds about 200 cc of dilute stain to the proper depth to stain six blocks of 25 slides each at one time. Small ice-box dishes with straight sides are also convenient receptacles. Put the stain into the dish, then pour on the water. Do not mix further. The usual directions for dilution say one drop to 1 cc, staining for 1 hour. Good results and a saving of time in examination may be obtained by increasing the thickness of the drop of blood, using 1½ drops of stain per cc and increasing the time to 1½ hours. Decolorization in clean water may proceed for as long as 20 minutes if these directions are used, but 5 minutes is usually sufficient if the slides have been stained according to the usual directions. Slides which show a central spot of brown after staining have not been in the stain long enough for it to penetrate the entire thickness of the film and should be restained. The annoying deposit of bundles of needle-shaped yellow crystals sometimes found on thick films after staining is due to a floating scum formed possibly from the interaction of the glycerin with other stain components. It may be avoided by keeping the staining containers perfectly clean, and by flushing out the stain in the containers with a gentle stream of water before removing the block of slides. In this way the floating scum is flushed over the edge of the container and does not adhere to the slides.

One of the most usual causes of failure with Giemsa staining is the use of diluting water of insufficient purity or of improper hydrogen-ion concentration. To insure the elegant differentiation of the malaria parasite from other blood elements of which a good Giemsa stain is capable, use distilled water at a hydrogen-ion concentration of 7.0. In the writer's experience he has never found a distilled water, even fresh from the still, which is of proper reaction, all, without exception, proving too acid. The water he uses at present has a hydrogen-ion concentration of 5.6 as it comes from the still, and is neutralized with dilute sodium-hydroxide solution to pH 7.0, a test being made on each lot of water immediately before it is added to the stain. As improperly cleaned staining-dishes may alter the reaction of water placed in them, it is well to fill them with neutral water and let them stand for some minutes before using them. This rinse water is poured out and fresh water used for dilution.

The use of "tap water" (a meaningless term, for it includes anything used as a public water supply, ranging from an acid surface water, which may contain iron or humic acids, to a hard limestone water) is not recommended, as, apart from its possibly unsuitable natural composition, it is often subject to great seasonal variation because of necessary chemical treatment at the waterworks. For this reason, a tap water which may give satisfaction over a long period may suddenly alter in composition or reaction, with consequent loss of an important batch of slides. Free chlorine, or large amounts of chlorides, will

spoil a water otherwise suitable for staining, causing a muddy redness of the background of laked red cells, and dimming the bright blue of the cytoplasm of the parasite. The use of phosphate buffers, adding as they do comparatively large amounts of foreign salts to the diluting water, has never proved as satisfactory as the use of distilled water neutralized with the extremely small amount of free alkali required, and hence is not recommended. Their only advantage is that they retain over a period of time their given hydrogen-ion concentration. However, as it takes but a few minutes to test a large amount of diluting water, and to bring it to neutrality, this advantage is not of sufficient importance to warrant their use. The most useful hydrogen-ion indicator solution, so far as the writer's experience goes, is phenol red. The indicator standards, consisting of sealed ampoules containing liquid, are very satisfactory and comparatively cheap, but for permanence those using colored glass disks or plates are preferred. Avoid those types which require prior dilution of the sample with distilled water before making the determination.

EXAMINATION OF THICK FILMS

The use of the microscope for long periods of time is likely to throw considerable strain on the eyes unless certain precautions are observed. An oculist should examine the eyes before any long-continued work is undertaken. Unsuspected deviations from the normal, easily corrected by lenses or prisms, may account for much unnecessary eyestrain. If as much as a diopter of astigmatism is found, it is well to correct it with a supplementary lens fitted in a slip-on barrel, placed over the microscope eyepiece. This will be found much superior to the use of spectacles.

If the ordinary monocular microscope must be used, it is well to train either eye to use it. The advantages of the mon-objective binocular microscope have been well described by Dr. W. M. James, in the Sixteenth Annual Report of the Medical Department, United Fruit Co., 1927, p. 268, as follows: "Where protracted work must be accomplished, such, for instance, as looking through a large number of stools or thick films in surveys, the saving of eyestrain by the binocular is worth all of its extra cost. Nor is there any loss in definition, as some urge. For some years, I have made careful comparisons between the binocular and monocular tubes on the most difficult test objects, and the resolution and definition with the former are in every way equal to those of the latter, and in some respects they are better, particularly in low-power work. There is a perceptible loss of light with the binocular, especially with higher powers, but this is readily compensated by increasing the intensity of the illumination, and seldom is noticed except in working with immersion lenses and high-power eyepieces."

Care should be taken not to over-illuminate the field. Use only so much light as is necessary to recognize the parasites. Learn to distinguish them first by their morphology; then open the diaphragm of the microscope and bring out the contrasting colors of chromatin and cytoplasm.

It is well known that the sensitivity of the eye is greatest in dim light. This fact should be borne in mind in selecting a place in which to do microscopical work. The darker the room for this purpose, the better. This fact can easily be checked up by examining slides after nightfall, and noting the increased brilliance of the image even with small diaphragm apertures.

The many types of "binocular attachments" to be fitted to the tube of the ordinary monocular microscope are not to be recommended, as they increase the tube-length, and with it the magnification, so that the field covered is too small. In searching through large numbers of slides, the smaller the magnification consistent with recognition of the object sought, the better. Nothing higher than a 5X eyepiece should be used for a searcher, with an objective of 90 to 100X.

It is sometimes desirable to mark the position of parasites found in a smear, especially if they be few in number. The accuracy of a technician's diagnosis, or his ability in typing parasites, may be checked in this way. The "object-marker," an apparatus made for this purpose, is fitted into one of the openings in the rotating nose piece of the microscope, in place of the high dry objective. The parasite whose position it is desired to mark is centered in the oil-immersion field, the objective is then racked up, and the object-marker swung into its place and lowered until its crystal point barely grazes the slide. It is then turned through 360 degrees, scoring a minute circle about the object. To find the object again, it is only necessary to find the circle with the low-power objective, and then to examine the area within the circle for the object sought. It is well to have a spare marker on hand, as the crystal points are somewhat fragile and easily broken off.

In the previous paper (l. c., p. 2340), mention is made of the amount of time to devote to the examination of thick films. It is stated that this may be worked out in terms of time spent on each slide. The author prefers to express it in terms of the number of microscope fields examined, as being slightly more accurate. The author's experience in two surveys may be of interest in this connection. In northern Haiti, over 7,000 laborers were examined, of whom about 26 percent proved positive for malaria. The number of the field in which the first parasite was found was noted in 100 consecutive positives. The following table gives the results:

Table showing the field in which the first parasite was found in 100 consecutive positives (Haiti, 1927)

No. of field	Number of positives	No. of field	Number of positives
1-10	47	61-70	2
11-20	13	71-80	2
21-30	9	81-90	6
31-40	10	91-100	3
41-50	2		
51-60	6		100

Eighty-one percent of the total of 100 positives was found in the first 50 fields, and nearly half of them were found in the first 10 fields. The equipment used was a standard monocular microscope fitted with a fluorite objective and a 5X ocular. In a survey in a highly infected population in northwest Florida, 61 percent of 100 consecutive positives was found in the first 20 fields. The author has made it a rule to examine at least 100 fields in every slide, increasing this number to 150 or to 200 if the slide contains suspicious appearances or numerous basophilic blue "clouds" indicative of anaemia. A tally counter is used, and 10 fields are counted before depressing the lever, so that only 10 movements of the counter lever need be made for each slide examined. The type of counter found best for this purpose is one which "clicks" at each tenth depression of the lever, so that the operator need not look at the figures. The counter is held in the left hand while the right hand moves the mechanical stage.

A word may be said about the substitution of heavy mineral oil (liquid petrolatum, heavy, U.S.P. IX), known under various trade names, for the usual cedar oil for oil immersion. It has three very decided advantages: It is not sticky or gummy, it does not decolorize the film as does cedar oil, and it may be left on the film after examination, if it is desired to preserve the slide for future use. The slide need not then be washed off with xylol, but is merely flooded with fresh mineral oil. Heavy mineral oil may sometimes become cloudy from water of condensation. It is then useless and should be discarded. In very warm climates additional viscosity may be imparted by the addition of a small amount of petrolatum.

EQUIPMENT FOR FIELD SURVEYS

The rapidity with which a field survey can be made depends somewhat on the ease with which the slides, boxes, and other apparatus may be manipulated. A useful kit for carrying equipment is a strong enameled steel box, fitted with a carrying handle and lock, measuring 8 by 16 inches by 9 inches deep. A wooden carrier, somewhat like a carpenter's tool kit, is made to fit inside. This carrier holds the wooden slide boxes, slide-box support, needle, gauze and other accessories.

The ends of the carrier are made about 8 inches high, and a handle about 3 inches wide extends the length of the carrier, and makes a convenient wide, flat surface on which to lay slides while being numbered. A very useful and necessary addition to the equipment is a small card listing the equipment needed for surveys, which is glued to the inside of the cover of the steel box.

The use of cards instead of a notebook for recording names and other data was mentioned in the previous publication. In a mixed population, cards of different colors may be used to advantage in denoting the various races. As a means of numbering the cards consecutively in the field, an automatic numbering stamp is convenient. It saves considerable time, and its automatic action reduces to a minimum errors in numbering the cards consecutively.

Name_____	
Age_____	
Symbol_____ No. ☐ Negative	
Estivo-Autumnal_____	Rings_____ Crescents_____
Tertian_____	Rings_____ Schizonts_____ Gametocytes_____
Quartan_____	Rings_____ Schizonts_____ Gametocytes_____
Mixed_____	

Data on card used by the author

Several useful procedures in obtaining bloods may be mentioned here. It is good psychology in the case of a large family, any member

of which shows reluctance to be examined, to take the blood of the youngest child first. Sleeping babies often may be examined without waking them, if the blood is drawn from the big toe. It is well, also, to list all names and ages on the cards first, before any blood is taken, so that the various members of the group may be called up in order. The mere fact that their names and ages have been recorded seems to act as an intangible force overcoming to a degree their natural disinclination. A few pieces of candy (caramels wrapped in waxed paper for ease in handling) often work wonders in obtaining young children's consent to be examined.

Ages as well as names should be entered in the record, as duplication of names is not uncommon, and the individuals may be more easily distinguished if the respective ages are known. The given names should be listed, instead of an initial only.

The applicability of the thick-film method is not confined to malaria diagnosis alone, but to the diagnosis of any blood parasite taking the Romanowsky coloration, found in mammalian blood. It is not applicable for use in infections of blood containing nucleated red cells, such as avian or reptilian blood. It has been used most successfully in diagnosing piroplasma and trypanosome infections of horses and cattle, and in trypanosome and filaria infections of monkeys and other laboratory animals. The recent discovery of a focus of Chagas' disease, South American trypanosomiasis, in Panama, (2) is probably due to the use of this method; as even in thick films the parasites were very scanty, and would doubtless have been missed entirely in thin films.

REFERENCES

(1) Method of Preparing and Examining Thick Films for the Diagnosis of Malaria. M. A. Barber and W. H. W. Komp. Public Health Reports, vol. 44, no. 39, Sept. 27, 1929.

(2) Chagas' Disease in Panama; Report of Three Cases. J. W. Miller, M.D. So. Med. Jl. vol. 24, no. 7, July 1931.

COURT DECISION RELATING TO PUBLIC HEALTH [1]

Provisions of milk control board act relative to the fixing of minimum prices for milk held constitutional.—(New York Court of Appeals; *People* v. *Nebbia;* decided 1933.) The defendant was convicted in the city court of Rochester of a violation of chapter 158 of the New York Session Laws for 1933. The offense charged was a sale of two 1-quart bottles of milk and a loaf of "Italian bread" for 18 cents, which was conceded to be a violation of the said chapter 158, inasmuch as the State milk control board had fixed a minimum price

[1] The abstract of this case was prepared from a mimeographed copy of the complete decision furnished to the Public Health Service by Dr. Thomas Parran, Jr., Commissioner of Health of the State of New York.

for milk of 9 cents per quart. The Monroe County court affirmed the conviction and the defendant appealed to the court of appeals. The question before the appellate court was whether the statute, so far as it provided for fixing minimum prices for milk, was unconstitutional under section 6 of article 1 of the State constitution and amendment 14 of the Federal Constitution, in that it interfered with the right of a milk dealer to carry on his business in such manner as suited his convenience without State interference as to the price at which he should sell his milk.

The statute in question became a law April 10, 1933, and, by its terms, was to be in effect only until March 31, 1934. It was enacted after a thorough legislative investigation of the milk situation in the State and begins with a legislative declaration reading as follows:

SEC. 300. *Legislative finding; statement of policy.*—This article is enacted in the exercise of the police power of the State, and its purposes generally are to protect the public health and public welfare. It is hereby declared that unhealthful, unfair, unjust, destructive, demoralizing and uneconomic trade practices have been and are now carried on in the production, sale and distribution of milk and milk products in this State, whereby the dairy industry in the State and the constant supply of pure milk to inhabitants of the State are imperiled. That such conditions constitute a menace to the health, welfare and reasonable comfort of the inhabitants of the State. That in order to protect the well-being of our citizens and promote the public welfare, and in order to preserve the strength and vigor of the race, the production, transportation, manufacture, storage, distribution and sale of milk in the State of New York is hereby declared to be a business affecting the public health and interest. That the production and distribution of milk is a paramount industry upon which the prosperity of the State in large measure depends. That the present acute economic emergency, being in part the consequence of a severe and increasing disparity between the prices of milk and other commodities, which disparity has largely destroyed the purchasing power of milk producers for industrial products, has broken down the orderly production and marketing of milk and has seriously impaired the agricultural assets supporting the credit structure of the State and its local governmental subdivisions. That the danger to the public health and welfare is immediate and impending, the necessity urgent and such as will not admit of delay in public supervision and control in accord with proper standards of production, sanitation and marketing. The foregoing statements of fact, policy and application of this article are hereby declared as a matter of legislative determination.

A milk control board of three members was created by the act, which board was given wide powers to meet the emergency. Among other things, the board was required to fix by order the minimum wholesale and retail prices for milk handled within the State for fluid consumption, including the prices on sales by milk dealers to consumers. Under the act, the term "milk dealer" included dealers who ran stores, unless the milk was consumed on the premises. A violation of the law or of a rule or order of the board lawfully made was declared to be a misdemeanor, punishable by not more than a

year's imprisonment or not more than $100 fine or both. In summarizing the law, the court of appeals said:

> The appellant not unfairly summarizes this law by saying that it first declares that milk has been selling too cheaply in the State of New York, and has thus created a temporary emergency; this emergency is remedied by making the sale of milk at a low price a crime; the question of what is a low price is determined by the majority vote of three officials. As an aid in enforcing the rate regulation, the milk industry in the State of New York is made a business affecting the public health and interest until March 31, 1934, and the board can exclude from the milk business any violator of the statute or the board's orders.

The fixing of minimum prices was declared by the court to be one of the main features of the act. "The power thus to regulate private business", said the court, "can be invoked only under special circumstances. It may be so invoked when the legislature is dealing with a paramount industry upon which the prosperity of the entire State in large measure depends. It may not be invoked when we are dealing with an ordinary business, essentially private in its nature." The view was taken that the production of milk was, on account of its great importance as human food, a chief industry of New York State, the court saying:

> * * * It is of such paramount importance as to justify the assertion that the general welfare and prosperity of the State in a very large and real sense depend upon it. The entire milk product cannot be sold locally. It must be sold to milk gatherers to be shipped to centers of population. Distributors buy the milk from the farmer. The purchaser is compelled to take what the shipper offers. The shipper offers a low rate at which milk cannot profitably be produced. The State seeks to protect the producer by fixing a minimum price for his milk to keep open the stream of milk flowing from the farm to the city and to guard the farmer from substantial loss. *People* v. *Perretta*, 253 N.Y. 305. Price is regulated to protect the farmer from the exactions of purchasers against which he cannot protect himself.

After reviewing a number of cases which could be cited in support of the instant statute and also several cases which could be cited in opposition to it, the court of appeals reached the conclusion that the provisions assailed were not unconstitutional, saying:

> Doubtless the statute before us would be condemned by an earlier generation as temerarious interference with the rights of property and contract (*Matter of Jacobs*, 98 N.Y. 98; *Lochner* v. *New York*, 198 U.S. 45); with the natural law of supply and demand. But we must not fail to consider that the police power is the least limitable of the powers of government and that it extends to all the great public needs; that constitutional law is a progressive science; that statutes aiming to establish a standard of social justice, to conform the law to the accepted standards of the community, to stimulate the production of a vital food product by fixing living standards of prices for the producer, are to be interpreted with that degree of liberality which is essential to the attainment of the end in view (*Austin* v. *City of New York*, supra, p. 117); and that mere novelty is no objection to legislation (*People ex rel. Durham R. Corp.* v. *LaFetra*, 230 N.Y. 429).
>
> The State courts should uphold State regulation action wherever possible. They should be clearly convinced that a statute is unconstitutional before they declare it invalid. (Cf. *Ives* v. *South Buffalo Ry. Co.*, 201 N.Y. 271, with Arizona

Employers' Liability case, supra; also cf. *People ex rel. Rodgers* v. *Coler*, 166 N.Y. 1, with *Atkin* v. *Kansas*, supra.)

With full respect for the Constitution as an efficient frame of government in peace and war, under normal conditions or in emergencies, with cheerful submission to the rule of the Supreme Court that legislative authority to abridge property rights and freedom of contract can be justified only by exceptional circumstances and, even then, by reasonable regulation only, and that legislative conclusions based on findings of fact are subject to judicial review, we do not feel compelled to hold that the "due process" clause of the Constitution has left milk producers unprotected from oppression and to place the stamp of invalidity on the measure before us.

With the wisdom of the legislation we have nought to do. It may be vain to hope by laws to oppose the general course of trade. * * *

We are unable to say that the legislature is lacking in power, not only to regulate and encourage the production of milk but also, when conditions require, to regulate the prices to be paid for it, so that a fair return may be obtained by the producer and a vital industry preserved from destruction. (Hamilton: "Affectation with Public Interest," 39 Yale Law Journal, 1089, 1101.) The policy of non-interference with individual freedom must at times give way to the policy of compulsion for the general welfare.

DEATHS DURING WEEK ENDED JULY 8, 1933

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

	Week ended July 8, 1933	Corresponding week 1932
Data from 85 large cities of the United States:		
Total deaths	6,870	6,784
Deaths per 1,000 population, annual basis	9.6	9.7
Deaths under 1 year of age	506	555
Deaths under 1 year of age per 1,000 estimated live births (81 cities)	41	45
Deaths per 1,000 population, annual basis, first 27 weeks of year	11.5	11.9
Data from industrial insurance companies:		
Policies in force	67,752,739	72,162,038
Number of death claims	9,938	9,124
Death claims per 1,000 policies in force, annual rate	7.6	6.6
Death claims per 1,000 policies, first 27 weeks of year, annual rate	10.4	10.1

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 Weeks Ended July 15, 1933, and July 16, 1932

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 15, 1933, and July 16, 1932

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932
New England States:								
Maine	1	3	----	----	2	21	0	0
New Hampshire	1	----	----	----	6	14	0	0
Vermont	1	----	----	----	27	33	0	0
Massachusetts	19	33	----	2	340	341	2	0
Rhode Island	2	4	----	----	----	8	0	0
Connecticut	6	1	4	5	38	66	1	0
Middle Atlantic States:								
New York	58	62	[1] 3	[1] 1	517	1,048	3	5
New Jersey	24	18	----	3	247	282	2	2
Pennsylvania	32	30	----	----	346	263	5	3
East North Central States:								
Ohio	26	30	34	10	63	393	0	3
Indiana	16	14	13	12	16	16	5	4
Illinois	14	37	9	18	97	181	5	2
Michigan	28	17	2	16	86	835	0	3
Wisconsin	4	9	11	22	79	273	3	2
West North Central States:								
Minnesota	7	4	----	2	27	12	0	0
Iowa	4	24	----	----	13	8	0	0
Missouri	17	23	----	----	53	24	2	2
North Dakota	----	9	----	----	9	8	0	0
South Dakota	----	3	----	----	4	3	0	0
Nebraska	5	5	----	----	24	6	2	1
Kansas	4	6	1	----	10	42	0	1
South Atlantic States:								
Delaware	----	----	----	----	4	----	0	0
Maryland [2 3 4]	5	7	2	3	14	17	0	0
District of Columbia	6	8	----	----	22	2	0	0
Virginia [3]	13	4	----	----	93	29	4	1
West Virginia	3	3	1	----	12	39	1	0
North Carolina [3 4]	8	17	----	----	144	142	2	1
South Carolina	1	2	79	111	29	43	0	0
Georgia [4]	12	9	----	39	41	12	0	1
Florida [4]	2	14	----	----	27	----	0	0
East South Central States:								
Kentucky	6	8	----	----	27	18	0	0
Tennessee	10	6	6	8	77	1	1	2
Alabama [4]	10	12	7	12	31	----	0	2
Mississippi [3]	8	10	----	----	----	----	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 15, 1933, and July 16, 1932—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932
West South Central States:								
Arkansas	1	2	2	1	44	3	0	0
Louisiana [4]	3	12	6	4	16	3	0	1
Oklahoma [5]	4	4	10	8	13	8	0	0
Texas [4]	35	46	41	23	155	9	0	0
Mountain States:								
Montana [3]	1				2	6	0	0
Idaho [3]	2				1	1	0	0
Wyoming [3]	2				2	9	0	0
Colorado [3]	2	5			9	14	0	0
New Mexico	6	6			13		0	1
Arizona					15	1	0	0
Utah [3]	1				35	2	0	0
Pacific States:								
Washington	3	2	1		56	45	0	0
Oregon [3]	1	2	8	8	39	24	0	0
California	29	38	32	29	347	84	2	4
Total	443	549	272	337	3,272	4,389	40	41

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932
New England States:								
Maine	1	0	2	9	0	0	6	4
New Hampshire	0	0	12	11	0	0	0	0
Vermont	0	0	6	4	0	0	1	0
Massachusetts	24	0	100	138	0	0	3	7
Rhode Island	1	0	3	21	0	0	1	0
Connecticut	0	0	9	25	0	0	5	2
Middle Atlantic States:								
New York	13	9	164	234	0	14	24	20
New Jersey	3	5	70	64	0	0	10	11
Pennsylvania	6	4	130	127	0	0	16	17
East North Central States:								
Ohio	3	3	174	107	0	3	26	34
Indiana	1	1	32	17	0	1	14	26
Illinois	3	4	132	104	12	4	20	45
Michigan	1	0	99	163	1	2	9	7
Wisconsin	0	0	30	22	17	0	7	2
West North Central States:								
Minnesota	3	1	23	21	0	0	0	2
Iowa	1	0	8	13	1	8	0	3
Missouri	4	1	11	30	2	0	15	15
North Dakota	0	1		4	0	1	0	1
South Dakota	0	0	6	6	0	0	1	0
Nebraska	0	1	9	10	0	3	0	1
Kansas	1	1	11	12	0	2	12	6
South Atlantic States:								
Delaware	0	0	1	5	0	0	3	1
Maryland [2 3 4]	4	1	27	12	0	0	18	9
District of Columbia	1	0	6	4	0	0	0	1
Virginia [3]	1	2	20	27	0	0	42	43
West Virginia	0	0	8	2	0	0	18	25
North Carolina [3 4]	0	1	33	18	0	0	38	39
South Carolina	0	0	1	1	0	0	36	67
Georgia [4]	0	0	8	4	0	0	45	59
Florida [4]	0	0	1	4	0	1	1	7
East South Central States:								
Kentucky	2	1	13	14	0	2	101	146
Tennessee	3	0	9	8	0	0	94	110
Alabama [4]	0	1	2	11	0	14	24	25
Mississippi [2]	0	1	4	1	0	1	16	45

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 15, 1933, and July 16, 1932—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932	Week ended July 15, 1933	Week ended July 16, 1932
West South Central States:								
Arkansas	0	0	2	1	0	0	34	26
Louisiana [4]	0	0	6	7	0	0	30	59
Oklahoma [5]	0	1	4	6	1	7	38	34
Texas [4]	1	2	28	37	3	11	57	32
Mountain States:								
Montana [2]	0	0	2	7	1	5	7	2
Idaho [2]	0	0	1	1	3	0	5	1
Wyoming [2]	0	0	2	-------	0	0	1	0
Colorado [2]	1	0	10	4	2	0	2	3
New Mexico	0	0	1	3	4	0	1	1
Arizona	0	0	5	3	0	0	8	2
Utah [2]	0	0	4	2	0	0	4	0
Pacific States:								
Washington	0	3	16	14	13	15	3	2
Oregon [2]	0	0	27	5	5	2	7	4
California	3	2	76	46	18	6	9	16
Total	81	46	1,348	1,389	83	102	812	962

[1] New York City only.
[2] Week ended Friday.
[3] Rocky Mountain spotted fever, 18 cases, as follows: Maryland, 1; Virginia, 2; North Carolina, 4; Montana, 1; Idaho, 1; Wyoming, 4; Colorado, 3; Oregon, 2.
[4] Typhus fever, 75 cases, as follows: Maryland, 1; North Carolina, 2; Georgia, 22; Florida, 4; Alabama, 19; Louisiana, 1; Texas, 26.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1933										
California	9	172	139	4	6,542	5	10	761	167	33
June, 1933										
Arizona	1	5	5	1	314	-------	1	37	0	10
Iowa	2	22	-------	-------	194	-------	3	49	45	9
Massachusetts	1	84	-------	1	2,419	1	3	1,021	0	9
Michigan	7	136	18	1	2,233	-------	5	1,043	7	15
Missouri	7	73	2	9	607	-------	1	140	5	28
New Jersey	5	87	7	-------	2,936	-------	1	411	0	21
Ohio	6	111	105	1	938	-------	6	1,234	20	92
Tennessee	4	16	42	187	492	66	2	49	3	100

May 1933

California:	Cases
Actinomycosis	2
Chickenpox	2,973
Dysentery, amebic	3
Dysentery, bacillary	13
Food poisoning	21
German measles	115
Granuloma, coccidioidal	7
Mumps	1,585
Ophthalmia neonatorum	1
Paratyphoid fever	4
Psittacosis	2
Rabies in animals	35
Rocky Mountain spotted fever	4
Septic sore throat	8
Tetanus	5
Trachoma	16
Trichinosis	5
Tularemia	1
Typhus fever	1
Undulant fever	11
Whooping cough	2,698

June 1933

	Cases
Anthrax:	
Massachusetts	1
Chicken pox:	
Arizona	29
Iowa	80
Massachusetts	1,007
Michigan	719
Missouri	65
New Jersey	1,276
Ohio	1,055
Tennessee	49
Diarrhea and enteritis (under 2 years):	
Ohio	20
Dysentery:	
Arizona	3
Massachusetts	1
Dysentery—Contd.	
Missouri	9
New Jersey	1
Tennessee	124
Food poisoning:	
Ohio	2
German measles:	
Arizona	5
Iowa	5
Massachusetts	85
Michigan	1,653
New Jersey	70
Ohio	125
Tennessee	83
Lead poisoning:	
New Jersey	4
Ohio	3
Lethargic encephalitis:	
Massachusetts	4
Michigan	1
New Jersey	2
Ohio	1
Mumps:	
Arizona	34
Iowa	128
Massachusetts	534
Michigan	383
Missouri	208
New Jersey	806
Ohio	106
Tennessee	36
Ophthalmia neonatorum:	
Massachusetts	93
New Jersey	1
Ohio	73
Paratyphoid fever:	
New Jersey	2
Tennessee	2
Puerperal septicemia:	
Ohio	8
Tennessee	2
Rabies in animals:	
Missouri	19
New Jersey	17
Rocky Mountain spotted fever:	
Iowa	2
Scabies:	
Tennessee	10
Septic sore throat:	
Massachusetts	13
Michigan	18
Missouri	7
Ohio	179
Tennessee	8
Tetanus:	
Massachusetts	2
Michigan	2
Ohio	6
Tennessee	4
Trachoma:	
Arizona	63
Massachusetts	3
Missouri	27
New Jersey	3
Ohio	6
Tennessee	27
Trichinosis:	
Massachusetts	4
New Jersey	3
Ohio	1
Tularemia:	
Arizona	2
Missouri	4
Undulant fever:	
Arizona	5
Iowa	24
Massachusetts	2
Michigan	17
Missouri	37
New Jersey	5
Ohio	4
Vincent's angina:	
Iowa	1
Michigan	22
Tennessee	1
Whooping cough:	
Arizona	36
Iowa	89
Massachusetts	715
Michigan	990
Missouri	82
New Jersey	685
Ohio	646
Tennessee	242

WEEKLY REPORTS FROM CITIES

City reports for week ended July 8, 1933

State and city	Diphtheria cases	Influenza cases	Influenza deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Maine:											
Portland	0	-------	0	0	0	0	0	0	0	4	16
New Hampshire:											
Concord	0	-------	0	0	0	0	0	0	0	0	9
Manchester	0	-------	0	0	0	0	0	0	0	0	15
Nashua	0	-------	0	0	0	1	0	0	0	0	-------
Vermont:											
Barre	0	-------	0	20	0	0	0	0	0	3	0
Burlington	0	-------	0	0	0	0	0	0	0	0	13
Massachusetts:											
Boston	5	-------	0	246	5	38	0	9	0	40	193
Fall River	0	-------	0	1	1	2	0	4	0	10	38
Springfield	0	-------	0	0	1	2	0	1	0	3	31
Worcester	1	-------	0	75	3	3	0	3	2	8	53
Rhode Island:											
Pawtucket	0	-------	0	0	0	0	0	0	0	0	8
Providence	1	-------	0	0	5	7	0	3	0	25	59
Connecticut:											
Bridgeport	0	-------	0	5	0	6	0	1	0	3	24
Hartford	0	-------	0	1	1	4	0	2	0	0	39
New Haven	1	-------	0	2	3	0	0	0	0	4	40
New York:											
Buffalo	4	-------	0	64	18	14	0	7	0	33	133
New York	30	3	5	226	57	31	0	85	17	105	1,161
Rochester	0	-------	0	0	3	4	0	2	0	30	70
Syracuse	0	-------	0	0	1	4	0	0	0	1	42
New Jersey:											
Camden	3	-------	0	2	0	2	0	0	0	0	22
Newark	0	3	0	26	3	3	0	14	0	24	71
Trenton	-------	-------	0	16	0	3	0	4	0	1	27

City reports for week ended July 8, 1933—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Pennsylvania:											
Philadelphia	2	3	2	189	9	22	0	21	1	7	368
Pittsburgh	0	3	1	2	11	22	0	3	0	70	111
Reading	1	-------	1	2	0	1	0	2	0	12	19
Ohio:											
Cincinnati	1	-------	0	3	4	4	0	7	0	19	100
Cleveland	4	14	0	2	6	19	0	9	1	37	158
Columbus	1	1	1	0	3	3	0	4	0	0	61
Toledo	3	-------	0	15	1	26	0	5	3	26	51
Indiana:											
Fort Wayne	2	-------	0	0	1	2	0	1	0	0	28
Indianapolis	1	-------	1	21	5	3	0	1	0	8	-------
South Bend	0	-------	0	0	0	2	0	1	0	4	12
Terre Haute	0	-------	0	1	2	0	0	1	0	3	23
Illinois:											
Chicago	1	-------	1	123	27	70	0	31	1	69	573
Springfield	0	-------	0	0	2	1	0	0	0	3	25
Michigan:											
Detroit	17	-------	1	25	3	16	0	14	0	97	208
Flint	0	2	0	0	2	7	0	2	0	2	24
Grand Rapids	0	-------	0	0	1	2	0	0	0	6	13
Wisconsin:											
Kenosha	0	-------	0	0	0	0	0	0	0	32	6
Madison	0	-------	-------	2	-------	0	0	-------	0	15	-------
Milwaukee	0	-------	0	6	2	15	1	2	0	79	71
Racine	0	-------	0	1	0	3	0	0	0	17	10
Superior	0	-------	0	0	0	0	0	0	0	8	7
Minnesota:											
Duluth	0	-------	0	13	0	0	0	0	0	23	13
Minneapolis	1	-------	0	4	5	4	0	1	0	8	77
St. Paul	1	-------	0	5	1	2	0	3	0	51	42
Iowa:											
Des Moines	3	-------	-------	0	-------	3	0	-------	0	0	30
Sioux City	0	-------	-------	0	-------	0	0	-------	0	0	-------
Waterloo	0	-------	-------	0	-------	1	0	-------	0	0	-------
Missouri:											
Kansas City	2	-------	0	1	7	5	0	8	0	5	85
St. Joseph	0	-------	0	2	1	1	0	0	0	0	17
St. Louis	20	-------	-------	59	6	3	0	10	3	8	210
North Dakota:											
Fargo	0	-------	0	1	0	0	0	0	0	1	-------
Grand Forks	0	-------	0	0	0	0	0	0	0	3	-------
Nebraska:											
Omaha	0	-------	0	15	3	1	0	0	0	3	51
Kansas:											
Topeka	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Wichita	0	-------	0	0	2	0	0	0	0	21	35
Delaware:											
Wilmington	0	-------	0	0	0	0	0	0	0	1	30
Maryland:											
Baltimore	1	-------	0	2	3	16	0	11	1	30	170
Cumberland	0	-------	0	0	0	1	0	0	1	0	10
Frederick	0	-------	0	0	0	0	0	0	2	0	5
District of Col.:											
Washington	1	1	1	11	7	3	0	16	0	5	138
Virginia:											
Lynchburg	0	-------	0	12	0	0	0	0	0	7	18
Norfolk	0	-------	0	0	2	1	0	2	4	0	26
Richmond	0	-------	0	1	0	0	0	3	0	14	58
Roanoke	0	-------	0	0	0	1	0	0	0	5	19
West Virginia:											
Charleston	0	-------	0	0	0	0	0	0	1	0	9
Huntington	0	-------	0	0	0	0	0	0	0	0	0
Wheeling	0	-------	0	2	0	1	0	0	0	9	15
North Carolina:											
Raleigh	0	-------	0	0	0	0	0	1	0	0	12
Wilmington	0	-------	0	1	1	0	0	0	0	0	7
Winston-Salem		-------	0	1	0	0	0	3	0	1	11
South Carolina:											
Charleston	0	7	0	0	1	0	0	0	1	2	14
Columbia	0	-------	0	0	0	0	0	0	0	0	-------
Greenville	0	-------	0	0	1	0	0	0	3	0	6
Georgia:											
Atlanta	2	1	0	2	4	2	0	3	0	10	76
Brunswick	0	-------	0	1	0	0	0	0	0	3	-------
Savannah	1	*2	0	6	1	0	0	0	0	1	29
Florida:											
Miami	0	-------	0	0	1	0	0	2	0	7	19
Tampa	2	-------	-------	0	1	0	0	0	0	2	23

City reports for week ended July 8, 1933—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Kentucky:											
Ashland	0			0		0	0		1	2	
Lexington	0			0		0	0	1	1	0	12
Louisville	1		0	4	6	6	0	3	1	4	10
Tennessee:											
Memphis	3		0	44	5	1	0	7	5	44	98
Nashville	1		0	5	3	0	0	0	2	0	42
Alabama:											
Birmingham	1		0	0	1	2	0	1	3	2	53
Mobile	0		0	2	0	0	0	3	1	0	21
Montgomery	0			0		0	0		0	0	
Arkansas:											
Fort Smith	0			0		0	0		0	2	
Little Rock	0		0	3	1	0	0	2	0	0	5
Louisiana:											
New Orleans	5		0	4	4	1	0	9	3	0	128
Shreveport	0		0	0	2	1	0	1	0	1	18
Oklahoma:											
Tulsa	0			12		0	0		2	16	
Texas:											
Dallas	6	2	2	0	6	6	0	2	0	0	
Fort Worth	1		0	0	4	0	0	1	1	0	37
Galveston	0		0		4	0	0	0	2	0	14
Houston	1		0	0	3	0	0	1	2	0	69
San Antonio	1		1	1	5	0	0	4	0	0	77
Montana:											
Billings	0		0	0	0	0	0	0	0	0	9
Great Falls	0		0	0	0	0	0	0	0	1	8
Helena	0		0	0	0	0	0	0	0	0	3
Missoula	0		0	0	1	0	0	0	0	0	2
Idaho:											
Boise	0		0	0	1	0	0	0	0	7	5
Colorado:											
Denver	0	19	0	3	4	4	0	5	0	13	74
Pueblo	0		0	1	0	0	0	0	0	0	6
New Mexico:											
Albuquerque	0		0	2	1	1	0	3	0	0	9
Utah:											
Salt Lake City	0		0	18	1	2	0	0	0	19	21
Nevada:											
Reno	0		0	0	0	0	0	0	0	0	3
Washington:											
Seattle	1			1		4	0		0	5	
Spokane	0			11		2	0		0		
Tacoma	0		0	2	0	2	0	0	0	4	30
Oregon:											
Portland	0		0	1	0	3	1	2	1	0	61
Salem	0		0	1	0	0	0	0	0	0	
California:											
Los Angeles	12	10	1	92	8	25	3	22	0	38	244
Sacramento	1		0	2	1	3	0	1	0	7	27
San Francisco	0		1	3	5	2	0	7	0	8	129

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	0	1	3
New York:			
New York	0	2	3
New Jersey:			
Camden	1	1	0
Pennsylvania:			
Philadelphia	0	0	1
Pittsburgh	1	1	1
Reading	1	1	0
Ohio:			
Cleveland	0	0	1
Illinois:			
Chicago	7	2	3
Michigan:			
Detroit	0	0	1
Missouri:			
Kansas City	1	1	0
Maryland:			
Baltimore	0	0	3
Washington:			
Spokane	1	0	0
Oregon:			
Portland	0	0	1
California:			
Los Angeles	1	0	2
San Francisco	1	0	0

Lethargic encephalitis.—Cases: Philadelphia, 2.
Pellagra.—Cases: Boston, 1; Atlanta, 1; Savannah, 7; Memphis, 2; New Orleans, 2; Los Angeles, 1.
Typhus fever.—Cases: Atlanta, 2; Savannah, 5; Tampa, 1.

FOREIGN AND INSULAR

BARBADOS, BRITISH WEST INDIES

Poliomyelitis.—Information has been received of an outbreak of poliomyelitis in Barbados, B.W.I., 60 cases, with 3 deaths, having been reported up to June 17, 1933. The majority of cases, 48, occurred in children under 5 years of age, and the district most affected was St. Michael's Parish, where 28 of the cases occurred. On June 19 it was said that no new case had been reported for 2 weeks, and the epidemic was thought to be definitely under control.

CANADA

Provinces—Communicable diseases—Two weeks ended July 1, 1933.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the 2 weeks ended July 1, 1933, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis					4					4
Chicken pox		4		134	541	115	81	20	169	1,064
Diphtheria		2	1	15	16	4	5	1	1	45
Erysipelas				9	1	1		1	4	16
Influenza					1				102	103
Measles		1	4	183	178	4	6	3	40	419
Mumps					167	15	13		28	223
Paratyphoid fever		1			1					2
Pneumonia		4			3		12		4	23
Poliomyelitis				1	3			1		5
Scarlet fever		6	8	64	170	22	11	15	26	322
Smallpox							1			1
Trachoma					8	1	43		9	61
Tuberculosis		1	7	150	50	17	11	8	51	295
Typhoid fever			7	37	11	11	1	4	2	73
Undulant fever					6		2			8
Whooping cough				93	281	111	59	26	85	655

Ontario Province—Communicable diseases—Four weeks ended June 24, 1933.—The Department of Health of the Province of Ontario, Canada, reports certain communicable diseases for the 4 weeks ended June 24, 1933, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	4	2	Poliomyelitis	5	
Chicken pox	1,092		Scarlet fever	303	
Conjunctivitis	2		Septic sore throat	33	2
Diphtheria	27	2	Syphilis	194	1
Erysipelas	4	1	Tetanus	2	
German measles	22		Trachoma	8	
Gonorrhea	190		Trench mouth	1	
Influenza	4	1	Tuberculosis	152	56
Malignant oedema	1		Tularaemia	1	
Measles	369	2	Typhoid fever	29	2
Mumps	492		Undulant fever	13	
Paratyphoid fever	7		Whooping cough	444	
Pneumonia		100			

ENGLAND AND WALES

Vital statistics—1932.—During the year 1932, the birth rate per 1,000 population in England and Wales was 15.3, and the death rate per 1,000 population was 12. Death rates from certain causes were as follows:

Cause	Death rate per 1,000 population	Cause	Death rate per 1,000 population
Diarrhea and enteritis (under 2 years)	[1] 6.6	Scarlet fever	0.01
Diphtheria	.06	Typhoid and paratyphoid fever	.01
Influenza	.33	Violence	.54
Measles	.08	Whooping cough	.07

[1] The death rate for diarrhea and enteritis is computed per 1,000 live births.

For the year 1932, 65 deaths under 1 year per 1,000 live births were recorded.

MEXICO

Vera Cruz—Reportable diseases—December 1932–March 1933.—During the 4 months ended March 31, 1933, the following diseases have been reported in Vera Cruz, Mexico:

Disease	December 1932		January 1933		February 1933		March 1933	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Anthrax				1			2	
Bronchitis		7		3		4		2
Cancer		2		2		3		6
Chicken pox	7		8		12		22	
Conjunctivitis (infectious)			2		4			
Diphtheria	3		4		2		6	2
Dysentery	6	2		5	6	3	15	3
Epilepsy				1		1		
Gangrene		2		2		2		1
Gastroenteritis		50		26		42		42
Hookworm disease		5		4		6		7
Influenza	4	2		3		3		
Leprosy							1	
Leukemia				1				
Malaria	149	4	119	3	72	2	128	7
Measles	8	1		2	5		16	
Meningitis				4		1		2
Peritonitis				1				1
Pernicious anemia		1				1		
Pleurisy		1						1
Pneumonia		22		12		14		10
Poliomyelitis	1	1						
Puerperal fever						1		1
Septic sore throat	2							
Septicemia		1						
Sprue		1				1		
Syphilis, hereditary		4		11		5		6
Tetanus				1	2	2		4
Tinea imbricata	3							
Tuberculosis	22	15	20	19	24	16	36	26
Typhoid and paratyphoid fever	7	2	2		11	1	5	1
Whooping cough	1			2			4	

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

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Dec. 11, 1932–Jan. 7, 1933	Jan. 8–Feb. 4, 1933	Feb. 5–Mar. 4, 1933	Mar. 5–Apr. 1, 1933	Week ended— April 1933				May 1933				June 1933				July 1933	
						8	15	22	29	6	13	20	27	3	10	17	24	1	8
China:																			
Amoy	C	6																	
Hankow	C										1 1		1						
	D										1								
Swatow	C										2								
Tientsin	C																		2
India	C	4,524	3,396	3,171	7,878	2,583	2,642	2,701	3,169	2,628	2,058	1,964							
	D	2,400	1,721	5,170	3,852	1,311	1,277	1,460	1,607	1,310	1,011	991							
Bombay	C		1	1			1					1	1				1		
Calcutta	C	54	110	114	327	136	184	186	264	186	192	188	124	78	60	22	36		
Chittagong	C			1	5	3	8	5		10	8	2	1	1		4	2		
Colong	C								1										
Moulmein	C														2				
Rangoon	C						1					1					1		
Vizagapatam	C												1						
India, French: Chandernagor	C		1	2															
Indo-China (see also table below):																			
Pnom-Penh	C	1			1							1	1	1					
Saigon and Cholon	C		2		1		1	2	1									3	
Plague-infected rats											3								
Philippine Islands:																			
Bohol Province	C												15	40	14	13	13		
	D												12	20	9	7	2		
Cebu Province	C			17	2									1		1			
Cebu	C																1		
	D																1		
Opon	C																		6
	D																		2
Santa Fe	C																	2	
	D																	2	
Iloilo Province—Iloilo	C									1									
	D									1									

Leyte Province	C	80	110	78	26		9	3	38	9		9	4		2				
	D	44	76	56	24		7	4	35	8		8	4		2				
Occidental Negros Province	C																19		
	D																9		
San Carlos	C																	5	1
	D																	5	1
Pampanga Province	C												1						
	D												1						
Rizal Province	C									1									
Samar Province	C	135	121		[2] 186		67					29				3	4		
	D	101	75		[2] 144		50					23				3	2		
Siam	C	1	2					1		1									
On vessel: S.S. Dunana at Madras	D												1						

[1] Suspected.
[2] For month of March 1933.

Place		January 1933			February 1933			March 1933			April 1933			May 1933	
		1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20
Indo-China (French) (see also table above):															
Cambodia [3]	C				9		1		2	2	5		4		14
	D				6				1	2	5		2		10
Cochin-China [3]	C	1	4	2	9	2	1	8	4	2	2	7			9
	D	1	1		6	2	1	7	3	2	2	7			8

[3] Reports incomplete.

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

PLAGUE[1]

[C indicates cases; D, deaths; P, present]

Place		Dec. 11, 1932–Jan. 7, 1933	Jan. 8–Feb. 4, 1933	Feb. 5–Mar. 4, 1933	Mar. 5–Apr. 1, 1933	Week ended— April 1933 8	15	22	29	May 1933 6	13	20	27	June 1933 3	10	17	24
Angola	C			P													
Argentina:																	
Cordoba Province	C	2	1	5	5			1					8				
Jujuy Province	C		10	6													
Rosario	C				2												
San Luis Province	C								7								
Santa Fe	C	1															
Belgian Congo	C	1							P								
Bolivia: Tomina Province	C			P					P								
British East Africa (see also table below):																	
Tanganyika	D		2		1								1				
Uganda	C	141	58	40	44	12	8	13	15	14	24	25	22	17			
	D	134	58	40	44	12	8	13	15	14	24	24	21	16			
Ceylon:																	
Central Province	C		9		6												
	D		7		6												
Colombo	C	4	5	10	13		1									1	
	D	3	3	7	11											1	
Plague-infected rats		4		4													
Dutch East Indies:																	
Batavia	C				[2]1												
West Java	C	1,152	1,329	1,152		271	259	255	228								
	D	745				271			227								
Ecuador. (See table below.)																	
Egypt:																	
Alexandria	C	2	1		1			1									
Asyut	C	6	4	4	8	4	4	2	2	1	4	3	2	1		1	
Minya	C				2			1									4
France: Marseille	C	1															
Hawaii Territory:																	
Hawaii Island:																	
Hamakua—Kukalau	C		1														
	D		1														
Plague-infected rats		2	7														
Pasuilo—Plague-infected rats		11	1														
Maui Island—Makawao:																	
Plague-infected rats			1														
Omaopio—Plague-infected rats			1														

India	C	6,900	6,662	6,399	5,409	954	801	797	675	671	639	559					
	D	4,349	4,191	3,775	3,498	628	513	511	390	392	418	321					
Bassein	C		1	2	12	4		6	3	2	1			1			
Plague-infected rats		1	1	2	1		1				1	1	1	2			
Bombay	C			3	15	2	2	3	3	2	2	2		1		1	
Plague-infected rats		16	28	68	121	22	23	28	30	6	13	7	8	3	5	4	4
Madras Presidency	C	446	508	378			5	10	12	11	6						
	D	249	170	173			2	1	11	3	3						
Rangoon	C	1	1	2							1						1
Plague-infected rats			1	2	1												
Indo-China. (See table below.)																	
Iraq: Baghdad	C			3							2		1	1			1
Madagascar. (See table below.)																	
Morocco	C	16		4	33		12	8	8	2							
Peru. (See table below.)																	
Senegal. (See table below.)																	
Siam	C	12	7	16		1	1								1		1
South-West Africa.[3]																	
Straits Settlements: Singapore	C							1	1								
Syria: Beirut	C							1								1	
Union of South Africa: Orange Free State	C	P	4	1						1	1	3	2				
United States: California—San Benito County—Plague-infected ground squirrels			1														
On vessel: S.S. Kingsborough at port in Argentina	C				1												

[1] Including plague in the United States and its possessions.
[2] Imported.
[3] 227 cases of plague with 53 deaths were reported in Ovamboland, South-West Africa, up to Dec. 17, 1932. Antiplague measures have been taken.

Place		December 1932	January 1933	February 1933	March 1933	April 1933	May 1933
British East Africa (see also table above): Kenya	C	8	6	11	6	6	
Ecuador	C		1		3		35
Indo-China	C	3	4	4	4	7	8
	D	3	2	4	4	7	8
Madagascar:							
Province:							
Ambositra	C	149	158	161	155		
	D	125	146	149	154		
Antisirabe	C	57	63	72	63		
	D	56	61	72	62		
Fianarantsoa	C			46	64		
	D			42	63		
Maevatanana	C	9	2	6	5	8	
Madagascar—Continued							
Province—Continued							
Miarinarivo	C	37	75	8	9		
	D	36	14	8	9		
Moramanga	C	186	163	23	48		
	D	183	159	23	46		
Tamatave	C	1			1		
	D	1			1		
Tananarive	C	186	198	219	175		
	D	179	190	207	168		
Peru	C	12	4	18	7	2	
Senegal:							
Dakar [4]	C	19	2	4	1	1	2
	D	17	2	4		1	1
Tivaouane [4]	C					1	

[4] Reports incomplete.

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

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Dec. 11, 1932–Jan. 7, 1933	Jan. 8–Feb. 4, 1933	Feb. 5–Mar. 4, 1933	Week ended— Mar. 5–Apr. 1, 1933	April 1933				May 1933				June 1933			
						8	15	22	29	6	13	20	27	3	10	17	24
Arabia:																	
Aden	C	1	2	1													
Muscat—Oman Sultanate	C													44			
	D													11			
Algeria:																	
Algiers	C	1															
Constantine Department	C				1												
Argentina: Chaco Territory	C			P													
Bolivia	C	5		39	21												
Brazil: Porto Alegre (alastrim)	C	16	1														
British East Africa:																	
Kenya	C			14	23		5		8	4							
Tanganyika	C	49	95	56	43	4	5		8			11	2	8			
British South Africa:																	
Northern Rhodesia	C	6		1	21								2				
Southern Rhodesia	C	1	25	22			8										
Canada:																	
British Columbia	C					[1] 6						[1] 1		[1] 1			
Manitoba	C	13															
Ontario	C	5			5							[1] 1		[1] 1			
Toronto	C	3				[1] 3				1							
Saskatchewan	C	1	5	31	14	[1] 2						[1] 5		[1] 1			
Ceylon:																	
Colombo	C	72	75	34	4	1	1			4					1	2	6
Galle	C							39	7	2							
China:																	
Amoy	C		1	5	4	1		1	1			2	1	1			
Canton	C	762	504	234	67	13	10	11	6	3	3	1					
	D	23	13	1				1	1								
Chemulpo	C			17													
Dairen	C	1	4	5	5	1						2	1				
Foochow	C	P	P	P	P		P		P		P				P		
Hong Kong	C	18	78	160	169	36	14	20	14	6	8	3	2	3	2	2	1
Macao	C	P	3	8	11	3	1			4							
Nanking	C	11	38	89	16		1		1		1		1				
Shanghai	C	23	41	28	38	9	8	15	7	4	12	8	9	3	6	12	6

Swatow	C	7	22	21	26	6	7	3		4		3	3	3	1		
Tientsin	C													10			
Chosen. (See table below.)																	
Dahomey	C	5	22	32					26	2	9						
Dutch East Indies	C		1														
Ecuador. (See table below.)																	
Egypt:																	
Alexandria	C	583	987	943	277	12	11	11	8	3	3		5				
	D	116	227	183	70	3	22	8	2	3	1		1				
Cairo	C	8	37	25	9	1	2	2	5	5	4	1	3	3	1		1
Gharbiya	C	37											25				
Port Said	C		2		6	3											
Suez	C		2	4	3												
Great Britain:																	
England and Wales	C	79	66	76	71	31	14	18	33	23	22	30	16	27	18	18	8
London	C	73	59	66	62	24	9	13	29	20	18	27	14	17	16	12	
London and Great Towns	C	76	66	75	66	30	9	14	32	20	18	29	15	17	17	15	7
Greece. (See table below.)																	
Guatemala. (See table below.)																	
Honduras:																	
Puerto Castilla	C				2												
Tegucigalpa	C				14			1			7			3			
Tela	C	2	4	6	3			1									
India	C	11,284	20,423	31,824	34,938	9,222	9,319	11,465	10,373	8,775	8,505	8,861					
	D	3,523	5,907	8,303	8,391	2,218	2,360	2,907	2,803	2,576	2,415	2,391					
Bassein	C			7	13	14	12	10	21	11	2	7	12	4	4	6	2
	D			2	5	3	3	3	5	3	5	1	2	3	4	4	
Bombay	C	230	805	1,522	1,175	159	141	115	95	69	52	44	47	34	18	20	16
	D	98	391	795	717	94	72	65	55	55	35	28	30	22	14	12	10
Calcutta	C	301	961	1,637	1,520	295	245	213	168	118	82	81	61	53	35	25	21
	D	213	672	1,147	1,053	244	188	180	133	97	72	74	46	45	23	19	20
Chittagong	C											1					
	D											1					
Cochin	C				4	2	1	1	1						1		1
Karachi	C	25	45	47	115	34	31	31	34	11	13	18	10	4	10	3	2
Madras	C	156	351	564	666	138	125	115	118	66	67	60	38	36	29	31	48
Moulmein	C			1											12		
Negapatam	C	2	3	2	4	1		2	3	4		1	2	1	1	1	
Rangoon	C	2	5	20	11	7	1	2	5	1	6	2	8	3	1	2	
Tuticorin	C					1											
Vizagapatam	C	1			5	1			3	1		1		1	1	1	2
India (French): Pondichery Territory	C	2															
Indo-China (see also table below): Saigon and Cholon	C	2		3	7			2									
Iraq:																	
Baghdad	C	13	8	4	2			1	1	3		1	1				
Basra	C	25	6	3	2					5		1		2			
Ireland: Belfast	C			1													
	D			1													

[1] For 2 weeks.

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

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		Dec. 11, 1932–Jan. 7, 1933	Jan. 8–Feb. 4, 1933	Feb. 5–Mar. 4, 1933	Week ended— Mar. 5–Apr. 1, 1933	April 1933				May 1933				June 1933			
						8	15	22	29	6	13	20	27	3	10	17	24
Japan:																	
Kobe	C				5												
Nagoya	C			1													
Osaka	C			3	4	3	4		1				1				
Tokyo	C				2	3		2	1		1			1			
Yokohama	C							1	2								
Mexico:																	
Coahuila	C			1									1	1			
Juarez	C			3					5				2				
Mexico, D.F	C		10	5	6	1		5	5		2	1	2		2	3	
Monterrey	D												2				
Saltillo	D	8	4	4	3		1			1	1					2	1
San Luis Potosi	D	2						1		2	1		2			1	
Morocco. (See table below.)																	
Nigeria	C	583	401	1,878	562	853			408		5		164				
Persia	C	216	108	29	26	3	5	28	18	22	30	37		15	16		
	D	82	41	4	4	1	2	7	13	5	21	36		45	17		
Peru. (See table below.)																	
Poland	C	1								1		1					1
Portugal:																	
Lisbon	C	12	4	4	2	1		1			1		1		1	2	
Oporto	C	9	5	5	2							1	1				
Siam: Bangkok	D		2	2	4												
Sierra Leone	C	10	217	36	63		14		8		18		33		6		
Sudan (Anglo-Egyptian)	C		57	34	32		12	1	5	3			2	1			
Syria. (See table below.)																	
Turkey. (See table below.)																	
Union of South Africa:																	
Cape Province	C	P		P	P					P	P						
Orange Free State	C	P		P	P	P	P							P			
Transvaal	C	P	P														
Zanzibar	C			2													
On vessels:																	
S.S. Amassis at Alexandria	C		1														
S.S. Somersetshire at Suez	C		1														
S.S. Star of Alexandria at Alexandria	C	1															

S.S. Volturno at Alexandria	C			1														
S.S. Arimondi at Massaoua	C			2														
S.S. Hatasu at Malta	C				1													
S.S. Talma at Hong Kong	C			1														
S.S. Karapara at Rangoon	C			1														
S.S. Nawab at Rangoon	C		1															
S.S. California at Liverpool	C				1													
S.S. Kalgan at Bangkok from Swatow	C				1													
S.S. Nordland at Alexandria	C				1													
S.S. Hong Kheng at Rangoon	C			1														
S.S. Hiram at Bangkok	C				1													
S.S. Arunda at Rangoon from Calcutta	C				1													
S.S. Haiching at Amoy	C				1													
S.S. City of Nagpur at Karachi	C						1											
S.S. Rajputana at Aden	C											1						
	D											1						
S.S. Santhia at Singapore from Hong Kong	C								P									
S.S. Baron Inchcape at Hong Kong	C											P						

Place		November 1932	December 1932	January 1933	February 1933			March 1933			April 1933			May 1933		
					1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-30	21-31
Indo-China (see also table above)	C	180	213	253	29	98	60	167	83	120	107	159	163	58	48	
	D	51	45	58	16	33	28	55	30	45	31	30	50	21	14	
Syria: Beirut	C	41	49	34	11	8		2	11	7	3	35		7	9	4

Place		December 1932	January 1933	February 1933	March 1933	April 1933	May 1933
Chosen	C		7	17	30	4	34
	D		1	5	7	2	14
Ecuador	C						[2] 1
Greece	C			3	4	6	

Place		December 1932	January 1933	February 1933	March 1933	April 1933	May 1933
Guatemala	C					3	1
Morocco	C	81	14	14		23	14
Peru	C		38		7		
Turkey	C		5		1	3	

[2] Imported.

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

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Dec. 11, 1932–Jan. 7, 1933	Jan. 8–Feb. 4, 1933	Feb. 5–Mar. 4, 1933	Week ended— March 1933			April 1933					May 1933				June 1933			
					11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24
Algeria:																				
Algiers Department	C		1	1			1	2			1	1	7	2	2	3	4			
Constantine Department	C		6	71	21	32	38	16	3	36	95	85	52	41	16	11	40	34	38	
Bone	C	1		1			2				3		1	1						
Oran Department	C																1			
Argentina: Buenos Aires	C		6																	
Bolivia. (See table below.)																				
British East Africa: Uganda	C	17	17	19	3	9								2	8		2			
Bulgaria	C	5	2	9	24	18	6			9			8					4		
Chile	C	223	152	133	23	30	26	23	34	33	37	33								
Antofagasta	C		1	1						1									1	
Santiago	C					1							34	30				25		
China: Hankow	C		3	5																
Czechoslovakia. (See table below.)																				
Egypt:																				
Alexandria	C	1	1							11	6	6	6	7	4	7	5	5	4	3
Beheira	C		40				43													
Cairo	C						2	4	1	10	19	12	14	15	12	12	9	12	7	6
Gharbiya	C				70															
Provinces	C	59	171	134		178												341	394	
Greece. (See table below.)																				
Guatemala. (See table below.)																				
Iraq: Baghdad	C							1			1			1		1	1		1	
Ireland: Belfast	C			1																
Irish Free State: Kerry County, Killarney district	C	5																		
Lithuania. (See table below.)																				
Mexico:																				
Mexico, D.F	C	3	2	11	5	1	4	4			2	2	4	3	5	3	7	2		
San Luis Potosi	D						1													
Morocco	C	43	63	139	11	26	9		3	6	6	2	6	10	8	7	19	17	19	8
Palestine	C	1	1	2	1		2		1		1	1								1
Persia	C	16	16	40	9	4	2	13	19	18	13	19	24	10	5		7	6	8	
Peru. (See table below.)																				

Poland	C	152	277	350	91	93	64	87	92	87	73	103	100	98	98	82	96	76	75
	D	8	26	20	8	6	2	4	8	6	9	1	3	8	4	6	2	5	2
Rumania	C	254	219	276	61	63	66	88	67	65	41	65	68	74	64				
Syria [1]	C												7	1	20	5	18	2	1
Tunisia: Tunis	C	9	35	34	2	10	24	9	4	17	26		9	3	20	9	7	36	5	12
Turkey. (See also table below:) Istanbul	C	3	5	1	3		1			1										
Union of South Africa:																				
Cape Province	C	P	P	P			P	P		P			P	P						
Natal	C	P	P	P	P		P						P	P			P			
Orange Free State	C	P	P	P	P		P	P		P			P	P			P			
Transvaal	C	P	P		P												P			
Yugoslavia. (See table below.)																				
On vessels:																				
S.S. Munplace at New Orleans from Progresso	C		1																	
S.S. Chiloe at Antofagasta	C																1			

Place		December 1932	January 1933	February 1933	March 1933	April 1933	May 1933
Bolivia	C	4	29	33	72	100	98
Czechoslovakia	C			13	9		
Greece	C	15	10	2	3	3	
Guatemala	C	3	6	9	11	14	8

Place		December 1932	January 1933	February 1933	March 1933	April 1933	May 1933
Lithuania	C	10	36	13	12	19	
Peru	C	111	81		41		
Turkey	C	14	23	11	8	12	15
Yugoslavia	C	11	35	125	12		

[1] Under date of May 1, 1933, an epidemic of typhus fever was reported in Syria, in the Deir-el-Zor district.

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

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		Dec. 11, 1932–Jan. 7, 1933	Jan. 8–Feb. 4, 1933	Feb. 5–Mar. 4, 1933	Mar. 5–Apr. 1, 1933	Week ended— April 1933 8	15	22	29	May 1933 6	13	20	27	June 1933 3	10	17	24
Brazil:																	
Ceara State:																	
Araripe	C			2													
	D			2													
Limoeiro	C								1								
	D								1								
Pernambuco State.[1]																	
Piauhy State	D	1															
French West Africa: Guinea	C		1														
	D		1														
Gold Coast	C			2						1		1					1
	D			2													
Guinea (Portuguese): Bissagos Islands	C		44														
	D		14														
Ivory Coast:																	
Bouafle	C																1
Gagnoa	C															[2] 1	
	D															1	
Senegal:																	
Bakel	C				1												
Dagana	C				1												
	D				1												
Podor	C				1												
St. Louis.[3]																	

[1] 1 case of yellow fever with 1 death was reported in Pernambuco State, Brazil, during June 1933.
[2] Suspected.
[3] On July 13, 1933, 1 death from an imported case of yellow fever was reported in St. Louis, Senegal.

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