PUBLIC HEALTH REPORTS

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CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES [1]

February 23–March 21, 1936

Influenza.—During the 4 weeks ended March 21 approximately 44,000 cases of influenza were reported, as compared with 19,456, 11,259, and 11,332 for the corresponding period in the years 1935, 1934, and 1933, respectively. Influenza has remained at a fairly low level during the winter, and the sharp rise during the last two periods was confined mostly to certain geographic areas. In the South Atlantic region, South Carolina reported 4,076 cases for the 4 weeks ended March 21, and Georgia reported 5,209; Virginia, which is not included in this summary because of lack of comparative data, reported 5,607 cases for the 3 weeks ended March 21; Missouri, in the West North Central region, reported 3,145 cases for the 4-week period. The incidence in each of those regions was almost three times that for the corresponding period last year. In the South Central region, Alabama reported 8,963 cases and Texas 3,372 cases; in this section the incidence was 1.7 times that for last year. Arizona (Mountain region) reported 1,131 cases and California (Pacific region) 5,969 cases. The total for the two combined areas was almost four times last year's figure for this period.

Table 1 shows, by geographic areas, the number of cases reported for each week of 1936, with comparative data for the 2 preceding years. During the 4 weeks ended March 21 the weekly incidence for the entire reporting area, as well as for each geographic area, except the East North Central, was the highest in the 3 years included in the table. During the first weeks of the year the incidence was well below that of last year in all sections and in some sections it was lower than in 1934, a low year for influenza.

[1] From the Office of Statistical Investigations, U. S. Public Health Service. These summaries include only the 8 important communicable diseases for which the Public Health Service receives weekly telegraphic reports from the State health officers. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48 ; measles, 47; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports.

TABLE 1.—*Influenza cases reported in each geographic area during 1936, with corresponding data for the corresponding periods in the 2 preceding years*

Year	Week ended—											
	Jan. 4	Jan. 11	Jan. 18	Jan. 25	Feb. 1	Feb. 8	Feb. 15	Feb. 22	Feb. 29	Mar. 7	Mar. 14	Mar. 21
Total: [1]												
1936	1,786	2,561	3,007	2,547	3,025	4,577	9,077	11,870	11,515	11,746	10,163	10,118
1935	6,965	10,023	7,949	9,673	10,252	9,530	8,591	7,018	5,727	7,030	3,744	2,955
1934	2,051	2,804	1,943	2,201	2,714	2,819	3,825	3,683	3,341	2,971	2,754	2,193
New England and Middle Atlantic:												
1936	62	37	59	90	31	78	118	108	163	229	200	168
1935	641	622	288	123	144	83	73	63	95	250	61	36
1934	83	63	65	99	62	71	53	48	90	50	58	45
East North Central:												
1936	115	146	227	133	226	174	231	230	291	279	269	191
1935	394	1,436	578	673	1,195	416	586	335	573	280	321	146
1934	143	250	163	166	301	236	329	346	284	193	298	168
West North Central:												
1936	160	249	248	262	217	266	362	440	704	697	1,032	1,178
1935	556	442	725	530	626	765	898	531	533	296	235	155
1934	27	30	46	69	73	97	336	261	226	230	207	276
South Atlantic:												
1936	575	803	963	676	1,197	1,729	2,551	2,860	4,135	3,162	2,592	2,081
1935	3,514	4,861	3,051	3,586	2,783	2,393	2,096	1,489	1,353	1,229	933	487
1934	1,102	809	926	1,088	1,211	943	1,232	1,271	1,016	1,027	905	714
East and West South Central:												
1936	646	1,125	1,230	1,087	1,036	1,584	1,675	2,774	3,930	4,754	4,450	4,830
1935	1,558	1,859	2,038	3,122	3,150	4,400	3,998	3,707	2,472	4,331	1,671	1,898
1934	568	1,542	665	677	935	1,317	1,711	1,567	1,531	1,316	1,118	842
Mountain and Pacific:												
1936	228	201	280	299	318	746	4,140	5,458	2,292	2,625	1,620	1,670
1935	302	803	1,269	1,639	2,354	1,473	940	893	701	644	523	233
1934	128	110	78	102	132	155	164	190	194	155	168	148

[1] Mississippi, Nevada, New York, Pennsylvania, and Virginia are excluded, as comparable data are not available. New York City is included.

Meningococcus meningitis.—This disease, which for more than a year has been at a relatively high level, continued to increase during the current 4-week period. The number of cases rose from 800 for the preceding 4 weeks, to 1,172 for the 4 weeks ended March 21. The total was 1.8 times that for the corresponding period in 1935 and more than 5 times the number in 1934. The incidence, however, did not reach the level of 1929, when the peak of several years of high incidence was closely approached during this period and 1,257 cases were reported. The high incidence of that year was followed by several years of gradually declining incidence until a low of 225 cases was reported for this period in 1934.

Table 2 shows, by geographic areas, the number of cases reported for recent weeks in comparison with the experience of the 2 preceding years and also that of the peak year of 1929. In all regions of the country the current incidence has been considerably in excess of that for recent years. During the period included in the table the incidence in the West North Central region dropped below that for the corresponding period in 1935, and in the East North Central region it dropped to last year's level. In all other regions the incidence remained well above that in the 2 preceding years. The South Atlantic and South Central regions were the only ones to exceed the

1929 figures, but in these regions the incidence in 1930 was higher than that in 1929. For the 12 weeks the total for the South Atlantic region was 640, as compared with 104 and 256 for the corresponding periods in 1929 and 1930, respectively. In the South Central regions 719 cases were reported, as compared with 303 in 1929 and 627 in 1930.

TABLE 2.—*Meningococcus meningitis cases reported by weeks during 1936 with comparative data for the corresponding periods in 1935, 1934, and 1929*

Year	Week ended—											
	Jan. 4	Jan. 11	Jan. 18	Jan. 25	Feb. 1	Feb. 8	Feb. 15	Feb. 22	Feb. 29	Mar. 7	Mar. 14	Mar. 21
Total:[1]												
1936	130	174	197	167	178	165	234	223	307	256	312	297
1935	67	70	74	96	127	104	134	160	154	174	159	159
1934	7	13	12	6	11	9	11	9	5	14	8	15
1929	160	213	218	232	268	226	256	196	303	297	332	325
New England and Middle Atlantic:												
1936	22	38	32	38	33	29	40	37	55	58	66	57
1935	12	5	15	10	15	12	10	15	28	27	24	32
1934	10	22	11	17	14	15	12	17	17	9	10	22
1929	31	51	49	52	73	62	61	53	67	65	77	62
East North Central:												
1936	19	27	23	36	32	37	25	28	36	36	35	43
1935	20	18	19	22	25	24	34	37	45	32	44	28
1934	5	4	4	3	3	4	11	13	5	4	3	14
1929	40	50	53	36	51	43	49	48	63	78	89	65
West North Central:												
1936	11	11	17	7	14	19	36	12	21	11	23	14
1935	6	8	3	16	23	8	27	23	22	18	28	22
1934	5	4	4	3	3	4	11	13	5	4	3	14
1929	37	21	31	38	24	32	40	33	46	49	42	63
South Atlantic:												
1936	26	29	30	22	39	32	43	77	111	71	90	70
1935	10	15	15	14	23	23	15	32	23	39	32	27
1934	6	4	9	6	10	4	3	7	4	5	10	10
1929	6	8	6	7	17	6	6	7	7	6	15	13
East and West South Central:												
1936	34	59	75	56	49	33	64	53	67	63	75	96
1935	10	19	14	24	28	22	34	40	25	42	19	28
1934	10	15	11	12	9	9	15	14	9	13	15	14
1929	8	28	34	38	43	27	22	15	20	15	26	27
Mountain and Pacific:												
1936	18	10	20	8	11	15	26	16	17	17	23	17
1935	9	5	8	10	3	6	8	5	4	7	4	8
1934	4	7	7	5	9	7	5	6	7	4	3	5
1929	38	55	45	61	60	56	78	49	100	84	83	95

[1] Exclusive of Nevada.

States in which the disease has been most prevalent in the current period are Kentucky (146 cases), Virginia and New York (116 each), Illinois (73), Maryland and Tennessee (60 each), Ohio (47), Georgia (44), Pennsylvania (43), Massachusetts (40), and Oklahoma and Texas (31 each).

Smallpox.—For the country as a whole smallpox continued at a high level. However, the high incidence was still confined to the North Central and Mountain and Pacific regions. The number of cases reported from the South Atlantic and South Central regions was considerably below the seasonal expectancy, and no cases were reported from the New England and Middle Atlantic regions. States

reporting a large number of cases were Kansas (226), Nebraska (127), South Dakota (95), Washington (79), Iowa (71), Illinois (60), and Wisconsin (50). More than two-thirds of the total cases occurred in those seven States. For the entire reporting area 990 cases were reported for the current 4 weeks, as compared with 695, 622, and 810 for the corresponding period in the years 1935, 1934, and 1933, respectively.

Scarlet fever.—The scarlet fever incidence continued to be the highest in recent years. For the 4 weeks ended March 21 there were 35,318 cases reported, which was an increase of approximately 10 percent over the figure for the corresponding period in 1935 and more than 40 percent over the number in 1934. The high incidence was still confined to the West North Central region, where the number of cases (5,902) was about 2.4 times that for the corresponding period last year, and to the Mountain and Pacific sections where the incidence (4,770 cases) was about 1.4 times that of last year. The number of cases reported from the New England and Middle Atlantic regions was slightly above the seasonal expectancy, and in other regions the incidence was about normal for this season of the year.

Diphtheria.—The incidence of diphtheria was the lowest during this period in the 8 years for which data are available and was probably the lowest for all time; 2,139 cases were reported for the 4 weeks ended March 21, 1936, as compared with 2,533 for the corresponding period in 1935. The West North Central region reported a slight increase (about 10 percent) over the figure for this period last year, but all other regions reported decreases ranging from 10 percent in the South Atlantic and South Central regions to almost 40 percent in the East North Central region.

Poliomyelitis.—Poliomyelitis stood at about the average level for recent years. For the current 4-week period 78 cases were reported, as compared with 93, 73, and 50 for the corresponding period in the years 1935, 1934, and 1933, respectively. In the New England and Middle Atlantic and the South Central regions the disease was slightly more prevalent than at this time last year; in the South Atlantic it was on a level with last year; while in the Mountain and Pacific regions a decrease from last year's figure of about 40 percent was reported.

Typhoid fever.—Typhoid fever continued at a low level, during the 4 weeks ended March 21, with 362 cases reported, as compared with 385, 508, and 545 for the corresponding period in the years 1935, 1934, and 1933, respectively. Ohio, reporting 45 cases for the week ended March 21, raised the incidence in the East North Central region about 75 percent above that for the corresponding period in 1935, but in other regions the current incidence either closely approximated that of last year or fell considerably below it.

Measles.—The number of cases of measles rose from about 29,000 for the preceding 4 weeks to approximately 44,000 for the 4 weeks ended March 21. While the expected seasonal increase was apparent in all sections of the country, the number of cases was only about 35 percent of the number reported for the corresponding period in each of the 2 preceding years. Measles, however, was unusually high in both of those years and the current incidence was considerably below the average for more "normal" measles years (1929–33, inclusive). In the Mountain and Pacific regions the incidence still remained the highest in recent years, but in other regions it stood at about the normal seasonal expectancy.

Mortality, all causes.—The average mortality rate from all causes in large cities for the 4 weeks ended March 21, as reported by the Bureau of the Census, was 14.2 per 1,000 inhabitants (annual basis). The current rate is the highest recorded for this period since 1929, when the rate for the corresponding period was 14.8. The average rate for the years 1930 to 1935, inclusive, was 13.0. During this period in 1929, influenza and meningitis were both high, and the current high rate appears to be attributable to the same diseases, particularly to influenza.

THE HISTORY AND STUDY OF LEPROSY IN HAWAII

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The Hawaiian Islands, formerly called the Sandwich Islands, are situated about 2,400 miles (less than 5 days' voyage by the fastest boats) southwest of San Francisco. Six islands make up the greater part of the 6,407 square miles of the total area, which is about two-thirds the area of the State of Vermont. The characteristic topography of each principal island is a central mountainous ridge, furrowed by short valleys. During most of the year northeast trade winds cool the islands sufficiently to make the perpetual summer easily tolerated. The raising and processing of sugar cane and pineapples constitute the chief industries. In 1930 the population was 368,336, slightly greater than that of Vermont. In order of numerical strength, the conglomerate racial mixture is chiefly Japanese, Filipino, Caucasian, part-Hawaiian, Portuguese, Chinese, Hawaiian, Porto Rican, and Korean.

Authentic history of the islands began in 1778, when Capt. James Cook came upon them while crossing the Pacific. The natives were similar to those living in the islands of the southern Pacific, and the state of civilization at that time may be roughly compared with that found by Columbus in the West Indies. About 20 years after Cook's first visit, an ambitious leader, Kamehameha, conquered

the principal islands and set up a monarchy. New England missionaries, who came in 1820, in addition to teaching Christianity, did much to shape the economic and social life of the natives. A monarchial system of government continued, with limitations and modifications, until it was overthrown and a provisional government set up by a bloodless revolution in 1893. After 5 years of maneuvering by the provisional government, the Congress of the United States adopted a treaty of annexation, and in 1900 officially accepted the islands as the Territory of Hawaii.

The geographical location of Hawaii gives it importance to the public health of the United States. The phrases "Hub of the Pacific" and "Crossroads of the Pacific" are not mere slogans of the commercial enthusiasts. Ships sailing from North America to the Orient, Philippines, and Australia usually stop at Honolulu; thousands of tourists stop over in Honolulu or make it their destination of a voyage from the mainland, and Army and Navy personnel numbering about 15,000 is constantly being shifted to and from the mainland.

At this center of mid-Pacific travel, leprosy is still prevalent; 557 cases are now segregated and approximately 150 cases are paroled as arrested. If a similar rate prevailed in the United States, the National Leprosarium at Carville, La., would have 200,000 patients instead of 400! While the spread of leprosy from Hawaii to the United States will probably never become serious, it nevertheless furnishes a focus of the disease in a territory commercially close to the mainland.

The origin of leprosy in Hawaii is not definitely known. According to Mouritz (1) there is no Hawaiian word for leprosy. The phrase "Mai pake", or "Chinese sickness", suggests Oriental origin. The mixed crews from the ships that visited the islands after Cook's voyage, or the Hawaiians who went to the Orient during the same period, might have introduced the disease. It might have been endemic among the aborigines and reached epidemic proportions in later years. Between 1835 and 1845 several cases of probable leprosy were recorded. In 1848 Dr. Hillebrand, a German physician, observed leprosy in Chinese coolies. Regardless of the uncertainty of its origin, leprosy was sufficiently prevalent to cause the legislature, under King Kamehameha V, to enact a law on January 3, 1865, which provided for the apprehension and segregation of all people affected with leprosy. Considering the status of preventive medicine at the end of the Civil War, and the fact that Hansen, in Norway, had not at that time discovered the bacillus of leprosy, the Hawaiian Board of Health should be congratulated for its early efforts to control a widespread communicable disease by separating the sick from the well.

During the 70 years since the passage of the segregation act, through the vicissitudes of a decaying monarchy, a successful revolution, and a new government as a territory of the United States, the law has

been enforced with varying degrees of effectiveness. Altogether between 7,000 and 8,000 people have been segregated and maintained at considerable public expense. The total number in segregation gradually increased to approximately 1,100 in 1895, with a subsequent slow decrease to the present number of 557. The annual rate of admission for the Hawaiian race, which was between 4 and 5 per 1,000 population in the decade 1880–90, has dropped in recent years to approximately 1.5 per 1,000. The combined Hawaiian and part-Hawaiian rate is now less than 1 per 1,000. Most of the immigrants, brought in great numbers to Hawaii for employment on the plantations, came from countries in which leprosy was prevalent, thereby aggravating the local problem. It is impossible to evaluate the part that segregation has played, and the parts that other factors, such as social and economic changes, have played in bringing about the decrease.

The practical plans for segregation originally provided for a small treatment hospital and detention home readily accessible to Honolulu, and an asylum for more advanced cases at a place where segregation could be easily enforced.

On November 13, 1865, a small treatment hospital was opened in the Kalihi district, on the island of Oahu, about 3 miles from central Honolulu. After 10 years it was abandoned because of its cost, failure to isolate, and inability to effect cures. The cases for detention awaiting transfer were then kept near the Honolulu police station. On December 12, 1881, a new treatment hospital and detention home was opened less than 1 mile from central Honolulu in the Kakaako district. After 8 years it also was abandoned. Another receiving station was later opened in the Kalihi district and is still in operation.

An ideal place for a leprosy settlement was found on the island of Molokai, on a peninsula of approximately 10 square miles, separated from the remainder of the island by sheer mountainous cliffs. The Hawaiian Government bought a portion of this site. The settlement, named Kalaupapa, from a part of the peninsula, began with the landing of 25 cases of leprosy on January 6, 1866. Later the entire site was obtained by the Government.

The earnest desire of the territorial board of health to get scientific help in its leprosy problem resulted in the employment of Dr. Edward Arning, a German physician, who, in 1883, began investigations of leprosy in the Kakaako hospital. His report to the board, after 2 years, showed that he had made commendable progress. Unfortunately a misunderstanding between him and his employers over some parts of his report caused his resignation and terminated what might have been a valuable chapter in the history of Hawaiian leprosy. Further desire of the local officials to obtain information on leprosy prompted them, in 1885, to send a questionnaire on the subject to the

medical representatives of those nations in which leprosy was prevalent.

Several events have been outstanding in the history of leprosy and of the control of the disease in Hawaii, two of which will be briefly mentioned.

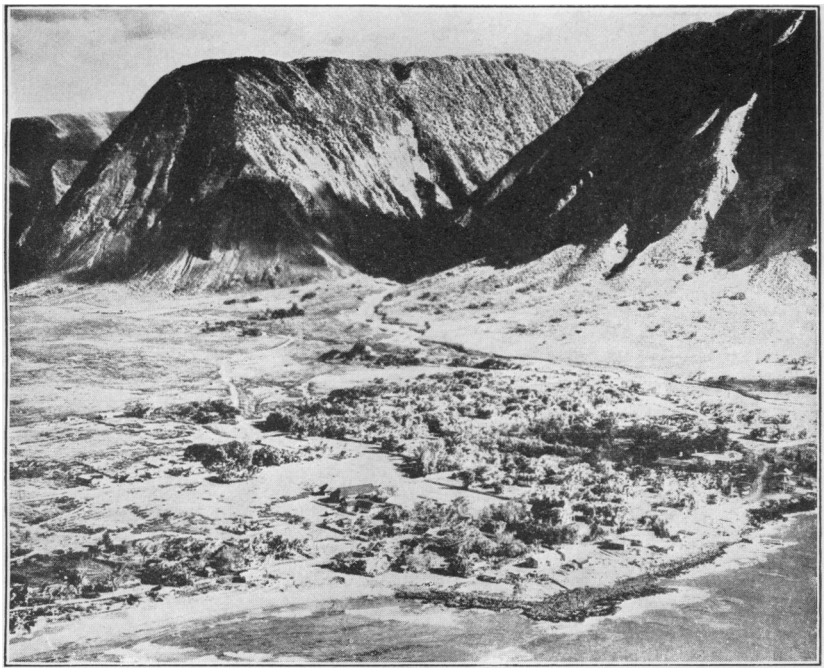
Father Damien.—Joseph Damien de Veuster, Belgian, at the age of 34, began duties as a Catholic priest at Kalaupapa in 1873. After 5 years of fearless, and apparently careless, association with leprosy, he developed symptoms which presented visible signs of leprosy by 1884, and died with nodular leprosy in 1889. The circumstances surrounding this case helped to settle the local argument on the communicability of the disease.

Inoculation of Keanu.—In 1884 Dr. Arning obtained royal consent to inoculate with leprosy a convicted murderer, Keanu, whose death sentence on that account was commuted to life imprisonment. A leprous nodule was transplanted beneath the skin of Keanu's right forearm. Twenty-five months later he showed signs of generalized nodular leprosy and died at Kalaupapa about 6 years later. The value of the experiment was weakened, however, when it was learned that he had once lived with leprous relatives.

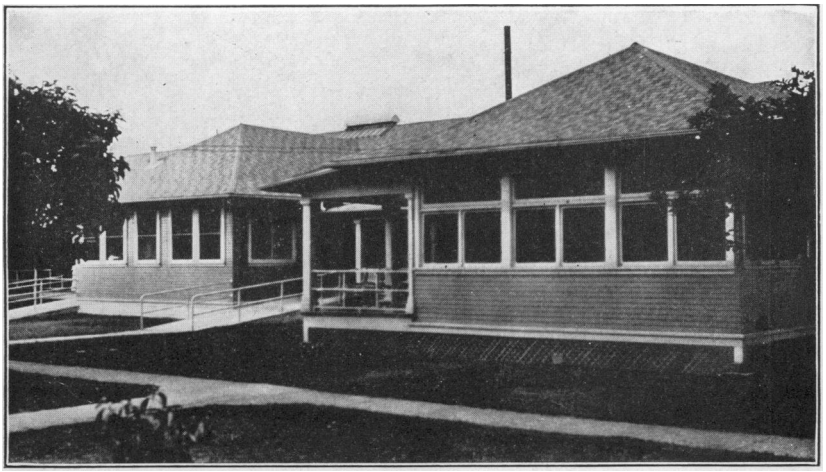
Many tragedies have been reported in the early efforts to control leprosy in the islands, involving the killing of officials and a physician in their attempts at apprehension and segregation of leprous persons.

LEPROSY INVESTIGATIONS OF THE UNITED STATES PUBLIC HEALTH SERVICE IN HAWAII

In 1904, approximately 4 years after the annexation of the Territory of Hawaii, Dr. C. B. Cooper, president of the territorial board of health, presented a résumé of the status of leprosy in Hawaii to the second annual conference of state and territorial health officers with the Surgeon General of the United States Public Health Service. Dr. Cooper requested the Federal Government to recognize the significance of leprosy in its newly annexed territory by beginning scientific investigation of the disease. During the same year the American Medical Association passed a resolution similar in purpose to the request of Dr. Cooper. The pleas were acted on promptly by Surgeon General Wyman of the Public Health Service. He presented the matter to Congress and a bill was signed by the President on March 3, 1905, appropriating $100,000 for a hospital and laboratory at Kalaupapa, Molokai, and $50,000 for annual upkeep. On June 7, 1905, Surgeon General Wyman arrived at Honolulu to make the necessary preliminary arrangements. Kalawao, east of Kalaupapa Settlement, but on the same peninsula, was selected as a site for transfer by the Territory to the Federal Government.

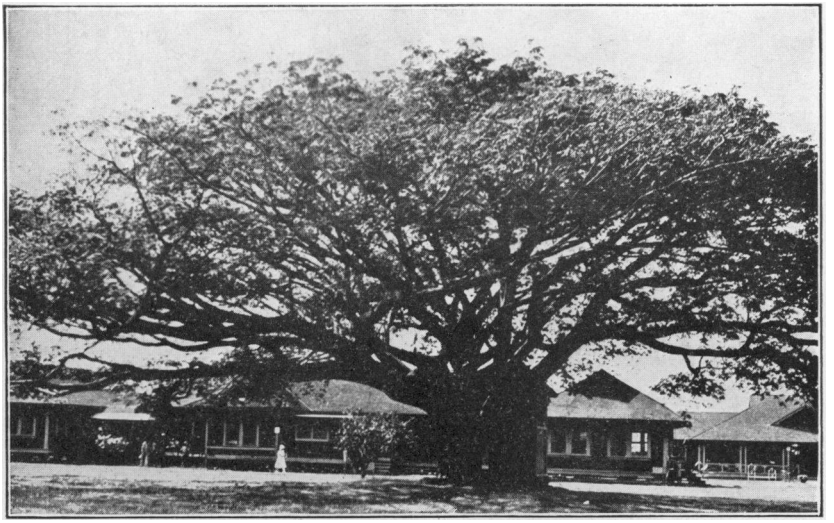


KALAUPAPA SETTLEMENT ON A SMALL PENINSULA OF MOLOKAI, BETWEEN THE MOUNTAINS AND THE SEA.



KALIHI HOSPITAL—PART OF INFIRMARY.

PLAYGROUNDS, CENTRAL DINING HALL, AND KITCHEN, KALIHI HOSPITAL.



A SPREADING MONKEY-POD TREE IN THE CENTER OF THE COMPOUND AT KALIHI HOSPITAL, WITH THE TELEPHONE BOOTH UNDERNEATH.

In spite of the ready response on the part of the Federal Government to begin leprosy research in Hawaii, more than 4½ years elapsed before the station at Kalawao was formally opened. Local prices were high, and some materials had to be shipped from the mainland; and as the local contractors refused to undertake the construction work for the amount appropriated, an official of the Federal Government undertook the job and built the station with such skilled and unskilled labor as was available. Additional appropriations for a landing pier and water supply had to be made by Congress. Finally, on December 23, 1909, the Kalawao Investigation Station was opened.

Notwithstanding the building difficulties encountered at Kalawao, the Public Health Service had proceeded with its investigations of leprosy. Dr. Walter B. Brinkerhoff, from the department of pathology, Harvard Medical School, was appointed director on March 2, 1906. He established a temporary laboratory at the United States Quarantine Station in Honolulu, and later did some work at Kalihi Receiving Station. A small but comprehensive library was obtained and a bibliographical index of leprosy was begun.

The early investigations were directed at fundamental problems. Some of the studies consisted of attempts to culture the leprosy bacillus, efforts to reproduce the disease in animals, trials at preparation of a diagnostic substance similar to tuberculin, investigation of possible modes of transmission, preparation of vaccines from other acid-fast bacilli, and endeavors to produce a complement-fixation test. Rats inoculated with rat leprosy were sent from San Francisco in order that a disease of rats similar in many respects to human leprosy might be reproduced in a colony at the station. Chaulmoogra oil was tried in several cases.

The station at Kalawao was short lived. Patients suitable for study were often unwilling to go to the Federal Hospital. Employees were difficult to obtain and keep at a relatively inaccessible leprosy settlement. The local legislature passed a law on April 14, 1909, which provided for the keeping of most cases of leprosy at Kalihi Receiving Station for a period of at least 6 months before transfer to Kalaupapa. With the recently apprehended patients remaining at Kalihi for treatment, the Public Health Service did not have available for study at Kalawao the more instructive early cases. In 1910 the territorial board of health gave the Public Health Service laboratory space at Kalihi Receiving Station, to which the majority of the personnel was transferred from Kalawao, and 4 or 5 years later all personnel was brought to Honolulu. Since 1914 medical officers of the Public Health Service, when on duty at the leprosy investigation station, have furnished medical attendance to the patients of Kalihi Hospital. The officers have had an excellent opportunity to see and study most phases of leprosy in a hospital environment rather than

under the less adequately controlled conditions found in an asylum village.

Chaulmoogra oil.—Chaulmoogra oil has been employed in the treatment of leprosy for an undetermined period of time. According to Tomb (2), an Egyptian leprologist, Tortoulis Bey, first used the drug by injection in 1894. In 1907 another Egyptian, Engel Bey, had Hoffman and Taube, German chemists, prepare ethyl esters of chaulmoogric acid, which he used in treating leprosy and on which he reported favorably in 1909. The product was marketed as antileprol, but apparently was not extensively used.

In 1915 the Public Health Service reported on the use of chaulmoogra oil by injection, holding the opinion that the drug was useful in some cases. On account of the irritation resulting from the injection of chaulmoogra oil, during the fiscal year 1918 the Department of Chemistry of the College of Hawaii aided the officers of the Investigation Station by preparing esters of chaulmoogric acid. A local physician, Dr. J. T. McDonald, an acting assistant surgeon of the United States Public Health Service, while directing the leprosy investigation station from September 26, 1918, to March 31, 1921, energetically pursued the use of esters of chaulmoogric acid in treatment with apparently encouraging results. At one period practically all patients at Kalihi were receiving injections of esters. Many patients were released on parole and some were discharged as "cured". The enthusiasm became world-wide. Samples of the drug were requested from most countries where leprosy was prevalent. The natural tendency of leprosy to improve or become spontaneously arrested in many cases makes the evaluation of treatment very difficult. Subsequent studies by officers of the Public Health Service have failed to show that the esters of chaulmoogric acid are of specific value. Some leprologists still appear enthusiastic over the drug, but an increasing number are becoming doubtful of its value. The emphasis on treatment induced by the chaulmoogra "cure" has undoubtedly delayed fundamental research here and elsewhere.

Recent investigations.—During recent years investigations have been directed principally toward (*a*) the epidemiology of leprosy, (*b*) its relationship to tuberculosis, (*c*) repeated close clinical observation of the Kalihi patients, (*d*) minute study of the incipient case for neurological signs which might aid earlier diagnosis, (*e*) the study of rat leprosy, and (*f*) the, as yet, unsuccessful attempts to grow on artificial media the bacilli of human and rat leprosy.

Kalihi Hospital today.—The Kalihi Receiving Station, or Hospital, maintains a census which fluctuates between 100 and 125, as new patients are brought in and more advanced cases are sent to Kalaupapa. A modern infirmary of 44 beds cares for the more acutely sick patients and those with concurrent affections. The ambulatory

patients live in roomy, one-story dormitories. The patients in whom the leprosy bacilli have not been demonstrated or have been demonstrated infrequently are separated from those in which the organism is more readily found. A school, a chapel, and a moving-picture hall aid to break the monotony of segregation. Friends and relatives visit the patients freely; two fences placed several feet apart prevent contact. The morale is good and the patients are cheerful. Segregation is seldom violated, although a low wire fence forms the only obstacle to escape.

The clinical picture.—The young medical officer detailed here has an excellent opportunity to study both the clinical and laboratory aspects of a pleomorphic systemic disease which, in its later stages, may give the text-book picture of advanced leprosy, but earlier may rival syphilis in its mimicry. All cases are followed carefully, and the patients are examined frequently with a minimum of clothes under direct overhead daylight. The investigator learns by daily experience that the disease is very different from the concept he formed in school, and many surprises are in store for him.

His ideas of incipient leprosy will be greatly changed. He will probably have the opportunity to see several cases in which the diagnosis may have been made on early neurological signs with very slight or no skin lesions and probably negative bacteriological findings. The early neurological signs referred to consist of slight drooping of a lower lid or side of the upper lip, slight loss of tone or atrophy of one or several small muscles of the hand, more frequently first interosseous, moderate enlargement of a peripheral nerve, usually ulnar or great auricular, and an area of skin perhaps not as large as a silver dollar with absent or depressed sensibility. He will also see some incipient cases develop into well-advanced leprosy.

Another striking characteristic of the disease is its changeability. Lesions may appear singly or generally, develop, and perhaps disappear within a period of a few days or weeks. Some lesions may be developing while others are receding. Acute palsies may occur, and, later, function may be completely restored. All skin lesions may disappear entirely, leaving only faint scars to mark their former sites, but with the bacilli still persisting in the mucous membrane of the nose. Some improve until the disease is arrested, and they are then paroled. The disease may remain quiescent or exacerbations may develop later. Other cases get progressively worse through stages of increased activity, followed by periods of lessened activity.

The so-called "acute reaction" impresses the young officer. A patient who has been going along quietly may suddenly show redness, swelling, and even vesiculation of all lesions. With or without chills the temperature may rise to 104° or more, and for several days the patient is acutely ill. Defervescence and improvement may follow,

the lesions scale, wrinkle, pigment, subside, and the patient resume his usual activities once more. A similar reaction may occur but without fever.

Treatment.—Treatment at Kalihi Hospital is very similar to that practiced in the general care of tuberculosis, emphasizing rest, food, and good hygiene. Patients with acute cases are given bed rest in the infirmary. Symptomatic remedies are prescribed as indicated. Individual lesions respond in many cases to an inflammatory reaction set up by carbon dioxide snow or the injection of an irritant such as esters of chaulmoogric or other fatty acids.

Kalaupapa Settlement at present.—The more advanced and crippled cases of leprosy are given asylum care at Kalaupapa; therefore from a clinical viewpoint the inmates do not exhibit the more interesting and instructive phases found earlier in the course of the disease.

The writer has not visited the Settlement. Official reports and photographs furnish the sources for the following description.

The Kalaupapa Settlement should not be confused as being identical with the island of Molokai. As previously mentioned, the Settlement occupies a small peninsula separated from the remainder of the island of Molokai by sheer mountainous cliffs 1,600 to 2,000 feet in height. The area of the island is about 260 square miles, of which approximately 10 square miles are used for the Settlement. The inhabitants of the remaining 250 square miles go about their agricultural activities undisturbed by the adjacent colony.

The only route available for land travel between the Settlement and other parts of Molokai is a precipitous mountain trail. It is necessary for steamers from Molokai to Kalaupapa to disembark passengers and cargo into small boats, which, during certain periods of the year, may upset in the rough surf. A recently constructed landing field allows transportation from Honolulu by special plane. Patients have not yet been transferred by airplane.

The small tropical peninsula which projects into the Pacific has a massive background of green mountains, which give scenic beauty to those who must live in the village. To the casual observer the community appears much as other rural villages. Of course there are more crippled and deformed people than seen in the usual village, and children are absent. The people live in small communal groups or in individual cottages. Marriage is permitted, but children are removed to territorial homes in Honolulu. A number of well people live with their diseased mates or relatives as "kokuas", or helpers. The village has a store, post office, courthouse, moving-picture theater, and jail. Several churches administer to the spiritual needs of the people. There are approximately 90 automobiles in the Settlement. The inhabitants may, if they wish, raise vegetables, poultry, hogs, or cattle for sale to the Territory for use in the village. Facili-

ties for swimming and fishing are readily available, and these sports are enjoyed by inhabitants of the colony.

The Settlement is completely financed by the Territory and administered by a lay superintendent under the Board of Hospitals and Settlement. During the past few years many new buildings and much modern equipment have been provided. Two full-time physicians employed by the board furnish medical care, and there is a modern 50-bed hospital for the patients needing hospital care. A dentist divides his time between Kalihi and Kalaupapa.

Cooperation between the Public Health Service and the Territorial authorities.—During the 30 years that the Public Health Service has been engaged in the study of leprosy in Hawaii, there has been a splendid spirit of cooperation between its officers and the Territorial authorities. Officers of the Public Health Service either on duty at the investigation station or sent to the islands for the special purpose have freely consulted with and advised the local authorities on matters concerning leprosy and other public health problems. As a recent concrete example of that relationship, the 1928 report of the president of the board of health carries specific recommendations made by the director of the United States Leprosy Investigation Station to the effect that the handling of leprosy should not be by segregation alone but also by following up the relatives and contacts and by attempting to reestablish the paroled patient in his community. These and other recommendations are now being carried out in the new program of the Board of Hospitals and Settlement.

REFERENCES

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(2) Tomb, J. W.: Journal of Tropical Medicine and Hygiene, June 15 and July 15, 1933.

DERMATITIS FROM WRIST-WATCH STRAPS

By Louis Schwartz, *Senior Surgeon, United States Public Health Service*

A large manufacturing concern which had been in business for many years suddenly began to receive complaints that straps on their watches were causing dermatitis; and by the end of 6 months, during which time about 125,000 watches were furnished with straps, more than 50 complaints were made to the company by people who developed dermatitis from wearing the straps.

It has been customary in this plant for a period of years to test samples of their wrist watches for running and wearing qualities on volunteer workers in the plant. No cases of dermatitis had been noted among these volunteers before the present complaints and the resulting investigations began. After the complaints began to come

in, 50 workers were given wrist watches and straps to wear from the same lot as those from which the complaints were received. Among these 50 were those workers who had been found by previous tests to be most susceptible to skin irritation. After wearing them for 2 or 3 weeks, six of these volunteers developed dermatitis under the straps. The dermatitis varied in severity from erythema and a few vesicles to a severe inflammation which spread up the arm; but in no case was the dermatitis severe enough to cause the worker to lose time from work.

TRACING THE LEATHER TO ITS SOURCE

The investigation brought out the fact that the cases of dermatitis were all caused by a batch of straps different from those used before. The watch company bought the straps from a firm located in another city. This firm was visited and it was found that in the manufacture of these straps they had used a lot of about 200 dozen chrome-tanned calfskins which they had purchased from a jobber located in another city. They dyed and lacquered the skins and then made them into wrist-watch straps. Previously they had bought leather that had already been dyed and needed only to be lacquered before being made into straps.

The jobber from whom the strap manufacturer purchased the leather was next visited. He stated that the leather was chrome-tanned calf that had been given a ground dye of a russet color, and he gave the name of the factory in which the leather was made. He also furnished a skin he had remaining from the lot. The leather tannery located in a distant State was visited. They identified the leather as having been tanned in their factory 7 years previously and gave a brief description of the method of tanning.

METHOD OF TANNING

The hides were first soaked in water and softened and then placed in a vat containing lime and sodium sulphide in solution, in order to remove the hair, after which they were washed in water and exposed to the action of powdered pancreas ("bated") to remove the superficial keratin layer. They were then placed in a dilute solution of sulphuric acid (pickled) to neutralize the "bate." Next they were placed in a tanning solution consisting principally of a solution of potassium bichromate. After this the excess fat on the under side was removed (fleshed) and a fat liquor was rubbed in to replace the fat taken out by the tanning process. The fat liquor consisted mostly of neat's foot oil. The ground dye, a wood dye, was applied at the same time. The leather manufacturers stated that it was a good grade of chrome-tanned leather, but was not intended to be used for wrist-watch straps.

METHOD OF MANUFACTURE OF THE STRAPS

The firm manufacturing the straps stated that in August of 1934 they had a demand from the watch company for a strap that would be a fast black and sweat proof. Previous to this, as before noted, they had bought leather already dyed and simply put on a clear lacquer spray; but as this leather was not satisfactory to the watch company, they purchased a lot of a good grade of chrome-tanned calf, which they prepared as follows: The leather was folded rough side to rough side and cemented together with a cold patching cement. After this operation the leather presented two smooth sides. It was then dipped and allowed to stand for 3 minutes in a dye solution consisting of a mixture of denatured alcohol, lacquer thinner, and two types of black dye. After being taken out of the dyeing solution, it was hung up to dry for about 6 hours and then sprayed on both sides with a mixture of black lacquer and the same thinner that was used in the dyeing process. The leather was then allowed to dry, after which it was cut up and stamped into wrist-watch straps, the edges of which were again lacquered with the same lacquer solution. Two types of black dye were used in the dyeing solution. This was done because dyeing the leather with the first black dye imparted a blue-black color which was undesirable, and the other black dye was added to give a pure black dyed strap.

CHEMICALS USED

The chemicals used in this process were purchased from a chemical manufacturing company located in another State. A visit was made to this firm and the chemists were interviewed. The ingredients of the lacquer, the thinner, and the dyes were ascertained and samples of each obtained. The ingredients of these were as follows:

Dye 1	*Lacquer*	*Thinner*
Wood alcohol.	Butyl acetate.	Ethyl acetate.
Butyl alcohol (normal).	Toluol.	Butyl acetate.
Amyl Black.	Nitro cellulose.	Toluol.
	Ethyl acetate.	
Dye 2	Butyl alcohol (normal).	
	Lactol Spirits.	
Wood alcohol.	Denatured alcohol 2 B.	
Butyl alcohol (normal).	Processed castor oil.	
Amyl Black.	Superba Black Pigment.	
Oil Yellow T.		

Amyl Black is the trade name of an oil-soluble dye which is made by the action of stearic acid on nigrosine hydrochloride.

Oil Yellow T is one of the trade names given to amido azotoluene hydrochloride. It is a basic azo dye. (Other names are Fast Oil or Spirit Yellow, Butter Yellow, Amido Yellow T, Fast Azo Garnet Base, Insoluble Orange Yellow O. L. G., and Yellow Fat Colour.)

It is prepared by the action of nitrous acid on an excess of ortho-toluidine and by the isomerization of the intermediate ortho-diazo-amino toluene. It is an orange-yellow powder insoluble in water, but soluble in alcohol and oils. It is used for coloring varnishes, fats, oleomargarine, and wax. If H_2SO_4 is added to an alcoholic solution of the dye, a brown color develops at first, then a reddish color, and finally a reddish precipitate of the sulphate on dilution.

Lactol Spirits is the trade name of a petroleum distillate coming off between 87° and 148° C.

Processed castor oil is prepared by the blowing and oxidation of castor oil.

Superba Black Pigment is a trade name for carbon black.

PATCH TESTS

In order to locate the chemical causing the dermatitis it was decided to do a series of patch tests with the watch straps in different stages of manufacture. Thirty-seven of the 50 employees of the watch company who had worn the straps volunteered for patch testing. Among these were 5 who had contracted dermatitis from wearing the straps.

The patches were as follows:

Patch 1.—A piece of the leather used in the straps, one-half inch square, as it came from the tannery. Reactions to this patch would indicate an irritant remaining in the leather from the tanning process. Absence of reaction to this patch would show that the tanning process was not the cause of the dermatitis.

Patch 2.—A piece similar to patch 1, soaked in the thinner solution for 2 hours and then allowed to dry for 5 days. A reaction to this and not to patch 1, would show that either some irritant which did not evaporate was contained in the thinner, or that the thinner brought to the surface of the leather and left deposited there some irritant from the tanning process contained in the substance of the leather. Absence of reaction to this patch would confirm that there was no irritant in patch 1 and none left on the leather by the thinner.

Patch 3.—A piece similar to patch 1, which had been dipped in the lacquer and then allowed to dry for 5 days. A reaction to this patch and no reaction to patch 2 would indicate that one of the ingredients in the lacquer which was not contained in the thinner was the irritant. Absence of reaction to this patch would eliminate the leather as it came from the tannery, the ingredients of the thinner, and the ingredients of the lacquer as the cause of the dermatitis.

Patch 4.—A piece similar to patch 1, dipped into the dye mixture said to have been used by the strap manufacturer. The leather was allowed to stay in the dye for 5 minutes and then to dry for 5 days. A reaction to this patch with no reaction to patches 1, 2, and 3 would

show that the irritant was one of the two dyes used. The wood alcohol in this solution would evaporate in the time that was allowed for the leather to dry. Absence of reaction to this patch would clear the dyes used as the causative factors in the dermatitis.

Patch 5.—This patch consisted of leather dyed as in patch 4, but also dipped in lacquer and allowed to dry for 5 days. Reaction to this patch would confirm the positive reaction to patch 4, and show that the layer of lacquer did not protect the skin from the dye, or would confirm a positive reaction (if such were obtained) from patch 3. A negative reaction to this patch would confirm a negative reaction (if such were obtained) to patch 4, or would show that the film of lacquer protected the skin from the action of the irritant dye, if a positive reaction was obtained from patch 4. If a negative reaction was obtained from patch 3 and a positive reaction from patch 5, it would mean that the dyes were the irritants.

The patches were to be allowed to stay on for 72 hours unless the reaction was so severe that they had to be removed before that time had elapsed.

The reactions to patches 4 and 5 were so severe on one woman that they had to be removed before 18 hours had elapsed, and she became so ill that she had to stay away from work. Before the end of 24 hours, patches 4 and 5 had to be removed from two more volunteers. All three cases had previously contracted dermatitis from the experiment of wearing the wrist-watch straps. Because the factory was closed at the time when it was intended that the patches were to be removed, the remainder of the patches were not removed until 5 days after they had been applied. Nine out of the 37 wearing them showed reactions of varying degrees to patches 4 and 5. These nine showed no reactions to the other patches. The reactions varied from (*a*) an erythema and edema to (*b*) erythema, edema, and vesicles, and (*c*) a vesicular dermatitis spreading from the site of the patch up the forearm as far as the elbow. One case showed an erythema under patches 1 and 2, but no reaction under the other patches. This man was sensitive to the undyed leather. There were no other positive reactions.

The results of these tests showed that the cause of the dermatitis was in the dyes used. The one case reacting to the undyed leather showed only a mild reaction, not comparable in severity to the reactions caused by the dyes. He refused to submit to further patchings to ascertain the chemical in the leather to which he was sensitive.

The next step was to find which of the two dyes was the irritant. Only six of the nine who gave reactions to patches 4 and 5 consented to submit to further patching. The three who refused were the ones who had the severest reactions.

The two dye solutions contained in common, methyl alcohol, butyl alcohol, and Amyl Black; and dye no. 2 had, in addition, Oil Yellow T. It was not necessary to patch with butyl alcohol, because if it had been the irritant, reactions would have been obtained from patch no. 3 (the lacquer) which contained it. (All the solvents used in the dyes, the thinner, and the lacquer may irritate the skin if they are applied in the form of a wet patch, because they are fat solvents; but as they evaporate quickly, they are not present in the dried watch straps.)

Patch A was a piece of the undyed tanned leather one-half inch square, soaked in wood alcohol and then allowed to dry thoroughly. A positive reaction to this would show that the wood alcohol dissolved some irritant out of the leather and left it deposited on the surface.

Patch B was a similar piece of leather dipped in a solution of Amyl Black and the thinner, and allowed to dry thoroughly. A positive reaction to this patch would show that the patient was hypersensitive to Amyl Black.

Patch C was a similar piece of leather dipped in a solution of Oil Yellow T and the thinner, and allowed to dry thoroughly. A positive patch test to this would show that the patient was hypersensitive to Oil Yellow T.

Patch D was a similar piece of leather dipped in the denatured alcohol which was used by the strap manufacturer in mixing the dyes and allowed to dry thoroughly. This patch was applied to determine whether the denaturant in the alcohol would be left on the leather after the alcohol had evaporated and act as an irritant.

The volunteers would not consent to leave the patches on for longer than 24 hours. At the end of that time three of them showed marked reactions under patch C. There were no reactions to any of the other patches. It was thought probable that if the patches had been allowed to remain for a longer period there would have been more reactions to patch C. The day after the patches were removed, a severe delayed reaction to patch C developed on one of those who had been negative. The reactions on the four who had been positive increased in severity and on one of them it spread down to the wrist and up above the elbow. The arm was inflamed, swollen, and painful, so that the subject had to stop work. A week after the patches were removed the sites of all the reactions were still swollen and eczematous.

The two who gave no reactions to these patches were patched a week later with patches B and C, which were allowed to remain on for 5 days. One of the cases showed a marked spreading erythematous, edematous vesicular reaction under patch C. No reaction occurred under patch B. The other subject showed no reactions. He had shown only a mild reaction to patches 4 and 5, and had not contracted dermatitis from wearing the straps.

In order to confirm the fact that the Oil Yellow T was the cause of the dermatitis, nine employees of the strap manufacturing company volunteered to be patch-tested. These workers had handled and dyed the straps but had not contracted dermatitis from them.

Three patches were placed on each of them. Patch 1 consisted simply of the tanned leather; patch 2 was similar to patch B; and patch 3 was similar to patch C. They were allowed to stay on for 5 days and there was one positive reaction to patch C (the leather dyed with Oil Yellow T). There were no other reactions.

It seems conclusive that the Oil Yellow T (used to change the blue-black color of the straps imparted by the Amyl Black to a pure black) was the chemical on the straps which caused the dermatitis among the wearers of the wrist-watch straps.

Amido azobenzene has been known to irritate the skins of workers in dye manufacturing plants. Amido azotoluene is a closely related compound, but no cases of dermatitis have been reported from its use. Amido azotoluene has been recommended for use in promoting the growth of skin on wounds.

Azodermin, a monoacetyl derivative, has been recommended as a nonpoisonous substitute which produces less staining than amido azotoluene.

Pellidol, the diacetyl derivative, is used for the same purpose in a 2-percent vaseline ointment and is said not to stain at all (Kalle & Co. Aktiengesellschaft, Biebrick A. Rhein).

Azodol K. is a mixture of equal parts of pellidol and iodol (tetra iodo pyriole) and is used for the same purpose (Aktiengesellschaft für Anilin Fabrikation, Berlin).

SUMMARY

An outbreak of dermatitis caused by wrist-watch straps was investigated.

The leather was traced to its source and the chemicals used in manufacturing and dyeing the straps were ascertained. Forty-six volunteers were patch-tested with the leather and the chemicals used. Among these were five who had actually contracted dermatitis from wearing the wrist-watch straps.

Ten of them showed positive reactions to amido azotoluene hydrochloride, a dye used on the straps.

Among these 10 were the 5 who had contracted dermatitis from wearing the straps.

One volunteer who did not react to the dyes reacted to the undyed leather used in the straps. There were no reactions to any of the other chemicals.

CONCLUSIONS

Hypersensitivity to amido azotoluene hydrochloride was the cause of the dermatitis among the wearers of the wrist-watch straps. Because about 80 percent of those tested did not react to chrome-tanned leather dyed with amido azotoluene hydrochloride and left on the skin as a patch for 5 days, it follows that such a patch may be left on the normal skin for 5 days without causing a reaction.

Because none of those tested reacted to chrome-tanned leather dyed with an oil-soluble nigrosine left on the skin as a patch for 5 days, it follows that such a patch may be left on the normal skin for 5 days without causing a reaction.

Because only one of those tested reacted to chrome-tanned calf leather left on the skin for 5 days, it follows that such a patch may be left on the normal skin for 5 days without causing a reaction.

The solvents used in dyeing and lacquering the leather had entirely evaporated before the wrist-watch straps were worn and were not the cause of the dermatitis.

RECOMMENDATIONS

Because a considerable percentage of people were found to be hypersensitive to amido azotoluene hydrochloride, it should not be used as a dye on leather to be worn next to the skin, such as leather for wrist-watch straps, hat bands, gloves, or shoes.

Before a manufacturer places on the market leather goods to be worn next to the skin, he should test them on several hundred people, either by actual wear or by patch tests, and if they are found to irritate the skin of even one of the subjects tested, the goods should not be sold to the public.

EDITORIAL NOTE.—Since this report was submitted for publication, Medical Director J. W. Schereschewsky has called attention to the fact that Yoshida of Japan has shown that the dye ortho amido azotoluene, when given in food to rats, as well as when injected subcutaneously, causes a high proportion of primary carcinomas of the liver, and this finding has been confirmed at the U. S. Public Health Service Cancer Investigations Laboratory at the Harvard Medical School. In the experiments conducted at that laboratory, in which the dye was implanted subcutaneously and not given in the food, all surviving animals developed carcinoma of the liver.

In addition, therefore, to being a local irritant causing dermatitis, this dye is a powerful carcinogenic agent, and its use should be prohibited for dyeing anything which may come in contact with the skin.

ORNITHODOROS PARKERI, A NEW SPECIES ON RODENTS[1]

By R. A. Cooley, *Entomologist, United States Public Health Service*

A new species of *Ornithodoros*, described herein, was collected from rodents in June 1934, during field studies being made in the States of Wyoming and Washington under the direction of Bacteriologist Gordon E. Davis and Entomologist Cornelius B. Philip, respectively. The Wyoming material was taken on Poison Spider Creek, 40 miles southwest of Casper, from three ground squirrels (*Citellus* sp., accession nos. 10711, 10716, and 10722), one jack rabbit (*Lepus* sp. number 10718), and one prairie dog (*Cynomys* sp., number 10719) during the period June 7–23. Four of these hosts were infested with one nymph each, the fifth with three nymphs. The Washington material was collected near Yakima on June 22, and consisted of a single nymph from a cottontail rabbit (no. 10143).

Some of the above-mentioned nymphs were subsequently raised to the adult stage under laboratory conditions. The duration of the various feedings ranged from 13 to 50 minutes, the average of 17 feedings being 24.17 minutes. This observation, together with the known habits of other species of this genus, suggested that these ticks might be found in greater abundance in the burrows or nests of the hosts.

With this possibility in mind, further field observations were made in Wyoming in July 1935 by Laboratory Assistant Earl W. Malone. Twenty-five ground squirrel burrows and one nest were examined during the period July 27 to 29, within the same area on Poison Spider Creek which was studied in 1934. Three contained the tick in question; two yielded 44 nymphal and adult ticks each; the third 16 ticks, all stages being represented (nos. 11254, 11260, 11259, respectively). Most of these ticks were found in sand and other litter in a chamber a few feet from the entrance to the burrow. A few were collected from accumulations of sand along the course of the tunnel, while a single nymph was found in the only nest examined (no. 11260). This nest contained also two nymphs of *Ixodes hexagonus cookei*, several lepidopterous larvae, and numerous pseudoscorpions, mites, fleas, and flea larvae.

A single nymph of the same species was taken from a ground squirrel shot 30 miles north of Rock Springs, Wyo., on August 5 (no. 11284).

This *Ornithodoros* is clearly new to science and is related to *O. turicata*. It is being described as *O. parkeri*, in honor of Dr. R. R. Parker, Director of the Rocky Mountain Laboratory, and in recognition of his extended and able studies on *Ixodidae*.

[1] Contribution from the Rocky Mountain Laboratory of the United States Public Health Service, Hamilton, Mont.

Ornithodoros parkeri n. sp.

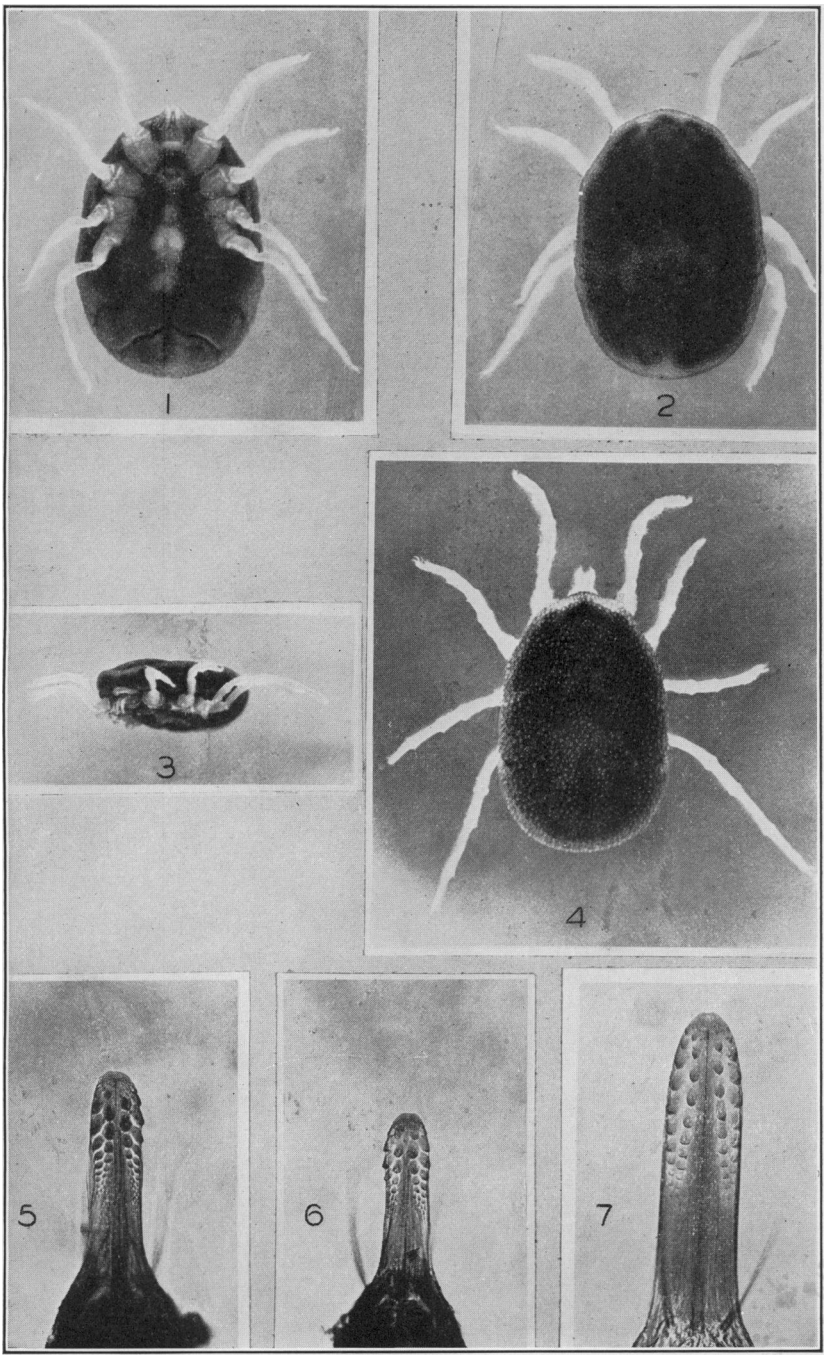
Adult.—Oval, slightly broader posteriorly and slightly pointed at the anterior end; hood visible from above. Length of female, 7.10 mm; width, 4.50 mm. Length of male, 5.75 mm; width, 4.00 mm. Recently emerged adults and nymphs are slate gray in color, and when older they become tinged with light brown. When fully engorged, the color of all the young stage ticks and the adults is influenced by the blood which they contain. When freshly fed, the red of the blood is shown, but in a few days the color becomes darker without definite blood-red in the color. Both dorsal and ventral surfaces are mammillated, the mammillae being larger at the sides and largest of all at the posterior end. Those on the midventral region are the smallest of all. In the mid dorsal region there are about 18 mammillae in a lineal distance of one millimeter, while in *O. turicata*, the species most resembling this one, there are only about 10 mammillae in one millimeter. In both of these species the individual mammillae are smooth on the rounded points or have a single pit on the point, and in a few there is a small clubbed hair arising from the pit. The bases of these mammillae are marked by radiating striae. The average distance between two mammillae is about equal to the diameter of one. Small disk like areas arranged on the dorsum in a bilateral pattern have the actual disks somewhat indefinite. Eyes absent.

Camerastome absent; basis capituli with irregular transverse rugae and a few short hairs at the sides. Hypostome spatulate with a distinct corona which is rounded or slightly flattened at the end, with about 5 or 6 denticles in each of four longitudinal rows and with several denticles less definite proximally. Length of the male hypostome (measured from the bases of the two long hairs at the base to the tip), 0.33 mm; female, 0.40; the length of the hypostome of the last nymphal stage is 0.30 mm (that of a male *O. turicata* is 0.63 mm). The vaginal opening situated just posterior to coxae I; large and with an elevated ring of the body wall encircling it in shrunken specimens. In the last nymphal stages the vaginal scar is definite but smaller and flat, sometimes making it difficult to distinguish them from the adult stage. Grooves on the ventral surface as in related species. Tarsi I and IV with parallel sides; humps on tarsus of leg

Explanation of figures

Figures 1, 2, 3, and 4 in the same degree of magnification. Figures 5, 6, and 7 in the same degree of magnification.

1. *Ornithodoros parkeri*, male, ventral view of holotype.
2. *Ornithodoros parkeri*, male, dorsal view of holotype.
3. *Ornithodoros parkeri*, male, lateral view of holotype.
4. *Ornithodoros turicata*, dorsal view.
5. *Ornithodoros parkeri*, female, hypostome of allotype.
6. *Ornithodoros parkeri*, male, hypostome of holotype.
7. *Ornithodoros turicata*, hypostome of male.



(SEE OPPOSITE PAGE FOR EXPLANATION OF FIGURES.)

I not very pronounced, four in number inclusive of the terminal hump; humps on metatarsus five in number; no humps on tarsus IV. Dorsal surface diagonal at the distal end.

Described from seven specimens from lot number 11254 as follows: One male and one female, the holotype and the allotype, respectively, and three males and two females, the paratypes. Male and female paratypes have been deposited in the National Museum, Washington, D. C. The remainder of the type material is in the collection of the Rocky Mountain Laboratory, Hamilton, Mont.

DEATHS DURING WEEK ENDED MARCH 21, 1936

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

	Week ended Mar. 21, 1936	Corresponding week, 1935
Data from 86 large cities of the United States:		
Total deaths	9,852	9,022
Deaths per 1,000 population, annual basis	13.8	12.6
Deaths under 1 year of age	590	623
Deaths under 1 year of age per 1,000 estimated live births	53	57
Deaths per 1,000 population, annual basis, first 12 weeks of year	13.7	12.8
Data from industrial insurance companies:		
Policies in force	68,197,513	67,600,038
Number of death claims	15,179	14,055
Death claims per 1,000 policies in force, annual rate	11.6	10.8
Death claims per 1,000 policies, first 12 weeks of year, annual rate	11.0	10.9

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 Mar. 28, 1936, and Mar. 30, 1935

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Mar. 28, 1936, and Mar. 30, 1935

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935
New England States:								
Maine	---	2	13	27	216	132	0	0
New Hampshire	---	---	2	---	43	---	1	0
Vermont	---	1	---	---	841	1	0	0
Massachusetts	11	11	---	---	1,016	489	8	1
Rhode Island [1]	---	---	---	---	120	123	2	1
Connecticut	4	7	9	28	79	1,448	3	0
Middle Atlantic States:								
New York	36	28	[2] 22	[2] 18	3,004	2,867	39	23
New Jersey	16	29	40	31	304	1,471	8	2
Pennsylvania [1]	38	36	0	---	1,337	5,414	10	5
East North Central States:								
Ohio	30	84	242	119	411	2,627	15	14
Indiana	19	14	55	28	10	475	8	6
Illinois	35	67	52	40	51	3,132	17	23
Michigan	12	9	22	6	63	5,103	7	4
Wisconsin	1	6	53	59	88	1,794	1	2
West North Central States:								
Minnesota	3	10	1	1	394	1,341	3	1
Iowa	6	13	5	8	1	1,302	2	1
Missouri	25	39	1,484	118	24	653	9	12
North Dakota	1	3	9	18	3	19	2	0
South Dakota	---	2	---	5	2	67	0	0
Nebraska	8	3	1	---	64	580	1	0
Kansas	17	13	30	23	13	1,785	2	8
South Atlantic States:								
Delaware	2	---	1	3	49	14	0	0
Maryland [3]	5	3	57	66	204	89	20	6
District of Columbia	14	14	2	4	46	52	10	13
Virginia	16	12	1,213	---	146	1,127	10	7
West Virginia	13	20	184	42	52	622	9	3
North Carolina [1]	18	10	169	36	83	271	9	1
South Carolina	5	8	533	235	23	32	16	0
Georgia [1]	16	4	585	124	---	---	10	0
Florida [1]	3	4	84	14	8	57	8	0
East South Central States:								
Kentucky	---	12	167	102	105	969	47	6
Tennessee	4	11	549	87	41	142	17	4
Alabama	5	11	1,750	126	18	354	3	3
Mississippi [1] [3]	4	8	---	---	---	---	5	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Mar. 28, 1936, and Mar. 30, 1935—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935
West South Central States:								
Arkansas	12	1	953	28	15	241	5	3
Louisiana	9	28	279	34	90	99	3	1
Oklahoma [4]	2	5	201	96	10	128	5	8
Texas [1]	38	68	436	345	440	165	24	3
Mountain States:								
Montana	5	2	22	----	9	457	1	0
Idaho	----	----	11	3	10	69	1	0
Wyoming	2	----	58	----	21	58	2	0
Colorado	10	9	----	----	24	676	0	0
New Mexico	----	4	43	10	87	17	4	1
Arizona	2	1	202	21	121	27	0	1
Utah [3]	----	----	----	----	13	8	0	0
Pacific States:								
Washington	1	3	9	3	293	190	0	0
Oregon [5]	2	----	159	69	416	186	1	0
California	23	38	1,768	77	2,597	1,046	6	10
Total	473	653	11,475	2,054	13,005	37,919	354	173
First 13 weeks of year	7,982	9,445	99,074	91,311	104,857	316,204	2,994	1,652

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935
New England States:								
Maine	0	1	25	9	0	0	2	2
New Hampshire	0	0	3	12	0	0	0	0
Vermont	0	0	49	6	0	0	0	0
Massachusetts	0	1	299	272	0	0	1	1
Rhode Island [1]	0	0	29	14	0	0	0	1
Connecticut	0	1	102	116	0	0	1	3
Middle Atlantic States:								
New York	0	0	1,116	1,309	0	0	10	7
New Jersey	0	2	541	221	0	0	1	4
Pennsylvania [1]	1	2	571	689	0	0	12	3
East North Central States:								
Ohio	1	3	440	1,270	0	0	71	6
Indiana	0	1	298	161	10	1	0	3
Illinois	0	1	931	1,360	14	0	11	5
Michigan	0	1	397	448	1	0	5	1
Wisconsin	0	0	574	483	6	51	0	4
West North Central States:								
Minnesota	0	1	463	263	13	13	2	0
Iowa	0	0	209	94	17	6	0	4
Missouri	0	0	193	72	16	4	0	2
North Dakota	0	0	75	60	7	2	0	0
South Dakota	0	0	38	23	21	3	0	0
Nebraska	1	0	241	39	35	23	0	0
Kansas	0	0	314	73	30	0	1	0
South Atlantic States:								
Delaware	0	0	3	16	0	0	0	1
Maryland [3]	0	0	99	125	0	0	4	4
District of Columbia	0	0	21	118	0	0	0	0
Virginia	0	0	60	54	0	0	4	2
West Virginia	0	1	44	105	0	0	4	2
North Carolina [1]	3	0	20	31	1	0	5	3
South Carolina	0	0	6	5	0	0	1	0
Georgia [1]	0	0	14	11	1	4	2	6
Florida [1]	0	0	10	2	0	0	1	2
East South Central States:								
Kentucky	0	1	54	47	0	1	0	3
Tennessee	0	0	52	16	1	0	1	2
Alabama	0	0	10	7	0	2	2	6
Mississippi [1] [3]	0	0	15	14	0	1	0	10

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Mar. 28, 1936, and Mar. 30, 1935—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935	Week ended Mar. 28, 1936	Week ended Mar. 30, 1935
West South Central States:								
Arkansas	0	0	19	5	1	2	1	0
Louisiana	0	1	22	5	1	0	2	18
Oklahoma [4]	0	0	24	23	1	0	2	9
Texas [1]	3	2	75	63	2	13	6	6
Mountain States:								
Montana	0	0	129	9	5	0	2	1
Idaho	0	0	118	2	7	0	0	0
Wyoming	1	0	88	16	2	2	0	0
Colorado	0	0	103	260	1	7	0	0
New Mexico	0	0	65	17	1	5	0	3
Arizona	0	0	12	79	0	0	3	1
Utah [3]	0	0	87	108	4	0	0	0
Pacific States:								
Washington	1	0	100	45	19	15	2	2
Oregon [5]	0	0	43	38	1	0	6	0
California	3	7	343	280	1	4	3	4
Total	14	26	8,544	8,495	219	159	168	131
First 13 weeks of year	262	335	101,254	92,435	3,004	2,488	1,415	1,666

[1] Typhus fever, week ended Mar. 28, 1936, 14 cases, as follows: Rhode Island, 1; Pennsylvania, 1; North Carolina, 4; Georgia, 3; Florida, 1; Mississippi, 1; Texas, 3.
[2] New York City only.
[3] Week ended earlier than Saturday.
[4] Exclusive of Oklahoma City and Tulsa.
[5] Rocky Mountain spotted fever, week ended Mar. 28, 1936, Oregon, 1 case.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
January 1936										
Colorado	9	36	2	-------	56	-------	0	920	40	3
February 1936										
California	41	171	11,904	2	7,610	8	16	1,663	5	23
Colorado	9	32	6	-------	54	-------	1	611	62	3
Kansas	7	60	190	-------	51	-------	2	1,068	95	1
Louisiana	11	69	185	41	258	10	2	76	6	10
North Dakota	2	12	18	-------	5	-------	0	401	32	1
Oklahoma [1]	56	40	1,436	15	32	11	2	130	5	10
Tennessee	37	59	1,129	27	311	18	0	175	0	12
Virginia	104	73	9,473	5	385	7	1	218	0	19
Washington	7	7	104	-------	903	-------	1	387	65	6
Wisconsin	10	8	256	-------	337	-------	0	2,219	61	5

January 1936

	Cases
Colorado:	
Chicken pox	655
Impetigo contagiosa	20
Jaundice	2
Mumps	673
Ophthalmia neonatorum	1
Whooping cough	60

February 1936

	Cases
Chicken pox:	
California	2,603
Colorado	513
Kansas	1,069
Louisiana	93
North Dakota	12
Oklahoma [1]	101
Tennessee	273
Virginia	336
Washington	520
Wisconsin	2,017
Dysentery:	
California (amoebic)	6
California (bacillary)	5
Louisiana (amoebic)	5
Oklahoma [1]	4
Virginia (diarrhea included)	193
Epidemic encephalitis:	
California	2
Kansas	2
Oklahoma [1]	1
Washington	5
Wisconsin	2
Food poisoning:	
California	20
German measles:	
California	974
Kansas	15
Tennessee	15
Washington	243
Wisconsin	82
Granuloma, coccidioidal:	
California	2

February 1936—Continued

	Cases
Hookworm disease:	
Tennessee	1
Impetigo contagiosa:	
Colorado	8
Oklahoma [1]	5
Tennessee	6
Jaundice, epidemic:	
California	1
Colorado	2
Leprosy:	
Louisiana	2
Mumps:	
California	1,968
Colorado	786
Kansas	458
Louisiana	69
North Dakota	600
Oklahoma [1]	61
Tennessee	228
Virginia	521
Washington	339
Wisconsin	4,557
Ophthalmia neonatorum:	
California	1
Oklahoma [1]	2
Tennessee	1
Puerperal septicemia:	
Tennessee	1
Rabies in animals:	
California	86
Louisiana	14
Washington	2
Scabies:	
Kansas	1
Oklahoma [1]	7
Tennessee	16
Washington	2
Septic sore throat:	
California	15
Colorado	3
Kansas	9
Louisiana	3
Oklahoma [1]	49

February 1936—Continued

	Cases
Septic sore throat—Con.	
Tennessee	10
Virginia	6
Washington	4
Wisconsin	2
Tetanus:	
California	6
Tennessee	1
Trachoma:	
California	35
Tennessee	3
Washington	58
Wisconsin	3
Tularaemia:	
California	1
Louisiana	7
Tennessee	3
Wisconsin	1
Undulant fever:	
California	16
Colorado	1
Kansas	2
Louisiana	3
Oklahoma [1]	1
Tennessee	2
Virginia	1
Washington	1
Wisconsin	4
Vincent's infection:	
Colorado	3
Kansas	19
North Dakota	2
Tennessee	2
Whooping cough:	
California	711
Colorado	72
Kansas	156
Louisiana	131
North Dakota	22
Oklahoma [1]	61
Tennessee	55
Virginia	108
Washington	72
Wisconsin	520

[1] Exclusive of Oklahoma City and Tulsa.

WEEKLY REPORTS FROM CITIES

City reports for week ended Mar. 21, 1936

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	3	1	0	0	1	0	1	22
New Hampshire:											
Concord	0	------	0	0	1	0	0	0	0	0	7
Nashua	0	------	--------	2	-------	2	0	-------	0	0	--------
Vermont:											
Barre	0	------	0	0	0	0	0	0	0	0	1
Burlington	0	------	0	22	0	0	0	0	0	3	9
Rutland	0	------	0	78	1	2	0	0	0	0	7
Massachusetts:											
Boston	0	------	0	263	38	99	0	5	0	29	248
Fall River	0	------	2	2	4	15	0	2	0	0	28
Springfield	0	------	0	1	3	5	0	1	0	2	48
Worcester	0	------	0	6	9	14	0	0	0	10	64
Rhode Island:											
Pawtucket	0	------	0	0	0	1	0	0	0	0	15
Providence	0	------	1	17	7	13	0	3	0	4	70
Connecticut:											
Bridgeport	1	2	1	3	4	2	0	1	0	4	33
Hartford	1	------	0	1	8	4	0	1	0	0	31
New Haven	0	3	1	0	6	4	0	2	0	35	56
New York:											
Buffalo	0	------	0	34	16	89	0	10	0	12	138
New York	31	40	18	1,736	201	541	0	72	3	99	1,738
Rochester	0	89	2	0	13	3	0	0	0	3	87
Syracuse	0	------	0	41	8	8	0	1	0	6	55

City reports for week ended Mar. 21, 1936—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								
New Jersey:											
Camden	0	2	2	0	6	6	0	2	0	0	40
Newark	0	18	3	5	19	266	0	6	0	13	106
Trenton	0	------	0	0	4	6	0	2	0	13	40
Pennsylvania:											
Philadelphia	7	23	9	471	70	94	0	27	0	0	623
Pittsburgh	2	9	5	29	27	121	0	8	0	6	186
Reading	0	------	0	6	2	8	0	0	0	3	27
Scranton	0	------	------	4	------	1	0	------	0	0	------
Ohio:											
Cincinnati	1	------	4	9	22	17	0	9	0	1	169
Cleveland	4	97	3	54	33	70	0	17	0	73	243
Columbus	4	2	2	2	9	10	0	3	0	2	87
Toledo	0	------	0	47	7	8	0	3	0	30	75
Indiana:											
Anderson	0	------	0	0	2	4	0	2	0	12	12
Fort Wayne	0	------	2	0	7	3	0	1	0	0	33
Indianapolis	1	------	0	3	15	55	0	5	0	14	123
Muncie	0	------	1	0	2	0	0	0	0	0	13
South Bend	1	------	0	0	2	3	0	0	0	9	17
Terre Haute	0	------	0	0	0	5	0	0	0	0	17
Illinois:											
Alton	1	------	1	2	0	5	0	0	0	0	10
Chicago	6	15	7	20	63	309	0	49	0	234	779
Elgin	0	------	0	0	2	2	0	0	0	1	11
Moline	0	------	0	0	0	13	0	0	0	2	11
Springfield	0	------	0	0	2	23	0	0	0	8	28
Michigan:											
Detroit	11	22	3	35	59	135	1	19	0	198	328
Flint	1	------	0	0	7	15	0	3	0	6	30
Grand Rapids	0	------	0	10	3	7	0	0	0	6	42
Wisconsin:											
Kenosha	0	------	0	0	0	7	0	0	0	3	2
Madison	1	------	0	0	1	11	0	0	0	10	14
Milwaukee	0	1	1	4	9	108	0	1	0	75	116
Racine	0	------	0	3	0	29	0	0	0	1	19
Superior	0	------	0	0	1	14	0	0	0	1	6
Minnesota:											
Duluth	0	------	0	1	1	4	0	0	0	2	29
Minneapolis	1	------	1	167	14	143	0	0	0	17	135
St. Paul	0	------	0	156	7	43	0	2	0	8	66
Iowa:											
Cedar Rapids	0	------	------	0	------	6	0	------	0	3	------
Davenport	1	------	------	0	------	15	0	------	0	0	------
Des Moines	2	------	------	0	------	13	0	------	0	0	34
Sioux City	0.	------	------	0	------	9	12	------	0	1	------
Waterloo	1	------	------	0	------	6	0	------	0	0	------
Missouri:											
Kansas City	4	------	14	1	41	46	0	8	0	5	161
St. Joseph	------	------	------	------	------	------	------	------	------	------	------
St. Louis	14	11	3	3	31	78	0	11	1	9	250
North Dakota:											
Fargo	0	------	0	0	1	2	0	0	0	1	12
Grand Forks	0	------	------	0	------	0	0	------	0	0	------
Minot	0	------	------	0	------	4	0	------	0	0	5
South Dakota:											
Aberdeen	0	------	------	0	------	0	0	------	0	0	------
Sioux Falls	0	------	0	0	0	11	0	0	0	0	7
Nebraska:											
Omaha	6	------	2	8	14	143	7	2	0	0	74
Kansas:											
Lawrence	0	27	0	0	0	3	0	0	0	0	0
Topeka	------	------	------	------	------	------	------	------	------	------	------
Wichita	0	------	0	2	5	29	0	0	0	10	40
Delaware:											
Wilmington	0	------	0	1	2	2	0	0	0	2	32
Maryland:											
Baltimore	2	15	3	52	33	41	0	15	1	40	269
Cumberland	0	------	0	0	0	2	0	0	0	0	10
Frederick	0	------	0	0	1	0	0	0	0	0	4
District of Columbia:											
Washington	13	4	1	37	31	19	0	14	1	9	197
Virginia:											
Lynchburg	0	------	3	3	2	1	0	0	0	7	16
Norfolk	0	3	1	0	7	2	0	0	0	3	34
Richmond	1	------	7	0	7	27	0	5	0	0	82
Roanoke	2	------	0	0	5	1	0	1	0	0	27

City reports for week ended Mar. 21, 1936—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								
West Virginia:											
Charleston	0	9	5	1	8	1	0	0	1	0	39
Huntington	0	----	----	0	----	0	0	----	0	0	----
Wheeling	0	----	0	10	1	2	0	1	0	0	24
North Carolina:											
Gastonia	0	----	0	0	2	1	0	0	0	0	7
Raleigh	----	----	----	----	----	----	----	----	----	----	----
Wilmington	0	----	0	0	1	0	0	0	0	0	15
Winston-Salem	1	----	0	151	2	1	0	1	0	0	11
South Carolina:											
Charleston	0	50	1	0	2	0	0	1	0	2	22
Columbia	----	----	----	----	----	----	----	----	----	----	----
Florence	0	----	0	0	2	0	0	1	0	0	16
Greenville	0	----	0	13	0	0	0	0	0	0	3
Georgia:											
Atlanta	3	81	3	0	17	13	0	7	0	0	100
Brunswick	0	2	2	0	3	0	0	0	0	0	10
Savannah	1	64	0	0	4	3	0	0	0	1	41
Florida:											
Miami	0	3	2	1	2	1	0	2	0	0	27
Tampa	0	4	2	0	3	0	0	3	0	0	41
Kentucky:											
Ashland	0	----	----	0	1	0	0	----	0	7	1
Covington	0	----	0	2	0	0	0	2	0	1	19
Lexington	0	5	0	1	5	0	0	1	0	0	24
Louisville	2	25	0	11	15	21	0	2	0	4	84
Tennessee:											
Knoxville	0	1	1	22	3	0	0	0	0	0	24
Memphis	0	----	7	1	23	11	0	4	0	3	114
Nashville	2	2	1	3	9	7	0	2	0	0	57
Alabama:											
Birmingham	1	222	8	0	21	2	0	7	0	1	92
Mobile	0	25	7	0	4	0	0	3	0	0	43
Montgomery	0	5	----	0	----	2	0	----	1	0	----
Arkansas:											
Fort Smith	1	----	----	0	----	1	0	----	0	0	----
Little Rock	0	300	0	0	8	3	0	2	0	0	11
Louisiana:											
Lake Charles	0	----	0	0	2	0	0	0	0	0	3
New Orleans	14	44	10	49	23	10	0	15	1	0	198
Shreveport	2	----	0	21	14	5	0	3	0	0	56
Oklahoma:											
Oklahoma City	1	20	0	0	8	10	0	0	0	0	54
Texas:											
Dallas	1	6	6	105	11	9	0	5	0	4	70
Fort Worth	2	----	1	0	9	4	0	0	1	0	49
Galveston	2	----	0	17	1	0	0	1	0	0	19
Houston	6	----	6	8	18	2	0	5	0	0	111
San Antonio	4	----	13	9	11	0	0	9	0	0	76
Montana:											
Billings	0	----	0	0	3	8	0	0	0	2	13
Great Falls	0	----	0	0	1	9	0	0	0	1	9
Helena	0	----	0	0	0	2	0	0	0	0	2
Missoula	0	----	0	0	0	8	0	0	0	0	4
Idaho:											
Boise	0	----	0	23	0	5	0	0	0	0	7
Colorado:											
Colorado Springs	0	----	0	2	0	3	0	1	0	2	16
Denver	0	----	0	5	13	23	0	1	0	11	81
Pueblo	0	----	0	0	1	19	0	0	0	7	10
New Mexico:											
Albuquerque	0	----	2	0	1	17	0	3	0	0	18
Utah:											
Salt Lake City	2	----	1	10	2	57	1	3	0	2	26
Nevada:											
Reno	----	----	----	----	----	----	----	----	----	----	----
Washington:											
Seattle	0	----	3	100	10	14	0	5	0	1	98
Spokane	0	4	4	11	8	24	0	0	0	5	50
Tacoma	0	----	0	24	4	3	1	1	0	0	34
Oregon:											
Portland	0	3	3	91	10	4	2	1	0	3	94
Salem	0	7	----	6	----	1	0	----	0	0	----
California:											
Los Angeles	15	50	2	613	17	71	0	25	1	20	341
Sacramento	0	----	1	9	2	2	0	1	0	13	33
San Francisco	0	3	1	491	10	79	0	11	0	48	165

City reports for week ended Mar. 21, 1936—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	13	4	0
Rhode Island:			
Providence	1	0	0
New York:			
New York	26	6	0
Pennsylvania:			
Philadelphia	1	0	0
Reading	1	0	0
Ohio:			
Cincinnati	4	2	0
Cleveland	3	2	0
Illinois:			
Chicago	9	1	0
Michigan:			
Detroit	6	1	0
Minnesota:			
Minneapolis	2	3	0
Iowa:			
Des Moines	1	0	1
Missouri:			
Kansas City	2	0	0
St. Louis	2	0	0
Nebraska:			
Omaha	1	1	0
Delaware:			
Wilmington	2	0	0
Maryland:			
Baltimore	17	6	1
District of Columbia:			
Washington	4	0	0
Virginia:			
Lynchburg	1	0	0
South Carolina:			
Charleston	6	1	0
Georgia:			
Atlanta	2	1	0
Florida:			
Miami	1	0	0
Tampa	5	1	0
Kentucky:			
Ashland	1	0	0
Louisville	2	1	0
Tennessee:			
Knoxville	1	0	0
Memphis	3	0	0
Alabama:			
Birmingham	2	1	0
Mobile	1	0	0
Arkansas:			
Little Rock	0	1	0
Louisiana:			
New Orleans	2	1	0
Shreveport	0	2	0
Oklahoma:			
Oklahoma City	2	2	0
Texas:			
Galveston	0	1	0
Houston	10	1	0
Colorado:			
Denver	0	2	0
Washington:			
Seattle	0	1	0
Oregon:			
Portland	1	0	0
California:			
Los Angeles	1	2	1
San Francisco	1	1	0

Epidemic encephalitis.—Cases: Bridgeport, 1; Pittsbugh, 1; Columbus, 1; Chicago, 1; Wichita, 1; New Orleans, 1.

Pellagra.—Cases: Atlanta, 2; Memphis, 1; Dallas, 1.

Typhus fever.—Wilmington, N. C., 1; Montgomery, 1; Dallas, 1.

FOREIGN AND INSULAR

GREAT BRITAIN

England and Wales—Infectious diseases—13 weeks ended December 28, 1935.—During the 13 weeks ended December 28, 1935, cases of infectious diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	16,218	Puerperal pryexia	1,408
Ophthalmia neonatorum	932	Scarlet fever	35,451
Pneumonia	10,429	Typhoid fever	391
Puerperal fever	490		

England and Wales—Vital statistics—Fourth quarter, ended December 31, 1935.—During the quarter ended December 31, 1935, 141,060 live births and 122,743 deaths were registered in England and Wales. The following statistics are taken from the Quarterly Return of Births, Deaths, and Marriages, issued by the Registrar General of England and Wales. The figures are provisional.

Birth and death rates in England and Wales, quarter ended Dec. 31, 1935

Annual rates per 1,000 population:	
Live births	13.80
Stillbirths	.59
Deaths, all causes	12.00
Deaths under 1 year of age	[1] .60
Deaths from:	
Diarrhea and enteritis (under 2 years of age)	[1] 6.10

Annual rates per 1,000 population—Continued.	
Deaths from—Continued.	
Diphtheria	0.08
Influenza	.12
Measles	.04
Scarlet fever	.01
Violence	.53
Whooping cough	.03

[1] Per 1,000 live births.

MEXICO

Torreon—Cerebrospinal meningitis.—According to information dated March 7, 1936, an outbreak of cerebrospinal meningitis has occurred in Torreon, Mexico, where, during the month of February 1936, 10 cases with 7 deaths were reported. Later information states that 4 deaths from cerebrospinal meningitis occurred at Torreon on March 24, 1936. Churches and theaters had been closed.

YUGOSLAVIA

Communicable diseases—February 1936.—During the month of February 1936, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	23	2	Paratyphoid fever	20	
Cerebrospinal meningitis	24	4	Scarlet fever	459	9
Diphtheria and croup	712	72	Sepsis	8	4
Dysentery	9	2	Tetanus	25	11
Erysipelas	252	14	Typhoid fever	393	37
Lethargic encephalitis	2		Typhus fever	80	4
Measles	1,406	38			

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

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for March 27, 1936, pages 349-361. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued April 24, 1936, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Plague

Brazil—Ceara State—Crato.—A report dated March 25, 1936, states that to date 54 cases of plague with 17 deaths had been reported at Crato, Ceara State, Brazil.

Ceylon—Anuradhapura.—During the week ended March 21, 1936, the first case of plague appeared at Anuradhapura, Ceylon.

India—Karachi.—During the week ended March 14, 1936, five cases of plague with two deaths were reported at Karachi, India.

Smallpox

Argentina.—A report dated March 25, 1936, states that smallpox had been reported in Argentina as follows: One case at Lucas Norte, Entre Rios Province. Smallpox has also appeared at Santa Catalina and Yavi, Jujuy Province, Argentina.

Yellow Fever

Brazil.—Yellow fever has been reported in Brazil as follows: Parana State—Curityba, March 11, 1936, 1 case, 1 death; Jacarezinho, March 3–11, 4 cases, 4 deaths; Jaguariahyva, March 6, 1 case, 1 death; Sao Paulo State—Monte Aprazivel, December 18–30, 1935, 4 cases, 4 deaths; Villa Poloni, December 22–31, 2 cases, 2 deaths; Nipoan, December 23, 1 case, 1 death; Candido Motta, February 19, 1936, 1 case, 1 death; February 20, Sussuhy, 1 case, 1 death; February 21–29, Avare, 3 cases, 3 deaths; Bairro da Cabaceira, 1 case, 1 death; Palestina, 1 case, 1 death; February 24, 1936, Guararapes, 1 case, 1 death; Salto Grande, 1 case, 1 death; February 25, Campos Novos, 1 case, 1 death; March 8, 1936, Araraquara, 1 case, 1 death; March 9, Mococa, 1 case, 1 death; date not given, Agudos, 1 case, 1 death; and Pennapolis, 1 case, 1 death.

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