74TH CONGRESS : : : 1ST SESSION

JANUARY 3–AUGUST 26, 1935

HOUSE DOCUMENTS

VOL. 31

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1934

74th Congress, 1st Session - - - - - - - - House Document No. 3

ANNUAL REPORT

OF THE

SURGEON GENERAL *of the* PUBLIC HEALTH SERVICE *of the* UNITED STATES

FOR THE FISCAL YEAR

1934

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1934

TREASURY DEPARTMENT
Document No. 3064
Public Health Service

LETTER OF TRANSMITTAL

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, January 3, 1935.

SIR: In accordance with section 9 of the act of Congress approved July 1, 1902, I have the honor to transmit herewith the report of the Surgeon General of the Public Health Service for the fiscal year 1934.

Respectfully,

H. MORGENTHAU, JR.,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

CONTENTS

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE

TREASURY DEPARTMENT,
BUREAU OF THE PUBLIC HEALTH SERVICE,
Washington, D. C., October 15, 1934.

SIR: In accordance with the act approved July 1, 1902, I have the honor to submit for transmission to Congress the following report of the transactions of the Public Health Service of the United States for the fiscal year ended June 30, 1934. This is the sixty-third annual report of this service, covering the one hundred and thirty-sixth year of its existence.

One of the important duties imposed upon the Public Health Service by law is the prevention of the introduction and spread of infectious diseases from foreign countries into the United States. The connection between the spread of communicable diseases and commercial traffic has been known for many centuries. In order to effect adequate protection to our territory from the introduction of disease from without in accordance with the requirements of law, it is necessary to keep currently informed as to the prevalence of disease throughout the world insofar as possible. The greater use of aerial transportation and the increasing speed of ships make it especially necessary today that current information relating to the prevalence of disease in all parts of the world be available; for the time of passage from many countries to our shores now falls within the incubation period of many dangerous communicable diseases.

WORLD HEALTH CONDITIONS

No wide-spread epidemic of influenza was reported during the year 1933, and general health conditions throughout the world, as shown in the reports, were good in spite of unfavorable economic conditions.

Cholera did not gain a foothold during the calendar year 1933 outside of Asia and the adjacent islands. About 100,000 cases and 48,000 deaths were reported as compared with 75,000 cases and 39,000 deaths for the year 1932. About 2,000 cases of cholera, with more than 1,200 deaths, were reported in the Philippine Islands during the calendar year 1933.

Plague caused more than 77,000 recorded deaths in 1933 as compared with 50,000 in 1932. The disease appeared in all of the great land subdivisions of the world except Australia. Two cases of plague were reported in the Territory of Hawaii during the calendar year 1933, and 18 plague-infected rats were discovered during plague-prevention work. Plague did not appear in the Philippine Islands during the year.

Smallpox caused more than 75,000 recorded deaths in 1933. Many thousands of deaths from smallpox are not recorded, as the disease is prevalent in densely populated regions in which the occurrence of diseases and deaths is not reported.

The world prevalence of typhus fever increased in 1933 as compared with 1932, but the numbers of cases and deaths were small in comparison with the figures published for several years just after the World War. About 25,000 cases of typhus fever, with approximately 3,000 deaths, were recorded for the calendar year 1933. The actual figures are much larger, as many cases are never reported.

Yellow fever appeared during the calendar year 1933 in Brazil, South America, French West Africa and French Togo, the Gold Coast, Portuguese Guinea, and Nigeria, Africa.

HEALTH CONDITIONS IN THE UNITED STATES

Studies of the effect of the depressed economic conditions upon the health of the people were continued. There is as yet no apparent evidence either in the Service studies or in the death rates that the general health has been lowered, which seems also to have been the experience in other countries. However, data collected in 10 localities where the depression has been most severe point to higher sickness rates in those families most acutely affected by the economic conditions, that is, in the class rated as in comfortable circumstances in 1929 but subsequently reduced to the lower economic groups. The most important reasons for the continuation of good health conditions are probably the vast work of the relief agencies and the absence of any wide-spread epidemics.

The general death rate in the 27 States for which data are available at the time of this report for the calendar year 1933 was 10.5 per 1,000 population. This is the lowest death rate ever recorded for these States. The next lowest rate was 10.8 per 1,000 in 1932. Preliminary reports for the first 6 months of 1934 show a somewhat higher death rate than that for the first half of 1933 in many localities.

In the United States as a whole in 1933 there were 58.2 deaths of infants under 1 year of age per 1,000 live births. This is equivalent to 1 death in the first year of life for each 17 children born. Putting the figures in another light, if the infant death rate for 1915 (100 per 1,000 births) had prevailed in 1933, there would have been 86,000 more infant deaths that year than actually occurred.

The birth rate in the United States continued to decline. In 1933 there were 16.4 births per 1,000 population in the United States. In 1932 the birth rate was 17.4 per 1,000 population.

Neither cholera nor yellow fever appeared in the United States during the year, but cholera was present in the Philippine Islands.

Two cases of bubonic plague were reported in California during the fiscal year and one case in Oregon. Two hundred and forty-five plague-infected rodents were found in California. One case of human plague was reported in the Island of Hawaii in June 1934, and 10 plague-infected rats were found on the Island of Hawaii and 2 on Maui Island during the fiscal year.

In spite of economic conditions, tuberculosis deaths continued to decrease. The tuberculosis death rate in 47 States for 1933 was 59 per 100,000 population, 5 percent below the previous minimum rate for these States.

The typhoid fever death rate for the 47 States was also the lowest ever recorded—3.5 deaths per 100,000—8 percent below the lowest earlier rate.

The diphtheria death rate dropped to 3.9 per 100,000 population. This is also the lowest rate for this disease ever recorded by the Public Health Service.

During the summer and fall of 1933 an unusual outbreak of epidemic encephalitis occurred in St. Louis, Mo., and the surrounding territory. About 1,100 cases with more than 200 deaths were reported.

An outbreak of amoebic dysentery in Chicago in 1933, during the Century of Progress Exposition, attracted much attention. Visitors who stopped at Chicago hotels where the disease had appeared became ill after returning to their homes in all sections of the country, but no epidemic prevalence of the disease has been reported outside of Chicago. Amoebic dysentery outbreaks of this nature are unusual, although cases of the disease are reported in the United States every year. It has been estimated that approximately 690 cases originated from this source.

Nearly 400,000 cases of measles were reported in the United States during the calendar year 1933, with more than 2,000 deaths. During the last 6 months of the fiscal year 1934 there was a large increase in the incidence of measles which affected all sections of the country and nearly all of the States. During the half year 656,000 cases of measles were reported to the Public Health Service, and the reports of this disease are always incomplete. The increased incidence of measles became evident late in the calendar year 1933, and continued until the close of the fiscal year. The greatest number of cases was reported in April.

An outbreak of poliomyelitis (infantile paralysis) in California in May 1934, extended beyond the fiscal year. It began in Los Angeles County and later spread northward, involving Washington, Idaho, and Montana in August 1934. In May and June more than 1,500 cases of poliomyelitis were reported in California.

Less than 7,000 cases of smallpox were reported in the United States for the calendar year 1933. Smallpox was the principal scourge of mankind early in the last century. Last year it caused more than 75,000 deaths in countries which are sufficiently advanced to keep vital statistics, but less than 40 of these deaths occurred in the United States. Several of the European countries have advanced so far that they did not have any cases of smallpox during 1933.

PREVENTION OF THE INTRODUCTION OF DISEASES FROM ABROAD

During the fiscal year no instance of the importation into the United States or its dependencies of any quarantinable disease occurred. Several cases discovered on board vessels upon arrival at continental or insular ports were effectively dealt with at quarantine.

Cholera, however, was present in certain islands in the Philippines during a large part of the year. It was necessary at various times to declare interisland quarantine in order to prevent the spread of the disease from infected to noninfected islands, and to take special precautionary measures to prevent vessels destined to continental United States or foreign ports from becoming infected. During the occurrence of the disease, all steerage passengers embarking at Philippine ports were required, prior to sailing, to comply with the regulations covering steerage passengers leaving cholera-infected ports and, in addition, were given anticholera vaccine.

During the year, 11,576 vessels, 524,283 passengers, and 852,749 seamen were inspected by quarantine officers on arrival at domestic ports; 3,220 vessels, 135,125 passengers, and 225,259 seamen were inspected at insular ports; and 211 vessels, 51,574 passengers, and 8,198 seamen were inspected at foreign ports prior to departure for the United States. In addition, 3,668 airplanes, carrying 26,951 persons, arrived at 57 airports of entry in the United States from foreign ports, requiring quarantine inspection. Of this number, 2,456 airplanes, carrying 23,899 persons, of whom 4,364 were aliens, were medically examined by medical officers of the Public Health Service.

Of the passengers who embarked at European ports for United States ports, 18,417 who originated in infected areas were vaccinated and 7,226 were deloused under the surveillance of medical officers of the Public Health Service at ports of embarkation, and 17,818 pieces of baggage were disinfected to safeguard particularly against the introduction of smallpox and typhus fever into the United States.

A total of 1,289 vessels was fumigated at United States ports either because of the occurrence of disease on board or for the destruction of rats as a plague-preventive measure. Of the 6,070 dead rats retrieved following fumigation, 4,229 were examined for plague infection.

The regulations governing the importation of birds of the parrot family into ports of the United States were revised to provide for the laboratory examination of suspected shipments of birds upon arrival at ports of entry, and to prohibit the importation of birds under the age of 8 months, as young birds have been found to be especially likely to transmit parrot fever (psittacosis).

The International Sanitary Convention for Aerial Navigation was signed on behalf of the United States by the American Minister at The Hague on April 6, 1934. On April 12, 1934, the latest date on which the convention was open for original signatures, 23 countries, including the United States, had signed the convention, and its ratification by the signatory countries is now pending. The ratifications of 10 countries must be deposited with the Government of the Netherlands before the convention can become effective.

MEDICAL INSPECTION OF ALIENS

During the year under report, 680,152 alien passengers and 783,377 alien seamen were examined by medical officers at the various United States ports of entry. Of this number, 1,502 passengers and 507 seamen were certified to the immigration officials, in accordance with the act of February 5, 1917, as being afflicted with one or more mental or physical defects or diseases excluded under the immigration laws.

A total of 35,539 applicants for immigration visas was examined by medical officers of the Public Health Service attached to American consulates in foreign countries. Of this number, 22,420 were examined in American consulates in Europe, and 13,119 were examined in American consulates in the Western Hemisphere. Mental or physical defects were found in 5,049 of the applicants examined in Europe, and in 1,955 of those examined in the Western Hemisphere; 1,446 of those examined in Europe and 881 of those examined in the Western Hemisphere were refused visas for medical reasons. None of the aliens who had been given a preliminary medical examination in American consulates in foreign countries and to whom visas had been issued was

certified upon arrival at a United States port as being afflicted with a defect or disease requiring mandatory deportation.

The work of the medical officers of the Public Health Service on duty in the Philippine Islands was increased by the acceptance by the Philippine Legislature on May 1, 1934, of the Philippine Islands Independence Act, which provides for the application of the immigration laws of the United States to citizens of the Philippine Islands and for the administration of such laws by Foreign Service officers of the United States.

In order to facilitate the entry of Mexican citizens desirous of temporarily visiting the United States, officers of the Public Health Service on duty at quarantine stations on the Mexican border were authorized to pass without formal examination all persons holding identification cards issued to them by American consular officers in the interior of Mexico, provided they show no evidence of quarantinable disease at time of entry.

PREVENTION OF THE SPREAD OF CONTAGIOUS AND INFECTIOUS DISEASES IN INTERSTATE TRAFFIC

The State health agencies continued their cooperation with the Public Health Service in connection with the certification of sources of drinking and culinary water used on railroads, busses, vessels, and airplanes. Of the 2,241 supplies listed by the carriers, 94 percent were inspected and certified. This required the issuing of 2,157 certificates. During the year it was necessary to prohibit the use of 28 supplies, while 392 supplies were provisionally certified.

Of the 1,681 vessels engaged in interstate traffic on active status, 52.6 percent were inspected and certified as complying with the regulations governing drinking and culinary water systems. Reduced shipping activities interfered somewhat with the efficiency of the inspection service, since inspections must be made while vessels are operating.

For the first time since inspection of vessels was inaugurated, no cases of typhoid occurred among members of crews of Great Lakes vessels. The records show a continued downward trend from 70 cases in 1916 to none in 1933.

Assistance was rendered to the district superintendents of the Lighthouse Service and the Engineer Corps, United States Army, in the design and installation of proper type of water treatment devices for their vessels on the Great Lakes.

Sufficient surveys and inspections of shellfish areas and establishments were made to determine the efficacy of the State control. Assistance was rendered the States in studies of areas as in the past. Publication and distribution of lists of approved shellfish shippers were continued.

In addition to assistance rendered to the States on problems of stream pollution, a study was made of the pollution of the Hampton Roads area in the lower Chesapeake Bay with funds allotted for this purpose to the Public Health Service by the Public Works Administration. The study was made at the request of the Chesapeake Bay Authority.

Through the use of funds made available by the Civil Works Administration a start was made in the control of acid mine wastes

in the bituminous coal mine areas in cooperation with the State health authorities.

The public health engineering services rendered other Federal agencies increased greatly over the aid given in previous years, 43 percent of the time of the engineering field force having been devoted to this work. This has been due in part to new construction made possible with the funds made available to such agencies for sanitary work through the Public Works Administration, and to the enlargement of the National Park Service. Water treatment and sewage disposal plants have been designed for the National Park Service, Indian Service, and the Bureau of Animal Industry.

As in previous years, assistance was rendered the Bureau of Prisons, the Procurement Division of the Treasury Department (formerly the Supervising Architect's Office), the Lighthouse Service, the sanitary engineering division of the District of Columbia, and others in connection with sanitary problems.

According to information submitted by the States, 533 counties were cooperating under the direction of whole-time health service on December 31, 1933, as against 581 for 1932. The decrease has been due in part to the discontinuing of financial aid to local health units from the Public Health Service and partly due to the reduction of State and county revenues.

Trachoma eradication activities were continued in Tennessee, Kentucky, and Missouri in cooperation with the State authorities.

Cooperation with the California State Health Department in preventing the spread of psittacosis infection in interstate commerce, and in the eradication of ground-squirrel plague was continued. Rodent plague of a virulent type appeared in Kern, Tulare, and Modoc Counties in California.

To protect the port of Honolulu from plague infection, the Public Health Service began work in cooperation with the Territory of Hawaii in the eradication of rodent plague on the Island of Maui.

The participation of the Public Health Service in the Civil Works program was an outstanding activity during the year. Through the use of work-relief labor, made available by the Civil Works Administration, the Public Health Service was able to assist 14 States with a malaria-control drainage project under which more than 6,000 miles of ditching was carried out. More than 225,000 sanitary outdoor toilets for rural homes were constructed in 22 States, the materials being furnished by the home owners. The Civil Works Administration projects of the Public Health Service also included the sealing of abandoned mines to remove acid wastes from streams and a rat-flea survey in various areas in connection with typhus fever control.

Cooperation was continued in special Negro health activities, particularly the National Negro Health Week, which had its twentieth anniversary in the spring of 1934. These activities included a number of comprehensive community health surveys, educational and clinical projects, and the publication of the National Negro Health News, a bulletin devoted to helpful reviews of pertinent data on Negro health problems.

INVESTIGATIONS OF PUBLIC HEALTH PROBLEMS

The program of cancer research was conducted both at the laboratory located in the Harvard Medical School, Boston, Mass., and at the National Institute of Health, Washington, D. C. At the Boston laboratory the following investigations were pursued: Studies of the biological effects of radiation, studies of resistance and susceptibility to malignant growths, biochemical studies (chiefly of cellular biochemistry), and cytological studies. At the National Institute of Health particular emphasis is placed on the biochemical aspects of the problem, without, however, ignoring important physiological, cytological, and pathological conditions.

During the summer of 1933 there appeared in St. Louis, Mo., and its vicinity a type of encephalitis which had not before made its appearance in the United States in serious epidemic form. Epidemiological and laboratory studies were undertaken by the Public Health Service, including extensive studies upon laboratory animals and man, to determine whether mosquitoes acted as vectors in the transmission of this disease.

Laboratory and field investigations of heart disease have been directed toward attempts to determine the factors predisposing to rheumatic fever. Experiments were conducted to ascertain whether subclinical scurvy is a contributory factor in the etiology of rheumatic heart disease.

Observations on the attempt to control malaria in tropical climates by the use of atabrine have been brought to a conclusion with findings that indicate that atabrine alone does not materially affect the infection rate. Further studies are in progress using atabrine in combination with plasmochin, and the results to date are encouraging.

Researches in the malaria therapy of paresis have been continued, and studies in connection with retaining the viability of sporozoites after dissection of infected mosquitoes have proved successful.

Many phases of *Anopheles* behavior are being investigated, as well as the effectiveness of mechanical traps and of sound and light attractivity for *Anopheles* at the Reelfoot Lake (Tenn.) station.

Detailed and critical examinations of a group of children of leprous parents over a period of several years have indicated that minor but definite clinical evidence of pathological changes in the peripheral nerves and in the blood capillary system may be detected well in advance of confirmatory clinical and microscopical manifestations of leprosy.

Experimental investigations of rat leprosy to determine the mode of entrance of the leprosy bacillus are in progress. It has been demonstrated that a generally disseminated infection, with the production of typical lesions in the skin and in the viscera, can be accomplished by the instillation of a suitable inoculum on the nasal membrane. These findings may be of significance as indicators of the mode of invasion of human leprosy in man and of its pathogenesis.

The correlation between human pellagra and blacktongue (canine pellagra) having been worked out thoroughly enough to obtain sufficiently reliable results in the study of the pellagra-preventive value of foods from experiments with dogs, the studies at the Milledgeville State Hospital, Milledgeville, Ga., were discontinued. Considerable

attention is being given to the development of a satisfactory rat method for testing pellagra-preventive activity.

The production of cataracts in rats by deficient diets is being investigated in order to determine whether this condition is due to a deficiency in vitamin G, the present accepted hypothesis.

A total of 32 cases of psittacosis, with 11 deaths, was reported during the year. A rather extensive epidemic occurred in a Pittsburgh department store during this period. It is now apparent that psittacosis can be controlled by adequate control of breeding and the commercial handling of psittacine birds.

Construction work on the new laboratory building for the study of Rocky Mountain spotted fever and related diseases has been completed except for mechanical installations. Plans are in progress for the building of officers' and attendants' quarters, a garage, and general storage space.

Two hundred and twelve liters of Rocky Mountain spotted fever vaccine were manufactured for the 1934 season, and of this amount approximately 80 percent was suitable for use. In addition, 40.8 liters were manufactured for the Civilian Conservation Corps for administration to the personnel located in those camps where the danger of infection is greatest or the disease most fatal. The demand for the vaccine continues to increase and exceed the supply so that it has been necessary to refuse many requests. The greatest demand comes from Montana, Oregon, Wyoming, and Idaho, although considerable amounts are sent to other Rocky Mountain States.

The continued occurrence of cases of spotted fever of high case fatality rate in various parts of northern Idaho and new points in western Montana have furnished further evidence of a tremendous extension of the known regional area in which the highly fatal type of infection is endemic.

The data collected in the study of hearing of school children are being analyzed with reference to the incidence and degree of hearing defects as well as the causative factors and the progress of hearing loss which might furnish a basis for determining preventive measures in relation to loss of hearing.

Other studies being undertaken in connection with investigations of child hygiene include physical status, growth, development, and child health, development in relation to the economic crisis, and dental caries.

The dental health survey undertaken in cooperation with the American Dental Association included a survey of existing facilities in State departments and institutions and a survey to determine the dental needs of children of school age.

Studies were made of processes of manufacture, with special reference to the skin hazards involved, in 27 plants employing 19,483 workers. About 8,000 workers were examined for the occurrence of occupational skin diseases, and the sickness records of these plants were examined in order to determine the frequency of skin diseases and their causes.

A series of injections of dusts of known chemical composition have been made intraperitoneally into guinea pigs to determine the physiological response. The investigation has shown that the response is uniform and constant for a single dust, but different for each of three groups of dusts, and sufficiently differentiated to afford a means of classifying them from the standpoint of biological reaction.

Other dust studies have included health of anthracite coal miners, silicosis among granite quarriers, pulmonary infection in pneumoconioses, effect of inhaled marble dust as observed in Vermont marble finishers, and a study of talc workers.

The study of atmospheric pollution in 14 American cities made to determine the average conditions and various fundamental relations which might prove of importance in programs for smoke abatement has been completed and a report of this study is in progress.

Research activities in connection with milk investigations have included laboratory studies on the chlorine and thermal resistance of the *B. coli communior* test organism, the bactericidal treatment of milk coolers, design of air- and foam-heating equipment, and the washing and bactericidal treatment of milk cans and milk bottles.

Studies to determine the basic needs of the people in matters pertaining to public health practices in county health departments are being continued. The information thus gained will be of value in planning future rural health organizations. Three counties now being studied contain large towns or are adjacent to cities; thus it will be possible to determine the influence of medical facilities found in urban centers on the health of the people in adjoining areas.

The analysis of the data collected on sickness and mortality among families of the unemployed was continued. Fourteen reports on various phases of this subject have been published. Statistical studies also included work on influenza and other respiratory diseases and the analysis of a mass of records on sickness and medical care obtained by special surveys of families in 19 States with a total of some 80,000 person-years of life.

The efficiency of the activated sludge method of sewage purification is being studied in an endeavor to determine factors which disturb the optimum biological balance, and which, if they could be controlled, would insure the uniform efficiency of this process. In connection with studies of stream oxidation an extensive series of measurements of the rates of atmospheric reaeration in streams of deaerated water flowing in experimental channels has been completed during the year in preparation for further observations of the rates of oxidation of sewage sludge deposits under stream flow conditions.

Studies of typhus-Rocky Mountain spotted fever are being conducted to determine any changes which might arise from residence of the viruses in various species of arthropods. Four species of native rodents have been found to be susceptible to the virus of typhus.

In connection with the work on the etiology of epidemic encephalitis a virus has been isolated at the National Institute of Health which is distinct in its animal symptomatology, pathology, and immunology from the six viruses which were isolated from fatal cases of the disease occurring during the St. Louis epidemic.

A comparative study of strains of hemolytic streptococci is in progress, directed particularly toward finding characteristics by which human infections derived from animal sources may be traced to their origin.

Investigations of relapsing fever have demonstrated the survival of virulent infection for 2½ years in naturally infected adult ticks of the species *Ornithodorus turicata*.

An outbreak of amoebic dysentery which originated in Chicago in the summer of 1933 has been studied both from an epidemiological

and a laboratory viewpoint. Investigations of this disease are still in progress.

The histologic-diagnostic service to marine hospitals and other agencies has been continued, over 1,500 specimens being examined and reported upon.

Special studies on prophylactic and therapeutic agents have included standardization of gas gangrene antitoxins and studies of hemolytic streptococcus, meningococcus, alum precipitate antigens, staphylococcus, and the therapeutic activity of neoarsphenamine in experimental syphilis in rabbits.

On the basis of animal experiments, a chemical method was discovered for the treatment of bichloride poisoning in human cases.

The study of the chemical structure of sugars has been continued. As a result of the isolation of the four-carbon sugar threose as a crystalline triacetate, it is now possible to study practical applications of this sugar in biological and medical investigations. The basic problem of carbohydrate nutrition is being advanced by these studies and is opening the way for a rational understanding of this nutrition and its derangements.

THE MARINE HOSPITALS AND OTHER RELIEF STATIONS

Hospital and out-patient care was furnished to American seamen and other legal beneficiaries in 154 ports, 305,155 accredited persons applying for treatment and other medical service. The Coast Guard, for whose personnel of 10,401 the Public Health Service has sole medical responsibility, was served at the regular relief stations and 102 other places; 15 medical and dental officers were also assigned to Coast Guard ships and shore stations. The usual assistance was rendered the Employees' Compensation Commission in treating injured Federal employees, to the Civil Service Commission in examining applicants and employees, and to other Government agencies that utilize the Public Health Service facilities. There were 599 more patients of all classes in hospitals on June 30, 1934, than on June 30, 1933; the total on June 30, 1934, was 4,531.

On April 3, 1934, amendments to the regulations were approved, liberalizing the conditions governing the admission of seamen to the effect that intervals in excess of 60 days, because of economic conditions resulting in inability to ship, or where the seaman has been receiving treatment at his own expense and has not changed his occupation, shall not bar him from relief. Office treatment was also authorized at first-, second-, and third-class relief stations for the families of officers and enlisted men of the Coast Guard.

The Veterans' Administration has increased its patients in marine hospitals from 37 on June 30, 1933, to 99 on June 30, 1934, and has requested and received an allocation of 200 beds in marine hospitals for the ensuing year. During the year certain injured employees from the Civil Works Administration were added to the list of Public Health Service beneficiaries; 24,649 received out-patient and hospital care. Two thousand eight hundred and ninety-six patients from the Civilian Conservation Corps were hospitalized during the year.

PREVENTION AND CONTROL OF VENEREAL DISEASES

Activities directed toward the control of venereal diseases were conducted in cooperation with the State and local health departments. Forty-seven States submit reports as to the prevalence of venereal diseases. A total of 385,953 cases of syphilis, gonorrhea, and chancroid was reported, showing a slight decrease from the preceding year. These reports are made to the State departments of health by physicians in private practice and by institutions and clinics. State health officers have been enlisted in a campaign to urge more complete reporting on the part of the physicians administering treatment. An educational campaign to interest the general practitioner in the need of adequate treatment for patients with syphilis and gonorrhea has also been undertaken.

In two States control activities were directed by Public Health Service officers. The North Carolina State Department of Health appointed 33 physicians as cooperating clinicians and supplied them with free drugs for the treatment of indigents carried on the relief rolls of the State and others who were, in the opinion of local relief officers, unable to pay for treatment. Special work was also carried out in Tennessee, work with industries of the State being of particular interest.

The clinic at Hot Springs, Ark., which is maintained by the Public Health Service, has cared for a greater number of patients than ever before, due to the many homeless transients who have poured into Hot Springs during the year. In the fiscal year 6,682 applicants were examined and treated.

For the past several years the Public Health Service and five of the leading syphilis clinics of the United States have cooperated to study the effects of the modern treatment of syphilis. This undertaking is part of an international investigation of the clinical aspects, diagnosis, and treatment of syphilis which is sponsored by the Health Organization of the League of Nations. During the year an important phase of the study was completed and a standard treatment procedure for early syphilis published.

Information to syphilologists, general practitioners, health officers, and others interested in the many phases of venereal-disease control has been furnished through the monthly publication "Venereal Disease Information", pamphlets, exhibits, and films. Requests for references or bibliographies on special subjects were furnished from the files of "Venereal Disease Information." Physicians and health officers avail themselves of this service to a greater extent each year.

NARCOTIC FARMS AND MEDICAL AND PSYCHIATRIC CARE OF FEDERAL PRISONERS

In general, the work in connection with mental hygiene activities has embraced studies of the nature and treatment of drug addiction and dissemination of information upon the subject; studies of the abusive uses of narcotic drugs; administrative functions incident to the establishment of narcotic farms; supervising and furnishing the medical and psychiatric services for the Federal penal and correctional system; and cooperating with other agencies interested in

the various phases of mental-hygiene work with which the Service is concerned.

Progress has been made in the construction of the first United States Narcotic Farm, Lexington, Ky., and it is anticipated that it will be completed and ready to receive admissions by April 1935. Funds were made available through the Public Works program for beginning construction of the second institution at Fort Worth, Tex.

Two additional medical units were established during the year in connection with the Federal penal and correctional system, one at the United States Penitentiary, Alcatraz Island, Calif., and one at the Federal Prison Camp, Tucson, Ariz.

COOPERATION WITH OTHER AGENCIES

During the fiscal year the Public Health Service continued its cooperative activities with official and unofficial organizations in matters pertaining to the public health. A number of these cooperative activities are required by law, and the remainder are deemed essential in the interests of economical and efficient administration. By means of this cooperation, similar or related activities are coordinated and the duplication of effort is avoided. The cooperative activities during the fiscal year have been, in general, similar to those of the preceding 6 or 7 years.

The Public Health Service desires to acknowledge assistance received from the following agencies:

The Department of Health of Puerto Rico for the use of its laboratories; the New York State Institute for the Study of Malignant Diseases for the care and study of cases of suspected cancer; the State Boards of Health of Florida, Wisconsin, Michigan; the State laboratories of North Carolina and Maryland and the University of Kentucky for Wassermann tests; Harvard University Medical School for laboratory space for field investigations of cancer; Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, and New York University Department of Biology in cancer research; Milledgeville State Hospital, Milledgeville, Ga., in conduct of pellagra studies; Tennessee Academy of Science for quarters for studies of mosquito control; Health Department of Pasadena, Calif., for laboratory space for field investigations of psittacosis; State Hospital, Columbia, S. C., for laboratory space for studies of malarial inoculation in paresis therapy; Bureau of the Census for tabulation of material collected in the dental health survey.

Other cooperative activities included: Gorgas Memorial Institute in malaria-control studies; Johns Hopkins University, department of biostatistics, in connection with studies of physical status, growth, and development of school children; Milbank Memorial Fund in a study of health in the depression; American Dental Association in a dental health survey.

RECOMMENDATIONS

It has long been a recognized axiom that upon the health of a nation depends its success. Recommendations as to measures and means of maintaining and improving the public health are necessary from time to time.

New problems in the field of public health constantly present themselves. As recent examples may be mentioned the outbreak of epidemic encephalitis in St. Louis in 1933 and the increased prevalence of this disease in several adjacent States during the following year; the unusual occurrence of amoebic dysentery with Chicago as the source; the outbreak of poliomyelitis in the Los Angeles area this year. Constant vigilance is required for the detection and prevention of new dangers to the public health that constantly arise. The recommendations submitted herewith constitute the more important needs at the present time.

SCIENTIFIC RESEARCH

With the opening of distilleries in the United States the necessity for making studies of the control of distillery wastes which are being emptied into already heavily overtaxed and polluted streams has become apparent. There are several problems connected with the disposal of these wastes that very seriously affect the water supplies of this country, and should be carefully studied.

An investigation should be made to determine methods for the elimination of fluorine from drinking water supplies. Fluorine has been found to be present in drinking waters located in nearly every State in the Union and is responsible for the dental condition known as mottled enamel.

With the completion of the anthracite coal dust study, which for the first time gives definite facts with regard to anthro-silicosis among hard coal miners and which forms the basis of compensation laws for that condition, it is evident that a similar study should be made in the bituminous field.

STATE AND LOCAL HEALTH WORK

It is desired to point out again that the lack of effective local health organization in most rural areas and in many of the smaller cities is a serious handicap to the application of public health measures. This difficulty is encountered repeatedly when attempting to prevent the spread of epidemic diseases between the States. For a number of years, therefore, the Public Health Service has worked with the States in building up local health organizations in the rural areas, particularly where the need is greatest. Owing to limitation in funds and personnel, this work has been confined for the most part to local studies and demonstrations. The time has arrived when the Public Health Service, should, as a part of the national defense against disease, enter into cooperation with States for the support of local health organizations on a more substantial basis than in the past.

MARITIME QUARANTINE

It is recommended that the quarantine regulations of the Government of the Panama Canal Zone be made entirely uniform with the quarantine laws and regulations of the United States administered by the Public Health Service in all other United States ports in order to remove a factor complicating the proper observation of the latter by shipping and to conform to the requirements of the Pan American Sanitary Code of Habana, 1924, and the International Sanitary Con-

vention of Paris, revised 1926, both of which treaties have been ratified by the United States.

It is recommended that the Convention for the Sanitary Control of Aerial Navigation of The Hague, 1933, which was signed on behalf of the United States on April 6, 1934, be ratified by the United States at the earliest practicable date.

VENEREAL DISEASE PROBLEM

For the past several years activities of the Service in the control of venereal diseases have been curtailed on account of diminishing appropriations. Work within the States is limited on this account; and since cooperation with local health organizations is especially desirable, the restoration of a more adequate appropriation is recommended.

MARINE HOSPITALS

Appropriations should be restored in amounts that will permit marine hospitals and relief stations to continue to render adequate professional service to legal beneficiaries. New hospitals should be erected at St. Louis, Mo., and Miami, Fla. The hospital at Fort Stanton, N. Mex., should be thoroughly repaired.

PERSONNEL

Increasing difficulty in conducting its work is experienced by the Public Health Service on account of the inadequate number of commissioned officers available for assignment to duty as required. The past year has been the occasion of many unusual and exacting demands upon the Service. Various matters have arisen in connection with the regular work of the Service as well as with the emergency activities of the Government which have required the assignment of experienced officers who, in many cases, had to be detached from their regular duties and assigned to meet the emergencies. In many cases this left the regular duties to be inadequately conducted by untrained personnel. It is essential for the proper conduct of the work of the Public Health Service that an increase be made in the number of commissioned officers. It would appear most desirable that a definite number of additions to the career corps be made each year.

H. S. CUMMING,
Surgeon General.

Hon. HENRY MORGENTHAU, Jr.,
Secretary of the Treasury.

DIVISION OF SCIENTIFIC RESEARCH

Asst. Surg. Gen. L. R. THOMPSON in charge

CANCER

Field investigations of cancer have been continued under Medical Director J. W. Schereschewsky with headquarters at the Harvard Medical School, Boston, Mass.

STUDIES OF THE BIOLOGICAL EFFECTS OF RADIATION

Biological action of X-rays—Absorption coefficient of Xenon.—By means of the measured absorption coefficient of Xenon, a calculation was made of the intensity of homogenous beams of X-rays reflected from the calcite crystal. The result showed that the available intensity with this apparatus would be insufficient for biological experiments.

Mitogenetic radiation.—A preliminary report on this work was published in the Public Health Reports for October 27, 1933.

A detailed paper entitled "Search for Mitogenetic Radiation by Means of the Photoelectric Method" was prepared for publication in the July (1934) number of the Journal of General Physiology. Data have been assembled also for another paper on the mode of action of countertubes.

Spectroscopic study of carcinogenic substances.—The primary aim of this investigation is to determine whether carcinogenic substances like dibenzanthracene play a part, e. g., as metabolites in the genesis of tumors generally.

Preliminary tests with dibenzanthracene in various solvents have already shown that this substance is detectable by spectrographic methods when present in amounts of 1 part per million.

Since dibenzanthracene is fat-soluble, attention has been directed to the lipoid extracts of normal and malignant tissues.

This work is still in progress.

Electromagnetic radiation.—A paper on The Heating of Animal Tissues by High Frequency Fields (6.4×10^7 to 3×10^8 cycles per second) appeared in the Public Health Reports for July 21, 1933. The suggestion was made that the range of frequency in question (about 6×10^7 cycles per second) might be more useful as an auxiliary in the treatment of local inflammatory processes in the lung, such as pneumonia, than diathermy with conventional apparatus, because of the better heating characteristic for pulmonary tissue.

In the case of guinea pigs it was found that when the thorax of these animals was placed in a condenser field excited at frequencies of from 70,000,000 to 80,000,000 cycles per second, when the rectal temperature of the animal was 39.6° C., the pulmonary temperature, as indicated by a thermocouple, inserted into the right lung, was 42.1° C.

In this connection an attempt was made to determine the frequency at which pneumococcus would be subject to selective heating by means of the determination of the conductivity and the approximate dielectric constant of this organism. The conductivity of wet organisms, as determined on a Grinnel-Jones conductivity bridge, proved unexpectedly high, corresponding to that of an N/35 KCl solution.

In view of the high conductivity, any accurate determination of the dielectric constant of the organism was impracticable with the apparatus at hand, but a rough test showed that the dielectric constant of moist pneumococcus is less than that of water and probably somewhere between 60 and 70. A trial was made of the respective survival times of a culture of pneumococcus in serum water heated to 50° C. in a condenser field excited at this range of frequencies and a similar culture immersed in a water bath at the same temperature. The results were inconclusive, as the difference in the times of survival of both cultures was too small to be significant.

STUDIES OF RESISTANCE AND SUSCEPTIBILITY TO MALIGNANT GROWTHS

Cross-immunity studies.—The result of the observations which showed that immunity induced in mice against one type of transplantable tumor would also induce immunity against other types of such tumors were summarized and a paper was prepared and published in the Public Health Reports of December 8, 1933.

Immunization of pure-strain mice against transplantable tumors.—The results of these experiments were prepared for publication and appeared in the Public Health Reports for January 12, 1934.

Effects of immunity to a transplantable tumor upon resistance to spontaneous tumor.—An interesting point to determine was whether mice immunized in the usual fashion against a transplantable tumor, such as S 37, would present the resistance against implants of spontaneous tumor originating in their own stock which they show against other stock transplantable carcinomas, such as M 63, 206, and A. An experiment was undertaken with this end in view. Although the mice were shown by repeated inoculations to be resistant to the transplantable tumor, nevertheless, the spontaneous tumor implant grew in all the immune mice, as well as in the controls.

Production of dibenzanthracene tumors in pure-strain mice.—Burrows, Heiger, and Kennaway have shown that the compound 1:2:5:6–dibenzanthracene dissolved in lard and injected subcutaneously is capable of producing sarcomas in mice. In their experiments, tumors were induced in 31 out of 93 mice. Seven primary growths were used for serial transmission, of which two were carried at least as far as the 12th and 16th generations, respectively. Because of certain inconsistencies in their transmission experiments, and because no particular strain of mice is mentioned, the assumption seems justified that these experiments were not performed with pure strains of mice. Therefore, it appeared pertinent to ascertain first whether this compound will induce tumors to the same extent in pure-strain mice having a low incidence of spontaneous tumors as in those in which the incidence of such tumors is high, and second, whether these tumors, induced in pure stocks, would follow the rule of the genetic theory of transplantation, namely, that a spontaneous tumor arising in an

individual of a particular strain can be transplanted to members of the same strain, but not to those of other strains.

The results of the transplantation experiment were prepared for publication and appeared in the Public Health Reports of May 25, 1934.

The second experiment of this kind, involving approximately 1,000 mice, was undertaken later in the year. The reasons for undertaking this experiment were as follows: First, to determine whether 1, 2, or 3 injections give a higher tumor yield; second, to study the relative susceptibility of different strains of mice; and third, to investigate the effect of combining an irritant, such as kaolin, with the lard and dibenzanthracene.

This experiment is still in progress.

Effect of trypan blue upon resistance to heterologous tumor strains.—During the year experiments were carried out in pure-strain mice to determine whether injections of trypan blue would affect the normal resistance of such mice to the transplantation of fragments of spontaneous tumors arising in heterologous strains. Positive takes and progressive growth were evident in about 40 percent of the treated mice.

Cooperation with the Roscoe B. Jackson Memorial Laboratory.—These studies are concerned with the variation in resistance to transplantable tumors, and the production of concomitant immunity in various strains of mice. Information as to the genetic characteristics of cells from different strains of mice is being obtained by transplantation of normal tissue grafts, derived from one strain of mouse, subcutaneously into mice of other strains and then studying microscopically the fate of the implant.

BIOCHEMICAL STUDIES

During the fiscal year, work was pursued along three major lines: (*a*) Investigation of the physicochemical behavior of tumor and of normal cells; (*b*) chemo-therapeutic experiments on tumor-bearing animals; and (*c*) studies with dibenzanthracene.

The voluminous literature bearing upon the chemistry of cancer cells was critically reviewed and brought together in a paper which appeared in the August (1933) number of the American Journal of Cancer.

Effect of calcium upon tumor growth.—The results of this investigation appeared in the Public Health Reports for September 8, 1933.

Osmotic behavior of tumor cells in vitro.—The results of this study were reported in a paper entitled "Volume Changes of Tumor Cells in Vitro" which appeared in the Public Health Reports of February 16, 1934.

Animal experiments on fluid exchange.—In the animal experiments, tumor-bearing mice were variously treated in attempts to disturb fluid exchange in the living animal and thus possibly to influence tumor growth. Deprivation of water, diuretics, bleeding, capillary injury, lipoid solvents, fibrin, anticoagulants, high protein diets, and injections of protein, serum, and other colloids were the measures employed.

Although some of these procedures seemed to give promising results at first trial, repetition of the experiments failed consistently to confirm initial observations.

CYTOLOGICAL STUDIES

Cytological studies have included tissue culture work, liquefaction of culture media by malignant cells, and the effect of liquefied medium on cells and commensal bacteria.

EPIDEMIC ENCEPHALITIS

Late in July 1933 there appeared in the suburban area of St. Louis Mo., a type of encephalitis which had not before made its appearance in the United States in serious epidemic form. The number of cases rapidly increased during the summer months to reach a peak in the late summer, and decreased gradually to cool weather. The seasonal incidence of this disease was strikingly similar to that of poliomyelitis, as was also its tendency to increased incidence in the less densely populated portions of the metropolitan district. The age most affected was distinctly different from poliomyelitis, older people being more frequently and severely attacked. Outbreaks similar to that in St. Louis, but less extensive, occurred also in Independence, Kansas City, and St. Joseph, Mo., and in Louisville, Ky.

An epidemiological study was conducted by Service officers under the direction of Senior Surg. J. P. Leake. Early in the epidemic, because of their unusual prevalence in the St. Louis area, mosquitoes were considered possible vectors, and extensive studies were conducted upon laboratory animals and man relative to this question. Experiments with various species present in the epidemic area were entirely negative.

A total of approximately 1,100 cases was reported during the epidemic, with a general mortality of about 20 percent, which was much higher in the older age groups. This type of encephalitis differs from the older, better recognized disease principally in that there was practically a complete absence of eye signs; and recovery, when it occurred, was complete and not followed by sequelae. The onset of symptoms was sudden and did not follow other infections.

HEART DISEASE

Investigations of heart disease have been continued under the direction of Medical Director A. M. Stimson.

Experiments were conducted, as suggested by Rinehart and Mettier, to ascertain whether subclinical scurvy is a contributory factor in the etiology of rheumatic carditis. Following the technique employed by these workers, guinea pigs were rendered scorbutic by maintaining them on an appropriate diet, and then inoculated intracutaneously with hemolytic streptococci obtained from spontaneous lymphadenitis of guinea pigs. Cardiac lesions somewhat comparable to Aschoff bodies, the most typical lesion of rheumatic carditis found in man, were obtained.

Other guinea pigs were rendered scorbutic and inoculated intracardially with hemolytic streptococcal toxin from the N. Y.-5 strain of scarlatinal streptococci. Similar lesions were again obtained among the scorbutic animals so treated, but not among controls. Experiments in which animals have been subjected to other forms of avitaminoses and in which other strains of streptococci and streptococcal products have been used have thus far given negative results.

While it cannot be stated that scurvy is a factor predisposing to rheumatic infection, it is felt that encouraging results have been obtained by the production of rheumatic-like lesions in guinea pigs.

A survey of cardiac deaths occurring in Washington, D. C., has been conducted to determine the accuracy with which heart disease is certified as the cause of death and the extent to which deaths actually due to heart disease are tabulated as such. As a result of this study it is estimated that about 25 percent of deaths reported and tabulated as being due to heart disease are really due to other conditions. On the other hand, of the actual deaths due to heart disease only about 60 percent are so tabulated. Many deaths due to heart disease, especially those due to cardiovascular syphilis, congenital malformations, diseases of the thyroid gland, arterial hypertension, and acute and subacute rheumatic carditis are listed for purposes of vital statistics under other categories. The suggestion is made that deaths due to heart disease be reported and classified on an etiological basis.

Leprosy

The studies of leprosy at the Leprosy Investigation Station, Honolulu, and the care and treatment of patients in the adjoining Territorial receiving station have been continued under the direction of Senior Surg. N. E. Wayson.

Clinical studies.—Studies have been continued for the purpose of learning the early manifestations of leprosy. It has been concluded from detailed and critical examination of a group of children of leprous parents over a period of several years that one may detect minor but definite clinical evidence of pathological changes in the peripheral nerves and in the blood capillary system well in advance of confirmatory clinical and microscopical manifestations of leprosy. It has also been observed that both recession or arrest of suggestive neurological changes may occur without the development of the findings accepted as characteristic of the disease. This observation is a further contribution to the belief that individuals may be infected with leprosy without developing the disease.

Comparisons have been made of the course of the disease through several years in patients who are affected with both leprosy and tuberculosis. During these observations it has been found that acute exacerbations of leprosy with eruptions occur very much more frequently among patients with tuberculosis, and on the other hand a very high percentage of those patients who show some findings suggestive of tuberculosis develop acute leprous exacerbations within a given period.

For the past 9 months a series of from 25 to 40 patients have been treated by injecting the esters of cotton-seed oil intradermally. No significant difference in the benefits to be obtained by this method of treatment has been noted as opposed to that in which the esters of chaulmoogra oil were used. There seems to be a definite correlation between the severity of the local reaction and the rapidity and degree of healing of the lesions treated. There was significantly less local reaction to the injections of esters to which iodine had been previously added. The treatment of a small series of patients by intradermal injections of nonspecific bacterial antigens is in progress; and among a group of patients affected with nodular leprosy, there have

been some who showed unusually rapid improvement following repeated intramuscular injections with bismuth preparations.

The remarkable results reported of the treatment of lupus vulgaris by a dietary which was very low in mineral salts and especially low in sodium chloride led to a trial of this form of dietary in leprosy. However, there were so few patients who were willing to cooperate in this treatment over a long period that conclusions as to its value are not warranted.

Experimental investigations.—It has been previously determined in this laboratory that the infection of the neighboring lymph glands may be produced in rat leprosy by the instillation of a suitable inoculum on the nasal membrane. During the past year it has been demonstrated that a generally disseminated infection, with the production of typical lesions in the skin and in the viscera, can be secured by this method. It has also been found that the injection of material from the lesions of rat leprosy into the tissues of the face about the nose of the animal is followed by a generalized dissemination of lesions in a large percentage of cases, while such injections into other superficial tissues rarely produce this condition within a comparable period. However, it has been established during the year by a number of experiments that inoculations at any site result subsequently in a bacteremia, though even microscopic lesions may not be clearly demonstrable at the time of examination. Experimental evidence has also been obtained which shows that a local alteration in the tissues favors the development of lepromata at the site. The nature of the precipitating alterations has not been determined, but may be as slight as the apparently moderate circulatory changes induced by the subcutaneous injection of sterile starch.

These findings in rat leprosy may be of important significance as indicators of the mode of invasion of human leprosy in man and of its pathogenesis.

Investigations of the effects of crowding, of high humidity, and of vitamin deficiency of dietary on the development of rat leprosy are being continued. A number of experiments have indicated that these factors play some role, either singly or collectively, in the rapidity or degree of the extension of the disease.

Efforts to cultivate the organisms of human and of rat leprosy were made through the use of embryonic tissues and extracts, Lowenstein's media, Long's synthetic media, Corper's blood media, and collodion sacs in the peritoneal cavities of rats. Findings suggestive of growth occur occasionally in such media, but conclusive evidence of successful cultivation has not been obtained.

In consequence of a report of the efficacy of the intravascular administration of solutions of trypan blue in the treatment of human leprosy, a series of rats infected with rat leprosy were similarly injected. No beneficial results were observed. This observation is similar to that previously made in this laboratory after the use of eosin in this manner.

The cultivation of the tubercle bacillus from materials which are contaminated with other organisms has been facilitated by exposing the material to the action of dilute sulphuric acid. Experiments have shown that the exposure of tissues of rat leprosy to this chemical, or the drying of the material at a temperature of 0° to 0.4° C. does not prevent the development of typical lesions in animals subsequently inoculated with the treated material.

Malaria

Investigations of malaria continued under the direction of Surg. L. L. Williams, Jr.

Atabrine studies.—Sanitary Engineer W. H. W. Komp, in cooperation with the Panama Department of Health and the Gorgas Memorial Laboratory, last year began a study to determine whether atabrine alone would control the malaria rate in the Panamanian population. The findings confirm the conclusion that atabrine alone, though controlling the clinical attack of malaria, does not materially affect the infection rate.

Following these observations a combination of drugs was tried, namely, plasmochin (which reduces the viability of the gameocyte) combined with either atabrine or quinine. One town was left untreated as a control, the population voluntarily using a certain amount of quinine; another town under voluntary quinine was given plasmochin in addition; and four other river villages already under atabrine treatment received plasmochin in addition. Where plasmochin was added to existing atabrine treatment, the plasmochin was given over a 7-day period commencing after the completion of the 5-day atabrine treatment. It was observed that plasmochin, although somewhat toxic alone, was rendered much more toxic when given with atabrine.

The results have been very encouraging. However, the study will be continued for two purposes: (1) To determine whether the beneficial results will continue, and (2) to determine, under conditions of comparative freedom from malaria parasites, whether the population will so lose its tolerance to the infection as to allow the occurrence of an epidemic with severe cases.

A study of the supposed long-range flight (12 to 15 miles) of *Anopheles albimanus* from Gatun Lake to the sanitated area has been commenced. These observations, and those of others (reported by Curry) show an unexplained heavy influx of *albimanus* into the sanitated area approximately 2 weeks before commencement of the rains. At this time there are no known *albimanus*-producing areas closer than Gatun Lake. This study shows that Gatun Lake has a heavy growth of giant *alga, Chara,* which normally never reaches the surface of the water, being anchored on the bottom in shallow water. During the last few years when the waters from Gatun Lake have been used in greater quantity for the canal, the drawdown has allowed thousands of acres of *Chara* to be slightly exposed. This provides ideal breeding grounds for *Anopheles.*

Catching stations and traps have been placed throughout the area of sanitation and at rather regular intervals between there and Gatun Lake.

The start of the flight of *Anopheles* from Gatun commenced on April 14, 1934, was heavy by the 23d, and reached its peak on May 2; but it does not as yet appear that the influx into the area under sanitation is from Gatun.

Rural malaria-control studies.—These studies were begun in two counties in central western Florida, where accurate blood indexes were taken in Citrus, Dixie, and Levy Counties. A similar study was begun in Virginia. Before these activities were well under way they were stopped by the Civil Works Administration emergency malaria-control program.

Researches in malaria therapy of paresis.—Special Expert Bruce Mayne, in Columbia, S. C., continued his excellent work at the laboratory established at the Columbia State Hospital. The hospital authorities have built an insectory where *Anopheles* have been propagated throughout the winter. This work was suspended for the period of the encephalitis epidemic in St. Louis. However, studies in connection with retaining the viability of sporozoites after dissection of infected mosquitoes have been continued. With specially prepared culture medium and with low temperatures it has been possible to maintain relatively low bacterial infection with viable sporozoites for varying periods, the longest of which is 21 days outside of the mosquito. This culture was clean enough for intravenous injection and produced infection with tertian malaria.

Memphis office activities.—During the summer of 1933 arrangements were made with the Tennessee Academy of Sciences whereby the use of the society's biological station at Reelfoot Lake for the studies of *Anopheles'* habits was secured. An experimental house was built for the study of the behavior of *Anopheles.* This study will be continued during the coming year.

Studies are also being made of the effectiveness of mechanical traps for *Anopheles* and of sound and light attractivity. These studies were not completed and will be continued.

An investigation of the color preference of *Anopheles* for day-time resting places was made. Data on over 12,000 *Anopheles* were accumulated from widely scattered sections of the South and West. A report of this work shows that, contrary to the observed habits of foreign *Anopheles,* those of the United States do not seem to exhibit any marked preference for any particular color as day-time resting places.

A report has also been made on the study of the electrical charges developed on dust when they are blown from a blower for larvicidal purposes. Heavy electrical charges developed on dust when blown and the polarity of these charges seem to explain some of the peculiar phenomena noted in the behavior of paris green dust clouds.

During the winter months a study was made of the correlation between high temperature, humidity, and the length of life of *Culex* and *Aëdes* mosquitoes.

These studies were made of mosquitoes reared in captivity. *Aëdes aegypti* showed a very marked ability to withstand high temperatures compared to *Culex.*

Microscopic examinations.—Microscopic examinations have been made of 11,516 blood specimens from Alabama, Florida, Georgia, Mississippi, Pennsylvania, and Tennessee. These gave an average of 12 percent positive.

Commencing in March 1934, a blood index was taken over a large part of the malaria belt as a Civil Works Administration activity. In this index more than 150,000 blood specimens were taken, approximately 131,000 of which were forwarded to our laboratory and stained. Twenty-five thousand of these slides have been examined to date.

Nutrition

Following the retirement of Surg. G. A. Wheeler on September 1, 1933, the nutrition studies were continued under the direction of Passed Asst. Surg. W. H. Sebrell.

It was felt that the correlation between blacktongue (canine pellagra) and human pellagra had been worked out thoroughly enough for sufficiently reliable results on the study of the pellagra preventive value of foods to be obtained from experiments with dogs. Therefore, the studies at the Milledgeville State Hospital, Milledgeville, Ga., were discontinued on March 1, 1934.

The final tests conducted at Milledgeville were on the pellagra-preventive value of green onions, lettuce, pork shoulder, and peanut meal. The results of these tests were published in the Public Health Reports for June 22, 1934.

The pellagra-preventive value of 15 foodstuffs studied in the dog, the study of the pathology of blacktongue, the report of the condition in dogs which has been called "yellow liver", due to a deficient diet, and a study of the pathology of the condition were published in National Institute of Health Bulletin 162.

A table showing the pellagra-preventive value of all the foods which have been studied up to the present time was compiled and published in the Public Health Reports for June 29, 1934.

During the year tests of the blacktongue-preventive value of cottonseed meal, rabbit meat, and lean smoked pork were completed. The results indicated that the rabbit meat and lean smoked pork are good sources of the pellagra-preventive factor, while cottonseed meal is a poor source of the factor. Tests of canned beets, evaporated peaches, lima beans, and two liver concentrates are in progress at the close of the fiscal year.

Further studies were carried out on the changes in the teeth of experimental animals produced by sodium fluoride in the drinking water. It was found that 150 parts per million of sodium fluoride in the drinking water of young dogs produced dental hypoplasia but no mottling of the teeth. Gross changes were produced in the teeth of rats with as little as 25 parts per million of sodium fluoride. It was found that neither an increase in calcium in the diet nor an excess of iron in the water had any effect on the changes in the teeth, and that 500 parts per million of sodium fluoride in the drinking water exerts an appreciably more toxic effect than the same amount in the diet.

Considerable attention was given to developing a satisfactory rat method for testing pellagra-preventive activity. Several extracts were prepared from yeast and tested by the rat method, but confirmatory tests in the dog are necessary before final evaluation of their pellagra-preventive potency.

The production of cataracts in rats by deficient diets was investigated in order to determine whether this condition is actually due to a deficiency in vitamin G, the present accepted hypothesis, and also in order to determine the effect of various substances on the prevention and treatment of cataracts. These studies are in progress at the close of the fiscal year.

Psittacosis

Psittacosis investigations continued under the general supervision of Senior Surg. H. E. Hasseltine, with Passed Asst. Surg. V. M. Hoge in immediate charge.

The incidence and mortality of psittacosis in the United States proved to be greater for the fiscal year ending June 30, 1934, than for the preceding year, a total of 32 cases with 11 deaths having been

reported. This increase, however, was caused by a rather extensive epidemic in a Pittsburgh department store, in which 25 cases, or suspected cases, and 10 deaths occurred, and not by a generalized spread of the disease.

Prior to March 1, 1934, 52 California aviaries had been found by the State or United States Public Health Service laboratories to be infected with psittacosis.

It is now apparent that psittacosis can be controlled by adequate control of breeding and commercial handling of psittacine birds, and that existing regulations and procedures now being enforced are adequate to effect this control.

Personnel at the laboratory were engaged in routine diagnostic tests, studies on the nature of the psittacosis virus, the susceptibility of various animals and birds, and bedside consultations.

It has been found that tissues containing virus of psittacosis may be preserved for many days with little loss of virulence in a solution of equal parts of sterile glycerine and standard buffer solution of pH7.

Rocky Mountain Spotted Fever

The study of Rocky Mountain spotted fever and other tick-borne diseases of the western United States has been continued at the laboratory located at Hamilton, Mont., under the direction of Special Expert R. R. Parker.

Construction work on the new laboratory unit, authorized by the 71st Congress and started in April 1933 has been completed except for mechanical installations, and rather extensive alterations have been made in the old laboratory building. The Public Works Administration made funds available for the construction of officers' quarters and of a two-story building to contain a garage, general storage space, and accommodations for the rearing of guinea pigs. The plans for these buildings have not yet been completed.

Vaccine.—The total amount of vaccine manufactured for the season of 1934 was 212 liters. Of this amount, 171 liters, or approximately 80 percent, were suitable for use.

The year-by-year increase in the demand for vaccine, noted in previous reports, continued during the season of 1934. There has been a marked rise in the number of requests for vaccine for Federal scientific personnel engaged in field work and for men employed on Government projects of various kinds. The greatest demand continues to come from the States of Montana, Oregon, Wyoming, and Idaho, although considerable amounts are sent to other Rocky Mountain States. The area of greatest use is the Bitterroot Valley section of western Montana, where over 24 liters were used and approximately 6,000 persons were vaccinated. A relatively small amount has been used in the eastern States.

About the middle of December 1933 an allotment of Civilian Conservation Corps funds was made to the Rocky Mountain Laboratory for the purpose of manufacturing vaccine for the C. C. C. camps for the season of 1934. A total of 123 liters of vaccine was prepared, of which only 40.8 liters were sufficiently potent for administration.

Experimental studies.—The following observations relative to the interrelations of Rocky Mountain spotted fever and other typhus-like diseases have been made; (1) Rocky Mountain spotted fever

vaccine affords a high degree of protection against Sao Paulo "exanthematic typhus"; (2) there is a reciprocal, complete cross-immunity between Rocky Mountain spotted fever and boutonneuse fever of southern Europe and northern Africa; but in spite of this fact, Rocky Mountain spotted fever vaccine has essentially no protective value against the virus of boutonneuse fever; (3) convalescent animal serums of the "W" and "K" types of tropical typhus in the Federated Malay States and of tick-bite fever of South Africa do not neutralize Rocky Mountain spotted fever virus.

Studies of an apparent, fixed, low-grade Rocky Mountain spotted fever virus, which is of frequent occurrence in the rabbit tick (*Haemaphysalis leporispalustris*), have been continued in cooperation with Dr. R. G. Green of the University of Minnesota medical school. A similar low-grade virus in rabbit ticks from central Manitoba (Canada) has been demonstrated.

The survival in *Dermacentor andersoni* in nature, under western conditions, of the tick parasite (*Hunterellus hookeri*) to the second year after the original release has been shown. This has occurred only when the parasites have first been liberated under such conditions and at such time of the year that they pass the winter as latent parasites in the unfed nymph.

Epidemiology.—Rocky Mountain spotted fever and the Rocky Mountain spotted fever tick (*D. Andersoni*) have been reported west of the Cascades in Oregon for the first time. All local ticks received for identification have been *D. occidentalis*, a proved potential carrier of spotted fever virus. In California, *D. andersoni* has similarly been reported from points far west of previously known occurrence.

The continued occurrence of cases of spotted fever of high case fatality rate in various parts of northern Idaho and new points in western Montana has furnished further evidence of a tremendous extension of the known regional area in which the highly fatal type of infection is endemic.

Tularaemia

A tularaemia epizootic among sheep near Ringling, Mont., was studied in May 1934, in conjunction with representatives of the laboratory of the Montana State Livestock Sanitary Board. Over 200 fatalities, attributable in part to tularaemia, occurred among a band of about 1,300 yearlings. Tularaemia was also epizootic in the local rodent population, especially among the jack rabbits. *Bacterium tularense* was recovered extensively from sheep tissues and from ticks infesting the sheep, as well as from rabbit tissues and corresponding ticks. These observations afford the first definite confirmation of the occurrence of tick-caused epizootic tularaemia in sheep as originally reported by the Public Health Service in 1928.

Colorado Tick Fever

A temporary sub-station for the study of the so-called Colorado tick fever was established at Casper, Wyo., late in May 1934. The research for this season is not yet completed, but thus far it has been impossible to reproduce the disease in mice, white rats, guinea pigs, rabbits, or monkeys.

Child Hygiene Investigations

The activities of the Office of Child Hygiene Investigations during the year were under the direction of Surg. Estella Ford Warner, who, as medical officer in charge, succeeded Acting Asst. Surg. E. Blanche Sterling.

STUDIES IN HEARING, PHYSICAL STATUS, GROWTH AND DEVELOPMENT IN SCHOOL CHILDREN

Hearing.—The study of hearing of school children begun in 1931 considers not only the incidence and degree of hearing defects but also the causative factors and the progression of the hearing loss which might furnish a basis for determining preventive measures in relation to loss of hearing. Some tabulations have been made from the data obtained from the 14,000 4–A audiometer tests, and preliminary reports are being prepared. The 2–A audiometer tests are to be repeated on the children manifesting a loss of 9 or more sensation units and the degree of regression or progression of hearing loss determined.

Physical status, growth, and development.—A study on growth in height was completed during the year and a report prepared. It was shown that at certain ages children grow in height regardless of attained stature, like other children of the same age; while at other ages, notably the adolescent period, children gain in height, regardless of age, like other children of the same height. A second study considers growth in weight, wherein it is shown that children from 6 to 15 years of age gain in weight more like other children of the same weight than like those of the same age. These two studies have been made jointly with Johns Hopkins University, Department of Biostatistics, and the Office of Child Hygiene, of the Public Health Service.

From the data obtained in Hagerstown, Md., 1921–28, an interesting study has been made on the relationship between heights and weights of brothers and sisters. A report of the study is in preparation.

A third study concerns the association between the height and weight of children or the annual gains in height and weight, and absenteeism from school due to sickness. A report on the use of height-weight tables as an index of physical fitness in the light of this finding is in preparation.

STUDIES OF CHILD HEALTH AND DEVELOPMENT IN RELATION TO THE ECONOMIC CRISIS

A statistical analysis of the weights of about 3,000 school children obtained in May 1933, compared with the average weight for age and sex obtained during the years 1923–28, was made in an effort to determine the effect, if any, of the economic depression upon growth in weight of school children. A report of the study was published in the Public Health Reports for October 20, 1933. A continuation of this study includes (1) a comparison of annual increments in weight of school children in 1922–23 to 1927–28 and in 1933–34; (2) a comparison of actual weights of school children in 1921–28 and in 1933 and 1934; and (3) observations on the differences in weights of children from families of different economic status.

As a part of the extensive study of the depression undertaken in 1933 by the Public Health Service and the Milbank Memorial Fund, an analysis was made of the height and weight records of approximately 6,000 school children from families surveyed in 7 cities. It was found that the average height and weight of the children of the families that had suffered a drop in economic status from "comfortable" to "poor" during the 4-year period was less than the average weight of children whose families had remained on either the "comfortable" or "poor" economic level throughout the period. This result is consistent with the findings of the general depression study as to the incidence of illness and death among these economic groups.

STUDIES IN DENTAL CARIES

During the year the two studies relating to dental caries were completed. The first study concerns the prevalence of dental caries among Negro and white children in the same community. The second study represents an investigation of the incidence of dental caries among Indian children. The data were obtained from the oral examination of over 8,000 Indian school children living under varying climatic conditions and Indian tribal habits. Five papers have been prepared which consider the relationship of dental caries to climate, tribal habit, and diet.

MISCELLANEOUS

The study of the mental status of children of various types of birth was discontinued on April 1, 1934, and the field office in Baltimore closed.

Dental Studies

Dental studies were continued under the direction of Senior Dental Surg. C. T. Messner. Dental studies have been confined almost exclusively to the dental health survey, a cooperative project with the American Dental Association. The dental health survey is divided into two parts; namely, the survey of existing facilities, and a survey to determine the dental needs of children of school age.

Facilities.—The survey of State departments and institutions was completed at the close of the fiscal year. Information covering the 5-year period 1928–33, which was obtained in each State, showed (1) whether or not there was a dentist on the State board of health, or equivalent advisory body, (2) full or part-time dental personnel employed, (3) organization of the State department of health, (4) appropriations or expenditures, (5) "break-down" of the dental budget, (6) dental program and changes therein, (7) educational campaign, (8) amount of remedial treatment and policy, and (9) dental diseases reportable by State law. In addition all dental activities in State departments of education and public welfare (institutions) were subjected to the same analysis when possible.

Survey of dental needs for children of school age.—Twenty-five States and one county of West Virginia cooperated in the study by making the necessary examinations. Practically all cooperative examinations were made by members of the American Dental Association working through their State and component or district societies.

Mottled enamel.—In order to determine whether or not there is a seasonal variation of fluoride content of endemic waters in endemic

localities, monthly samples have been received from 6 cities where mottled enamel is endemic, and 5 cities used as controls. Analyses of these waters are being made by the division of chemistry, National Institute of Health.

Dermatoses Investigations

During the fiscal year, the Office of Dermatoses Investigations, under the direction of Senior Surg. Louis Schwartz, continued its studies in industrial dermatoses.

Studies were made of processes of manufacture with special reference to the skin hazards involved in 27 plants, employing a total of 19,483 workers, of which number about 8,000 were actually examined for the occurrence of occupational skin diseases.

The sickness records of these plants as kept by the plant physicians were also examined in order to determine the frequency of skin disease and their causes.

SPECIAL STUDIES

In compliance with a request received from a firm manufacturing tacks, a study was made of dermatitis which was prevalent among their tack makers for a number of years. The study showed that the lime on the plates used in tack making was the exciting cause of the dermatitis. Recommendations were made for certain changes in the manufacturing process and in the selection of workers for the purpose of preventing the occurrence of further cases.

A study was made of an outbreak of dermatitis occurring in a nut and bolt plant. The women engaged in placing nuts on bolts wrapped friction tape around their fingers in order to protect the skin from friction. Patch tests showed that most of the ingredients used in the manufacture of friction tape were skin irritants. It was recommended that some bandage material be wrapped around the fingers, over this a layer of cellophane, and then the friction tape, so that the irritants in the friction tape could not seep through the cellophane and come in contact with the skin. This recommendation was carried out and no new cases occurred.

The attention of this office was called to four cases of dermatitis occurring among men wearing dyed socks. A study of these cases was made and it was found that in only one of them the dye was the actual cause of the dermatitis. In the other three the actual cause was found to be the finish used on the socks in order to make them more attractive for selling. As a result of this study it was recommended that all new socks having a finish on them should first be washed before they are worn.

Industrial Hygiene and Sanitation

Studies of industrial hygiene and sanitation were conducted under the direction of Surg. R. R. Sayers.

DUST STUDIES

Health of anthracite coal miners.—On request of the Governor of Pennsylvania, an investigation has been made of the effect of the dusts of hard-coal mining on the health of the workers. Studies were made of the occupational environment, including determinations of

the dust concentrations for different operations. Twenty-seven hundred persons, the entire number at 3 mines located in the 3 districts of the anthracite fields, were given medical examination and X-rayed. A supplementary study was made of disabled miners.

The physiological response of the peritoneal tissue to dusts introduced as foreign bodies.—A series of injections of dusts of known chemical composition (some definitely known to produce and others not to produce silicosis) was made intraperitoneally into guinea pigs to determine the nature of the response. The first part of the study was completed during the year and appeared in the Public Health Reports for January 19, 1934.

It was concluded that dusts of the absorption group could be considered least harmful, those of the proliferation group as being productive of silicosis, and those of the inert group as responsible for the various other pneumoconioses in which there is a large deposition of mineral material in the lungs with comparatively little fibrosis.

Silicosis among granite quarriers.—The effects of the inhalation of granite dust generated in granite quarrying were studied and a report published in the Public Health Reports for June 8, 1934.

Pulmonary infection in pneumoconioses (other than tuberculosis).—Fusospirochaetal lung infections have been reported in increasing numbers during the past 10 years, and routine examination of hard-rock miners in the zinc and lead district of Oklahoma, Kansas, and Missouri has shown such infections to be quite prevalent among them. These infections were found to be initiated by the symbiotic action of anarobic organisms commonly found in the upper respiratory tract.

Effect of inhaled marble dust as observed in Vermont marble finishers.—The clinico-roentgenographic findings in 80 marble finishers from a typical plant in Vermont have been studied to determine the effects of inhaling marble dust. Observations of the content of the air at the breathing level and analyses of the dust were recorded. A report was published in the Public Health Reports for June 22, 1934.

Talc workers.—A total of 66 workers was examined in 2 talc mines and mills in Georgia. Pneumoconiosis was found in certain of these workers. The dust concentrations to which the workers were exposed were similar in many respects to those found in the New York study of tremolite talc, previously reported. The nature of the dust, however, was different, because it contained less tremolite.

POLLUTION OF AIR AND ILLUMINATION STUDIES

Air pollution in American cities.—The study of atmospheric pollution in 14 cities was made to determine the average conditions and various fundamental relations which might prove of importance in programs for smoke abatement.

A report on this study is in progress of publication.

Determination of the effect of the yellow light of sodium vapor lamps on eyesight.—An investigation was carried on in New York to determine the effect of the yellow light of sodium vapor lamps upon the eyes of persons performing intensive clerical work.

In carrying out the tests two similar groups of men, most of them young, performed intensive clerical work under sodium and tungsten lamps, respectively.

No permanent effect of the sodium light upon the eyes of the subjects, beneficial or detrimental, was observed during the course of the tests, and no significant difference in the amount of work performed by the two groups was observed.

A paper summarizing the finding is being published in the Public Health Reports.

Natural illumination of factories, schools, hospitals, etc.—Determinations of the distribution of daylight within an experimental building have been completed, the distribution of the light having been determined for white walls and ceiling, for black walls and white ceiling, and for black walls and black ceiling. Measurements of the brightness of the sky were made concurrently with measurements of the illumination. The results have been analyzed, and the final report is practically completed.

STUDIES OF SICKNESS AND MORTALITY

Incidence of illness among industrial workers.—The study of the frequency of disabling sickness among industrial employees was continued for the thirteenth consecutive year. During 1933 the sickness-incidence rates were the lowest of any year of record. Current sickness rates are presented quarterly, and the results for each year in comparison with earlier years appear annually in the Public Health Reports.

Mortality rates in different occupational classes.—Publication of mortality rates by occupation for 10 States (1930) has made possible an analysis of the rates in different economic classes and a comparison with the rates for corresponding classes in England. A paper on these comparisons is being published in the Public Health Reports.

SPECIAL LABORATORY STUDIES

Studies in asphyxia.—Experiments have been carried out by the United States Bureau of Mines in cooperation with the United States Public Health Service to determine the reaction of dogs, and in some cases of rats, to asphyxia by carbon monoxide and by atmospheres deficient in oxygen. The report, published in Public Health Bulletin No. 211, covers neuropathology and blood chemistry.

Acute response of guinea pigs to vapors of some new commercial organic compounds.—The seventh report in this series was published during the year, in Public Health Reports for November 17, 1933. The work was carried out by the United States Bureau of Mines in cooperation with the United States Public Health Service, and has related to ethylene dichloride, ethyl benzene, cellosolve, ethylene oxide, vinyl chloride, dioxan, and dichloroethyl ether.

Estimation of basophilic cells (reticulocytes) in blood).—A simple method of estimating juvenile red blood cells (basophilic cells or reticulocytes) from ordinary blood films stained with an aqueous solution was developed during the study of plumbism among a group of storage-battery workers. This study was published in Public Health Reports, for August 18, 1933.

Spectroscopic study of silica.—An investigation of the detection of silica in fluids by spectroscopic methods was begun.

Benzol poisoning.—Studies are being made on the pathology due to inhalation of benzol vapors. No definite statement of results is as

yet available. This study is in connection with one carried out in cooperation with the United States Bureau of Mines and the producers of benzol.

COOPERATIVE ACTIVITIES

Preliminary industrial appraisal of St. Louis.—In cooperation with the city department of health, a preliminary appraisal of the industries of St. Louis was made to determine the extent of welfare and health provisions and the potential hazards to which the workers are exposed. Six hundred and fifteen plants were included from the manufacturing and mechanical industries, employing 28,686 workers.

Milk Investigations

The activities of this office were continued under the direction of Sanitary Engineer Leslie C. Frank.

Chlorine resistance of criterion organism.—The laboratory studies on the thermal and chlorine resistance of the *B. coli communior* test organism (strain 11–B) were continued. The initial chlorine concentration producing a 99.99-percent reduction of approximately 1,000,000 test organisms per cc and the average killing rate were determined for each of 10 chlorine compounds at different temperatures and in different concentrations of milk. With no milk present, the chloramines require from 3 to 600 times as high a chlorine concentration as the hypochlorites to produce a 99.99-percent reduction in 2 minutes. The addition of 1-percent milk increases the required chlorine concentration of hypochlorites markedly, but of chloramines only slightly. On the other hand, lowering the temperature from room to refrigerator temperature increases the required concentration of chloramines markedly, but of hypochlorites only slightly.

In connection with these studies it was found possible to adapt the chlorine precipitation test to the testing of chloramine compounds.

Thermal resistance of criterion organism.—Tests were continued to determine the time and temperature combinations required to produce a 99.99-percent reduction of the test organism, when treated in full-scale pasteurization equipment.

The test organism was cultured in whole milk, skim milk, standard broth, lactose broth, beef infusion broth, and on the surface of standard agar. The last was selected as the most satisfactory. The procedure used gave a concentration of organisms in the pasteurizer of about 2,000,000 to 3,000,000 per cc.

When tap water, buffered at approximately pH 6.9, was used in the pasteurizer, the average time required for 99.9-percent reduction of the test organism, at a temperature of 145° F., was about 55 minutes. With distilled water, buffered at the same pH, substituted for tap water, the corresponding reduction time averaged about 18 minutes. Distilled water has the advantage of decreasing considerably the extent of the variation in the reduction time for the individual runs. It has the disadvantage of decreasing the reduction time so that the reduction time at higher temperatures may be so low as to make difficult the securing of properly mixed samples. Methods are, therefore, being tried for increasing the time required for 99.99-percent reduction which will at the same time keep at a minimum the variations in the results of individual runs.

Bactericidal treatment of milk coolers.—Tests were continued to determine the concentrations of different commercial chlorine preparations required to produce a 99.99-percent reduction of a culture of the criterion organism upon a commercial milk cooler by means of a 2-minute rinse with the chlorine solution. It was necessary to discontinue this work before completion, but the results showed that the available chlorine required varied greatly with the source of chlorine, with the presence or absence of detergent substances, and possibly with the hardness and the hydrogen-ion concentration of the rinse water. A considerable reduction of the criterion organism was also effected by the 1- to 2-hour drying period used in the tests and by the mechanical action of the water used in rinsing the cooler.

Design of air and foam heating equipment.—Studies were made of various designs of air and foam heating equipment in order to develop a design which would give dependable operation and reduce to a minimum the amount of condensation added to the pasteurizer.

Washing and bactericidal treatment of milk cans.—The results of this work indicated that in raw-to-plant dairies where chlorine is used for bactericidal treatment of containers and equipment, it is practicable to require only a two-compartment wash tank, with one tank being used for washing and the other tank for a combination of rinsing and bactericidal treatment.

Washing of milk bottles.—At the request of the chairman of the Committee on Milk of the American Public Health Association, and in conjunction with several State health department laboratories, studies were made of the bactericidal efficiency of simple washing of milk bottles. Although in every washing method studied some of the bottles (based on a 5-bottle average) satisfied the criterion of 1 per cc. of capacity with simple washing and rinsing alone, there was not a single method in which every group of 5 bottles met this criterion.

Survey of milk-borne disease outbreaks for the year 1933.—The following outbreaks of milk-borne disease were reported to the Office of Milk Investigation by State and city authorities for the year 1933: typhoid fever 25; paratyphoid fever 1; diphtheria 2; septic sore throat 7; scarlet fever 3; miscellaneous 4; total 42.

Advisory assistance to State and local health departments.—During the fiscal year cities in the following States were visited at the request of the State health departments and given advisory assistance: Arizona, California, Georgia, Kansas, Kentucky, Maryland, Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, Tennessee, and Texas.

Milk sanitation ratings submitted by the several States for 249 cities were computed.

Studies of Public Health Methods

The Office of Investigations of Public Health Methods, under the direction of Surg. Joseph W. Mountin, in cooperation with the Division of Domestic Quarantine, continued its studies of public health practices in county health departments. The work begun in the Brunswick-Greenville health district of Virginia was completed the early part of the fiscal year 1934. This study determined the basic needs of the people in matters pertaining to health and the extent to which these needs were met by the local health department and other agencies.

Three additional counties now being studied contain large towns or are adjacent to cities; thus it will be possible to determine the influence of medical facilities found in urban centers on the health of people in adjoining areas. The health department program of the counties under study contains a large element of personal service in addition to the usual educational and regulatory measures.

During the past year public health surveys were made in Cincinnati and Hamilton County, Ohio, Portland, Oreg., in California, and of numerous Indian agencies for the Indian Bureau of the Department of Interior.

Statistical Investigations

The Office of Statistical Investigations continued under the direction of Senior Statistician Selwyn D. Collins, with Edgar Sydenstricker, W. H. Frost, and Lowell J. Reed, acting as consultants in various phases of the work.

THE DEPRESSION AND HEALTH

The analysis of the data on sickness and mortality among families of the unemployed continued throughout the year. These data were collected near the end of the last fiscal year by special canvasses of families in the poorer sections of 10 localities where the depression had been severe. Income and unemployment estimates and mortality records were obtained for the 4-year period 1929–32 and sickness was recorded for the 3 months in the winter and early spring of 1933 which immediately preceded the canvasser's visit.

The causes and durations of the illnesses were recorded and the extent and kind of medical care received, including that by physicians, clinics, hospitals, and nurses, with differentiation as to whether it was private service or care furnished free by public or other agencies. The 4-year record of income and employment permitted the comparison of sickness rates not only between "comfortable" and "poor" families but, of even more significance, between the recent or "depression poor" and those who were poor even in the prosperous year 1929, the "chronic poor." Briefly, the results indicate higher sickness rates among the recent poor class, the families who were comfortable in 1929 but had become poor by 1932. Poor as used in this study indicates an annual per capita family income of less than $150. Those who had been poor the entire 4 years had the next highest rate and those who had been comfortable throughout the 4 years had the lowest sickness rate. Although the data were not sufficiently extensive for final results, they suggest a rising mortality from 1929 to 1932 in the class most severely affected by the depression ("comfortable" in 1929 and "poor" in 1932) in the face of a downward trend in the death rate in the general population. Fourteen reports on various phases of the study have been published as follows: The Public Health Reports for October 13, 1933 (reprint 1598); American Journal of Public Health, February 1934; Proceedings of the American Statistical Association, supplement to March Journal of American Statistical Association; Quarterly Publication of the Milbank Memorial Fund, October 1933, January, April, and July 1934; Quarterly Publication of Health Section of League of Nations, March 1934; and Modern Hospital, March 1934.

RESPIRATORY STUDIES

Work has continued on influenza and other respiratory diseases. Two papers were published during the fiscal year (Public Health Reports for Sept. 22, 1933, and Jan. 5, 1934), and two others have been submitted and accepted for publication.

MORBIDITY STUDIES

The analysis of a mass of records on sickness and medical care obtained by special surveys of families in 19 States, with a total of some 80,000 person-years of life, was continued during the year. Two papers were published, one on the extent of physical or check-up examinations (Public Health Reports for Mar. 9, 1934) and another on the extent of eye examinations for glasses (Public Health Reports for June 1, 1934).

CURRENT PREVALENCE OF DISEASE

The 4-week reviews of the prevalence of diseases have been continued throughout the year.

The usual semiannual and annual summaries of mortality in the various States were prepared and published (Public Health Reports for Dec. 1, 1933, and May 4, 1934).

Stream Pollution Investigations

The headquarters station for research in stream pollution, including the allied fields of water purification and sewage treatment, has been maintained at Cincinnati, Ohio, with Sanitary Engineer J. K. Hoskins in charge.

Sewage-treatment studies.—The efficiency of the activated-sludge method of sewage purification, being a biological process, is dependent upon the maintenance and proper functioning of various forms of organic life in the treatment tanks which have the property of adsorbing or coagulating and oxidizing the colloidal and suspended matters in the sewage liquor and facilitating their removal through sedimentation in the form of flocculated particles or sludge. Factors at present little understood which disturb this optimum biological balance, and which, if they could be controlled, would insure the uniform efficiency of the process, have been under study throughout the year. An experimental sewage-treatment plant has been maintained in continuous operation as a source of material for laboratory research and in which numerous lapses in efficiency of purification or "sludge bulking" have occurred as a result of improper biological functioning. Continued observations of these changes in biological life throughout the treatment process have indicated procedures for determining the approach of such adverse conditions, but further research is needed to forestall and overcome them. It appears that other practical tests must be devised for their control. One such test—the rapid determination of the amount of dissolved oxygen in the sewage-sludge mixture in the aeration tank—has been perfected and described in the Sewage Works Journal for May 1934. Another test, the determination of the adsorptive capacity of the sludge for organic matter, is in process of development.

In confirmation of the work of previous observers, it has been noted that when activated sludge is most efficient the sludge particles are

largely composed of zoogleal masses of bacterial formation. Isolation of this bacterium in pure culture has permitted a study of its cultural and biochemical characteristics. Under such conditions, both in synthetic media and in sterilized sewage, it reproduces the zoogleal masses which are observed in good activated sludge and forms a rather coarse, granular floc which settles rapidly. Tests of this pure culture sludge have shown that it will adsorb as much as 85 percent of the oxidizable matter in a polluted water during a 3-hour aeration period. Comparisons are being made of the efficiency of this zoogleal sludge with sludges produced by other organisms in pure and mixed culture.

Study of stream oxidation.—An extensive series of measurements of the rates of atmospheric reaeration in streams of deaerated water flowing in experimental channels has been completed during the year, preparatory to undertaking further observations, in the same channels, of the rates of oxidation of sewage sludge deposits under stream flow conditions. A method has been developed and successfully applied for measuring rates of reaeration of zero oxygen saturation, using weak solutions of sodium sulphite as the oxygen-absorbing medium, which preliminary tests have indicated may be readily applied in comparing the efficiency of different aeration devices commonly used in biological sewage treatment. Trial experiments in determining rates of oxidation of sewage sludge deposits under conditions simulating those in natural streams have indicated that this rate is considerably lower than that of normal biochemical oxidation of sewage under laboratory conditions, but that it apparently is governed by the same general law.

An analysis of data obtained from previous laboratory surveys of the Ohio and Illinois Rivers has afforded the development of a general method for calculating the deoxygenating effect upon flowing water of underlying sewage sludge deposits in stream channels. The detailed application of this procedure is dependent, however, on more definite knowledge of the influence exerted on this effect by such factors as temperature, age, and depth of these sludge deposits.

National Institute of Health

The National Institute of Health continued under the administration of Director George W. McCoy and Asst. Director R. E. Dyer.

DIVISION OF PATHOLOGY AND BACTERIOLOGY

Typhus-Rocky Mountain spotted fever.—The investigations of typhus and Rocky Mountain spotted fever were curtailed during the year, due to the requirements of other activities.

Studies were continued to determine any changes in the viruses of these diseases which might arise from residence of the viruses in various species of arthropods. This investigation is still being carried on.

It was found that four species of native rodents (woodchucks, white-footed mice, meadow mice, and house mice) were susceptible to the virus of typhus fever.

Serum from a recovered case of suspected typhus fever in Honolulu, Hawaii, was found to contain protective bodies against typhus virus isolated in the United States.

Studies have been begun on the cultivation of the virus of endemic typhus fever. This work has not progressed sufficiently to warrant drawing conclusions.

Epidemic encephalitis.—Work on the etiology of epidemic encephalitis, which prevailed at St. Louis, Mo., in the summer of 1933, undertaken in conjunction with Dr. Ralph S. Muckenfuss and Dr. Howard A. McCordock, both of Washington University Medical School, led to the isolation, in monkeys, of viruses from six fatal cases of the disease. These various strains are similar in their major characteristics and are neutralized by the sera from recovered cases. Another virus has been isolated at the National Institute of Health in the course of the studies of material brought back from St. Louis. The latter virus is pathogenic for *Rhesus* and *Cebus* monkeys, white mice, and guinea pigs. The rabbit is resistant. This virus is distinct in its animal symptomatology, pathology, and immunology from the other six viruses.

Neutralization tests have been carried out on over 600 human sera, chiefly from recovered cases of encephalitis, from various parts of the United States in an effort to gain information as to the distribution of the virus throughout the country.

Bacteriophage.—Two lines of study were continued from the previous year. A comparative study of the strains of hemolytic streptococci is in progress, aimed particularly at finding characteristics by which human infections derived from animal sources may be traced to their origin. Sensitiveness to various races of phage is the character serving as the basis for this comparative study.

A comparative study of four serologically distinct races of streptococcus phage is in progress.

Immunization experiments which have been conducted to compare the value of streptococcus vaccines in the form of phage-lysed bacterial substance with that of whole cells killed by heat failed to reveal any superiority of the phage-lysed substance.

Relapsing fever.—Investigations have demonstrated the survival of virulent infection for 2½ years in naturally infected adult ticks of the species *Ornithodorus turicata* collected in Texas.

Tularaemia.—This disease was reported by State health officers from 38 States and the District of Columbia in 1933, a total of 892 cases being reported as compared with 933 in 1932. The disease was recognized in Maine for the first time, and was recognized in gray foxes for the first time (in Minnesota).

Poliomyelitis.—Studies are being conducted on the possibility of producing an active immunity to poliomyelitis in monkeys. Formalin-killed virus emulsions are being combined with potassium aluminum sulphate, which combinations are absorbed very slowly. Injections have not yielded a degree of immunity sufficient to modify the severity of the infection following intracerebral inoculation.

Studies of bacterial variants or mutants.—By the irradiation of bacterial strains with the beta and gamma rays of radium it has been shown that the beta rays are definitely bactericidal. The gamma rays have not been shown to have any definite effect upon bacteria, but results suggest that bacterial growth may be stimulated.

Trachoma.—Studies on trachoma were continued to a limited extent. The question of the possibility of developing a culture medium more suitable than those hitherto used for the isolation of *Bact. granulosis* has been under consideration.

Amoebic dysentery.—An outbreak of amoebic dysentery which had certain unique features originated in Chicago in the summer of 1933. The more important of these features, from the public health point of view were (1) the fact that the outbreak was on a rather large scale; (2) it was of a rather explosive quality; and (3) it appears to be the first outbreak in which a well-defined mode of transmission can be established with reasonable certainty. The majority of cases occurred in guests of two hotels which were located across the street from one another and had, in part, a common water supply. Epidemiological evidence pointed to contamination of the drinking water in these hotels as the most probable source of infection. Approximately 1,000 cases were reported. There is reason to believe that a considerable number of cases was not reported.

The United States Public Health Service, in conjunction with the Chicago City Health Department, undertook an epidemiological study which is still in progress.

Two laboratory investigations have been completed up to the present time. The first indicates that the cysts of *E. histolytica* do not survive long on the hands of individuals, even when liberally contaminated under experimental conditions. The second shows that chlorine is wanting in effectiveness against *E. histolytica* cysts when used in any quantity practical for water purification; on the other hand, filtration is very effective in removing the cysts from contaminated water supplies.

In May 1934 a few cases of amoebic dysentery and a considerable number of cases of typhoid fever developed among persons who had drunk contaminated water.

The investigations of amoebic dysentery are being continued.

Pathology.—The histologic diagnostic service to marine hospitals and other agencies has been continued, over 1,500 specimens being examined and reports submitted thereon.

In addition to this diagnostic work, specimens from about 3,200 experimental animals were examined histologically and reports submitted to various workers in the National Institute of Health and to others.

Reports have been prepared and published on the histopathology of poisoning by phosphorous acid phenol esters; paraffin imbedding *in vacuo;* multiple branchiogenic acanthoma; the pathology of experimental blacktongue in dogs and of "yellow liver" in dogs (National Institute of Health Bulletin 162); the bone marrow in tularaemia, and the incidence of syphilitic aortitis in seamen and landsmen.

Data on the incidence of various types of tumors in seamen and other beneficiaries of the service are in the course of compilation. Studies on the clinical association of discrepancies between the Kahn and Wassermann tests, on the glucose metabolism in relation to malignant tumors, and on the pathology of tularaemia in man and laboratory animals are in progress.

There follows a tabulation of the specimens examined during the fiscal year:

Human pathology	1,552
Animal pathology	3,300
Miscellaneous preparations	166
Total tissues prepared	5,018
Blood and spinal fluid for Wassermann and Kahn tests	14,926
Blood for other diagnostic tests	2,265
Other specimens	293
Total	17,484

Biologic products.—At the close of the fiscal year 48 establishments held licenses to engage in the interstate sale of the products; of these, 10 were foreign and 38 domestic concerns. The licenses cover 147 different preparations.

SPECIAL STUDIES ON PROPHYLACTIC AND THERAPEUTIC AGENTS

Standardization of gas gangrene antitoxins.—Tests were carried out in cooperation with certain European laboratories looking toward the development of an international standard for measuring the potency of *Vibrion septique* antitoxin. A unit one-half the size of that in use in this country was recommended by the National Institute for Medical Research, London (under whose direction the international testing was done) as the basis for testing.

Some progress has been made on the standardization of *Cl. oedematiens* and *Cl. histolyticus* antitoxins.

Hemolytic streptococcus studies.—These studies have been extended to include approximately 250 strains of hemolytic streptococci which include strains from scarlet fever, erysipelas, septic sore throat, puerperal fever, acute rheumatic fever, and a wide range of miscellaneous streptococcus infections. Other strains will be added in the future.

Meningococcus meningitis.—A study of the toxins produced by the meningococcus has been undertaken. A study of the effect of various therapeutic sera upon the meningitis produced in guinea pigs by these toxins is now under way.

A study of the viability of meningococci kept at −15° C is being made. The maximum maintenance period and the optimum conditions for below-freezing storage are under investigation.

Alum precipitate antigens.—A study was made of the value of various antigens when combined with different amounts of potassium aluminum sulphate. The sensitizing effect of pollen extracts is greatly enhanced in animals when the extracts are precipitated with alum. Small amounts of alum—less than 0.3 percent—do not inhibit the desensitizing effect of extracts, and the addition of small amounts of extracts for human use is indicated for experimental trial.

Abscesses following alum-precipitated diphtheria toxoid have been studied. Commercial products have been found to vary widely in aluminum content, and probably also in bacillary protein. Standardization of these factors will probably result in a less irritating product.

Staphylococcus studies.—Further studies have been carried on with staphylococcus toxin, toxoid, and antitoxin. The two latter products are now being prepared by concerns manufacturing biological products.

Tentative standards have been established and manufacturers' products have been tested for potency and innocuity.

Arsenicals.—Studies of the effect of the pH of neoarsphenamine on toxicity are being made in collaboration with the Division of Pharmacology.

DIVISION OF PHARMACOLOGY

The work of this division was continued under the direction of Pharmacologist Director Carl Voegtlin.

Cancer research.—The plan of cancer research in the Division of Pharmacology places particular emphasis on the biochemical aspects of the problem without, however, ignoring important physiological, cytological, and pathological considerations. Considerable progress was made during the present year.

Fundamental research on cell growth was continued. The report for 1933 announced the discovery of the enzymatic synthesis of cell protein. This discovery has now been confirmed by work in other laboratories. A systematic study was made of the influence of variations in hydrogen-ion concentration upon the synthesis of tissue proteins. The results clearly show that an increase in hydrogen-ion concentration has an inhibiting effect upon protein synthesis. Theoretically, this observation indicates the possibility, if not likelihood, of the coupling of at least three types of fundamental biochemical processes, namely, (1) proteolysis-protein synthesis, (2) glycolysis, and (3) oxidation reduction. Experiments were also made to ascertain whether the resynthesized protein has the same composition as the original one. Quantitative estimations of the cystine content confirm this view. It was also shown that the observed resynthesis of protein is due to presence of an intracellular enzyme (proteinase) and that it is not due to a nonenzymatic oxidation of protein cleavage products.

Work on the chemistry of cell division in *Amoeba proteus* was continued. A method was discovered which permits direct visual observation of the dividing nucleus in the living cell. This method was applied to a study of the action of various chemicals of physiological and pharmacological interest upon the process of mitosis.

Continued work on the cultivation of the Walker rat carcinoma *in vitro* has led to the production of an apparently pure culture of malignant epithelial cells, which, when inoculated into rats, produced typical tumors. Pure cultures of normal rat fibroblasts were also obtained. Mixed cultures of these two cell types showed that the malignant cells apparently destroy the normal cells *in vitro*.

Based on these fundamental researches further efforts were made to discover chemicals with therapeutic action on malignant tumors. Definite indication of a therapeutic effect was obtained with an organic sulphur-containing compound.

Treatment of acute bichloride of mercury poisoning.—On the basis of animal experiments a chemical method was discovered for the treatment of bichloride poisoning in human cases. Death from fatal doses of bichloride can be prevented when formaldehyde sulphoxylate is given by mouth and vein within a reasonable time after the poison has been swallowed.

Studies on phenol and compounds of phenols.—A method was worked out for the quantitative estimation of free and conjugated phenol and of the three isomers of cresol in the body tissues and

fluid. Application of this method yielded information as to which of the body tissues are concerned with the detoxication of phenols.

Continuing the work on the action of the neurotoxic phosphoric esters of the phenols the pharmacology of the phosphoric mono-, di-, and tri-esters of orthocresol was studied. These investigations disclosed separate mechanisms determining the fate of each of these types of compounds in the body. The experiments showed specific phosphatases capable of hydrolyzing the mono- and di-esters, respectively. No such mechanism could be found for the tri-ester, with its selective action upon the nervous system.

Vitamin studies.—Studies were made on the characterization of the biochemical properties of some of the vitamins of the B group, more especially the antineuritic B_1, the growth of B_2, and the antidermatitis factor. The effects of ultra-violet irradiation, acid and alkaline hydrolysis, and differential precipitation at various pH values have been examined. It has been possible to effect by some of these procedures a partial separation of B_1 and B_2. The observations have generally indicated a close association of the antidermatitis and B_2 vitamins.

Organic arsenicals.—Physicochemical studies were made of neoarsphenamine, sulpharsphenamine, and other arsenicals in relation to toxicity. Recent claims made in the literature to the effect that fatal poisoning results from the use of commercial neoarsphenamine and sulpharsphenamine with an acid reaction were not confirmed.

DIVISION OF CHEMISTRY

The work of the Division of Chemistry was continued under the direction of Prof. Claude S. Hudson.

Sugar researches.—The sugar researches were carried out mostly along the lines of the last report. Studies were continued which may throw further light on the chemistry of the biologically important uronic acids and their derivatives, with special reference to the oxidation of sucrose, a-methyl-d-xyloside, and a-methyl-d-mannoside. A detailed study was made of the oxidation of a-methyl-d-mannoside. It was shown that both the methyl hexuronic and penturonic acid may result from its oxidation. The conditions for the control of the formation of the different products were investigated. The work on the methyl penturonic acid is of further interest in that evidence was obtained to show that it contains a hemiacetal group, which is rather unusual in this class of compounds.

Studies were continued on the four-carbon sugar threose. As a result of this work, it is now possible to study practical applications of this sugar in biological and medical investigation.

Enzyme researches.—A relatively convenient method was developed by which the enzyme invertase present in yeast was greatly purified by adsorption on colloidal lead sulphide.

The methods which proved successful in the purification of invertase from yeast have also been applied in an attempt to concentrate the diphtheria antitoxin contained in the usual commercial preparation. Although the active immunizing agent, was adsorbed by colloidal lead sulphide, parallel determinations of the total solids simultaneously removed from solution showed that the adsorption was not selective. This observation, in conjunction with the poor yields obtained when the lead sulphide adsorption complex was subsequently

decomposed, suggested that lead sulphide probably could not be used to advantage in attempts to purify diphtheria antitoxin.

Mottled enamel.—A comparatively simple and convenient method was developed for estimating small amounts of fluorides in drinking water in connection with the chemical work incident to the study of mottled enamel (Public Health Reports, Oct. 6, 1933).

DIVISION OF ZOOLOGY

Bulletins.—The key catalog of parasites reported for Carnivora, with their possible public health importance, is in press and will be published as National Institute of Health Bulletin No. 163.

Survey of ectoparasites.—Over 120,000 ectoparasites, including fleas, lice, and mites of rats and other mammals, have been identified. Charts and graphs relating to rat density, flea indices, etc., have been prepared. A guide to the ectoparasites of rats in the United States was prepared for use by field workers engaged in surveys of rodent ectoparasites.

Examination of parasites for diagnosis.—Approximately 200 specimens have been examined for various Government hospitals, State health departments, universities, and for practicing physicians.

MISCELLANEOUS

During the year 144 articles, 4 public health bulletins, and 1 National Institute of Health bulletin, dealing with scientific or public health subjects, were reviewed and approved for publication.

DIVISION OF DOMESTIC (INTERSTATE) QUARANTINE

Asst. Surg. Gen. C. E. WALLER in charge

PLAGUE-SUPPRESSIVE MEASURES IN CALIFORNIA

Plague-suppressive measures have been continued in cooperation with the California State authorities in Alameda, Contra Costa, San Francisco, and San Mateo Counties. No plague was reported from any of these counties. One fatal case of human plague occurred in Los Angeles in August 1933, and one human case was reported from Tulare County in June 1934. Rodent plague in ground squirrels was reported in San Benito, Santa Clara, Kern, Tulare, and Modoc Counties. The outbreak in Kern and Tulare Counties is the largest one that has occurred in recent years, 199 ground squirrels from these counties having been found plague infected. It extends over about 800,000 acres of sparsely populated land. One case of human infection has been reported from this area. The low incidence of human infection is presumably attributable to the small number of people residing within the infected district. The Tule River Indian Reservation lies within the infected area, and infected rodents have been found on the reservation.

In June 1934 rodent plague was found in Modoc County, Calif. This focus is at least 250 miles from the nearest previously known plague focus. At the end of the fiscal year approximately 25 rodents from Modoc County had been proved to be plague infected.

On May 21, 1934, a human death from plague occurred at Lakeview, Oreg., about 15 miles north of the California State line. This case was not definitely proved until June, when information of the presence of plague in Modoc County suggested the possibility of plague. This is the first recorded occurrence of plague in Oregon.

Measures taken against ground squirrels.—Public Health Service activities in this work have been confined to the maintenance of a squirrel-free zone around the cities on San Francisco Bay. These measures have been in cooperation with the city or county authorities. They include inspection of areas for evidence of ground-squirrel infestation and appropriate measures to destroy the rodents when found. The following tabulation shows the extent of these activities:

Number of—	
Inspections	1, 249
Reinspections	2, 278
Acres inspected	215, 739
Acres reinspected	630, 834
Acres treated with waste balls	29, 233
Acres treated with poisoned grain	138, 217
Burrows treated	66, 680
Materials used:	
Carbon bisulphide (gallons)	1, 177½
Waste balls	66, 680
Poisoned grain (pounds), strychnine	11, 876
thallium	16, 409
phosphorus	11, 030
Poison mixed for landowners under supervision of Public Health Service (pounds)	1, 100

Measures taken against rats.—These activities are almost entirely in the city of San Francisco, where work has been continued in cooperation with the local department of public health. City and Federal efforts are combined, as in previous years, under the general control of the Public Health Service. All complaints of rat infestation in the city are reported to the Public Health Service, and these are investigated and such action is taken as is deemed proper. The trapping of rats and the examination of trapped rats for evidence of plague infection has been continued. Assistance to the city department of public health in abating rat nuisances and rat harborages through condemnation proceedings has been rendered in a few instances. A total of 1,954 rat complaints were investigated in San Francisco.

During January and February the office cooperated with the Typhus Fever Control Research Project carried on by the Public Health Service with Civil Works Administration funds and personnel. This project covered the entire county of San Francisco and the cities of Alameda, Oakland, Berkeley, Piedmont, Emeryville, Albany, and San Leandro in Alameda County. The sudden termination of the project on February 15, 1934, by withdrawal of Civil Works Administration funds, prevented the extension of the work into the smaller places in Alameda County. All rats trapped during the life of this project, as well as those trapped at other times, were examined for evidence of plague at the Federal laboratory. No plague-infected rat was found.

An officer of the Public Health Service visited the newly discovered plague-infected areas in Kern, Tulare, and Modoc Counties, where the work of determining the presence and extent of the infection is being carried on by the State department of public health, and squirrel-control measures have been applied by the rodent-control division of the State department of agriculture or by the United States Biological Survey. He also saw, in consultation, the 2 human cases of plague occurring in California, and assisted in the laboratory diagnosis of 1 of these.

Public Health Service laboratory.—The laboratory activities were moved to the new laboratory building in June 1933. The new building and equipment have made the work of the laboratory more extensive and more easily carried out. The work of the laboratory consists chiefly of examination of rodents for plague infection, the examination of samples of water used on interstate carriers, serological work for other Service stations, and bacteriological work, including animal inoculations for various stations of the Public Health Service or other departments of the Government.

The application of the Kahn precipitation test to all specimens submitted for the Wassermann test has been made a part of the regular routine of the laboratory.

During January and February the laboratory was used for the laboratory operations of the typhus fever control project carried out by Civil Works Administration funds, under supervision of the medical officer in charge.

The following table gives a summary of the operations of the laboratory:

	Received	Examined
Examination of rodents for plague:		
Rats from San Francisco	24,884	21,590
Rats from Oakland and Alameda County	5,423	5,322
Rats from fumigated ships	195	195
Squirrels from San Mateo County	2	2
Rats combed for ectoparasites:		
Rats from San Francisco County	302	----
Rats from Alameda County	818	----
Ectoparasites collected:		
From San Francisco County rats	5,448	----
From Alameda County rats	16,744	----
Serological examinations:		
Wassermann reactions:		
Blood	----	7,283
Spinal fluid	----	446
Kahn tests:		
Blood	----	6,838
Spinal fluid	----	420
Agglutination test (typhoid fever)	----	1
Bacteriological examinations (culture and microscopic):		
Water	----	553
Culture for diphtheria	----	2
Urine for tuberculosis	----	8
Leprosy	----	1
Bacteriological examinations (with animal inoculations):		
Tuberculosis	----	89
B. pestis	----	4
Weil disease	----	1

Rat leprosy.—During the year 38 rats suffering from rat leprosy were found in San Francisco, and 29 were found among rats from Oakland. From October 31, 1933, to January 31, 1934, 26 leprous rats were caught in San Francisco. As the number of rats suffering from rat leprosy has rarely exceeded five in any previous year, this unusual prevalence of the condition is noteworthy.

Plague-control Measures in the Territory of Hawaii

Plague-control measures were continued on the islands of Maui, Hawaii, and Oahu in cooperation with the Territorial board of health. Neither human nor rodent plague was found on the islands of Maui and Oahu. On the island of Hawaii there was 1 human case and 9 plague rats were found.

Major parts of time and funds were spent in connection with control measures on the island of Maui, in view of the fact that an outbreak of plague occurred on this island a few years ago in a zone fairly close to the Port of Kahului, one plague rat having been found at that time at a point about 6 miles distant from the docks. Kahului is the only port on the island where ships dock.

On the island of Hawaii, plague has been confined for many years to the Hamakua section, about 40 miles from the port of Hilo. Ships dock only at Hilo. The opportunities for plague to spread from this island are considered much more remote than on the island of Maui, in view of the greater distance between the infected zone and the port and the differences in transportation facilities.

The work on the island of Oahu was carried out in conjunction with a rodent ectoparasite survey for typhus-fever control, financed by the Civil Works Administration and the Federal Emergency Relief Administration. No plague has been found on Oahu since 1910.

Island of Maui.—Control measures on Maui were financed by appropriations from the Territorial board of health, the Maui Quarantine Tax Commission, Federal relief organizations, and the Public Health Service. The quarantine tax commission receives its funds from taxes levied on all freight entering and leaving the island, and it also receives a sum annually from the county.

The program which was in force when the work was taken over in the latter part of September consisted of (1) distribution of packages of poisoned grain in the fields and buildings with the object of rat destruction; (2) trapping and laboratory examinations of rats to serve as an index of plague infection; and (3) inspecting for rat infestation the outgoing freight and ships at Kahului. This program was broadened by adding (4) inspection of all buildings and premises in the area being worked, for ratproofing and elimination of rat harborages; (5) destruction of rodents by shooting from nests in trees, and increasing trapping activities to such an extent that the rodent population might be materially reduced; (6) inspection of packing of vegetables and other farm produce in the fields to preclude the possibility of carrying rats from the zone formerly plague infested, or elsewhere, to the wharf at Kaluhui, and requirement of the use of rat guards on local ships which carry interstate shipments as well as on ships plying to the mainland; (7) cage experiments to determine the effectiveness of the poison bait on rats under caged conditions; and (8) field experiments to determine the effect of placing poison bait in the fields and buildings on the rat catch, by trapping before and after placing poison.

The following table gives a summary of the results of the control work for the fiscal year:

Classification of rodents trapped and killed

R. alexandrinus	11, 205	*R. hawaiiensis*	10, 502
R. rattus	3, 935	*R. norvegicus*	25
M. musculus	16, 237	Mongoose	241

Summary of work

Number of rats trapped	24, 654
Number of trap days	431, 332
Number of rats per 100 traps per day	5, 716
Number of rats killed by shooting, etc	1, 130
Number of pieces of poison bait placed	10, 499, 024
Number of rats found dead	102
Number of rodents received at laboratory	41, 904
Number of rats examined macroscopically	25, 667
Number of rats examined microscopically	11
Number of mass inoculations made	414
Number of single inoculations made	6
Number of buildings and premises inspected	2, 212
Number of cases of human plague	0
Number of cases of rodent plague	0

Sanitary inspections of buildings and premises were made in all of the built-up sections of the area being worked. Special attention was given to eliminating the rat's food supply and removing rat harborages. Inspections were entered on a specially prepared form, listing defects and corrections required. These reports were turned over to the Territorial health officer, who referred them to the proper local authorities for action.

The inspection of outgoing freight and ships for rat infestation was carried out by a sanitary inspector of the Public Health Service, who was detailed to the port of Kahului for this purpose. This inspector was also charged with enforcing the requirement of placing rat guards on ships.

In order to increase the efficiency of the trapping organization one trapper was made foreman; and since this change, the rat catch has materially improved. At the close of the fiscal year there were 8 trappers and 1 foreman, whose salaries were being paid by the Public Health Service.

Funds for operating and maintaining the laboratory were furnished by the Territorial board of health. The employees consisted of 1 supervisor and 2 laboratory assistants.

Funds for paying laborers for making and distributing poison packages were furnished by the local quarantine tax commission for a time, and later labor was furnished by Federal relief organizations. Funds for purchasing materials used in making the packages were furnished by the Public Health Service according to an agreement made at the beginning of the fiscal year.

The inspection of the procedure in packing produce in the fields and delivering it to the docks was carried out by the regular sanitary inspectors of the board of health stationed on the island.

Cage experiments to obtain information concerning the extent to which rats will eat the prepared poison under these conditions were carried out in cages about 10 feet long by 18 inches wide by 18 inches high, and later also in a cage about 12 feet long by 6 feet wide by 6 feet high. The cages were so arranged that natural food was made available in the same compartment with the poison, in order to simulate conditions in the field as nearly as possible. On an average, 10 rats were used per experiment, all rats being placed in the cage at the same time. These experiments were carried out during the latter part of the fiscal year and are being continued. Preliminary results tend to show (1) one or two and occasionally more rats will eat some of the poison package the first night and die shortly thereafter; (2) after one or more rats have died from eating poison, the remainder of the rats in the cage refuse to eat it even if food and poison are replaced with fresh material each day; and (3) the foods most abundant on the island, namely, sugarcane and pineapple, are not eaten by rats when certain other natural foods are available.

Field experiments were carried out in various sections of the area being worked, the procedure being to trap a limited area for 1 week, then placing poison and again trapping for a week, the object being to determine the effectiveness of placing poison by comparing the rate of rat catch before and after placing poison. The results of 11 experiments completed at the end of the fiscal year, taken as a whole, show practically the same rate of rat catch after placing poison as before. These experiments are being continued in order to obtain data from all sections of the area being worked.

Island of Hawaii.—Control measures on the island of Hawaii were carried on by the Territorial board of health, and consisted of trapping and examining rats and placing poison. Public Health Service activities were confined to an inspection trip and the providing of certain materials used in connection with trapping and making poison bait. Plantation employees were used to some extent, as well as labor

furnished by Federal relief organizations. Conditions on this island are quite different from those on Maui, and the control measures found effective in the latter place may not necessarily apply to the island of Hawaii except in a general way.

Plague cases were discovered as follows during the fiscal year, all occurring in the Hamakua section, where plague has occurred sporadically for many years: 1 case of rodent plague in September 1933; 2 cases in November 1933; 5 in December 1933; and 1 case in January 1934. There was only one case of human plague, which occurred in June 1934.

Island of Oahu.—The plague-control measures on this island were confined to trapping and laboratory examination of rats caught in Honolulu and rural sections adjacent to the city. This work was carried on as an adjunct to a typhus fever control ectoparasite survey, and relief labor was used throughout. The work was begun on January 5, 1934. Rats were trapped simultaneously in all sections of the area. In the laboratory all rats were examined macroscopically for plague and daily mass inoculations of guinea pigs were made. At the end of the fiscal year no plague rats had been found. Both cage and snap traps were used in this work, since it was necessary to have live rats for the ectoparasite survey. Following is a summary of results of this work:

Number of rats caught with cage traps	3,763
Number of mice caught with cage traps	52
Number of other rodents caught with cage traps	105
Number of cage rat trap-days	64,333
Number of rats per 100 cage traps per day	5.85
Number of rats caught with snap traps	3,794
Number of mice caught with snap traps	2,107
Number of other rodents caught with snap traps	39
Number of snap rat trap-days	61,317
Number of rats per 100 snap traps per day	6.19
Total rats caught (cage and snap traps)	7,557
Total rat trap-days (cage and snap traps)	125,650
Rats per 100 traps per day (cage and snap traps)	6.01

Trachoma Prevention

During the past year, because of reduction in the Federal allotment for this work, it was necessary for the States cooperating with the United States Public Health Service in trachoma-control activities to increase their financial contributions. As a result, the States concerned met approximately one-half the cost of this work within their borders.

It seems wise to draw attention again to the fact that trachoma is not an acute disease with a more or less characteristic course in each individual case. On the contrary, it is often very insidious in its development, and an individual may not realize for several months that there is anything seriously wrong with his or her eyes. A physician may be compelled to watch a person over a long period before being certain that trachoma is really present.

It has been observed repeatedly that the earlier a case can be brought under treatment the better the response and the more likelihood of the disease remaining arrested. Those interested in the public-health aspects of trachoma as well as in the disease in the individual often see people who have had trachoma and in whom the

disease has become arrested without any treatment. Such cases might be called "aborted trachoma". Usually such individuals have no impairment of vision; and it is probable that there are aborted cases that do not leave behind any signs of previous trachoma, such as scar tissue and pannus.

The experimental work on the use of copper thiosulphate intravenously as a means of therapy in trachoma was brought to an end. No particular benefit was discovered from such therapy. A summary of this work was published in the Public Health Reports for May 4, 1934.

A Japanese product known as yataconin (Calcium salt of phosphoric ester) was tried out in 14 cases of trachoma on the recommendation of a prominent ophthalmologist. No particular benefit was seen from its use.

Missouri.—The hospital facilities at Rolla have been extended, as in the past, to those suffering from trachoma. Not so many patients were admitted during this year as in past years, on account of the reduction in funds for rations. The policy has been to reserve beds available for young individuals with a very active condition. The extent of field work has been about the same as formerly. More clinics were held and more people were contacted than in the preceding year.

The trachoma film produced at this hospital was shown to many lay audiences in the State and to public-health workers and nursing groups.

The hospital has cooperated with two groups doing research on trachoma, serving as a source of supply of trachomatous material.

Kentucky.—The hospital facilities at Richmond were so used to take care of a greater number of trachoma patients than in the preceding year. This was gratifying, in view of the fact that funds for rations were reduced. There were fewer field clinics and a much smaller number of people was contacted in the trachoma area of the State than during the year before.

The medical officer in charge of the hospital appeared on the program of the Kentucky State Medical Society and showed the film entitled "Trachoma in the Native White Population of the United States."

A more severe type of trachoma still presents itself quite frequently at the Richmond hospital. For this reason, this unit has been useful in serving as a source of supply of trachomatous material for trachoma research.

Tennessee.—Trachoma in this area has never seemed to be as severe as in Kentucky or Missouri. Many of the active cases seen do not impress one as being of a very serious nature. The active work of trachoma control is centered at Gainesboro, and an area of 13 counties has been very systematically covered. So far, slightly over 1,600 cases of trachoma have been registered in these counties, and the majority of the cases have received various degrees of treatment. The medical officer estimates that 150 of them still retain quite active trachoma pathology. Later, it may be necessary to establish the clinic at some point in the State other than Gainesboro.

Dispensary and hospital relief, operations, etc.

Dispensary relief:	
Number examined	5,030
Old cases	2,334
New cases	508
Total attendance	5,030
Average daily attendance	13.78
Combined dispensary and field clinic data:	
Total number of new individual trachoma cases discovered	1,193
Pannus in new cases	1,043
Entropion in new cases	218
Corneal opacities in new cases	356
Ulcers arising in all cases, new and old	56
Hospital relief:	
Hospital capacity	77
Cases admitted during the year (total)	726
Number of cases first admission	474
Days relief furnished	19,845
Rations furnished	23,839
Cost of rations	$6,381.90
Operations: Total number of operations	1,439

Field work

Field clinics:	
Number of clinics held	355
Number of persons examined	7,912
Trachoma cases seen, old trachoma	2,405
New trachoma cases seen	685
Suspicious cases seen	1,354
Treatments given at clinics	3,785
Field nurse activities:	
Public health talks given	259
Attendance (estimated)	8,650
Homes visited	3,478
People examined in homes	7,752
Suspicious cases in homes	880
Number of pupils examined in schools	11,973
Suspicious cases in schools	314
Number of treatment clinics, nurse only	11
Number of treatments by nurse	105

Supervision of Water Supplies Used by Common Carriers

Notwithstanding the added duties imposed upon the State departments of health and the Public Health Service due to the emergency activities, the inspection and certification of water supplies used for drinking and culinary purposes on interstate carriers, carried on in cooperation with the State health departments, was continued without loss of efficiency. Of the 2,241 supplies listed by the carriers, 94 percent were inspected and certified.

In addition to assistance rendered the States in the preparation of certificates of inspection, 94 actual inspections of water supplies were made, chiefly in States having no engineering division. A comparison of completeness of the certification work with that of previous years is shown in the following table:

Nature of supply	Percent of completed certifications				
	1929	1930	1931	1932	1933
Railroad supplies	81	87.5	92.8	95.1	94
Vessel supplies	78	88.0	95.9	97.2	97
Airplane supplies			85.8	97.4	93

Status of work by States.—The accompanying table summarizes the work of the calendar year 1933 and shows the status of the work by States.

Interstate carrier water supplies for calendar year 1933

State	Source classification				Certification status				Percent sources acted upon	Certificates issued
	Public [1]	Private [2]	Railroad	Total	Satisfactory	Provisional	Prohibited	Action pending		
Alabama	16	2	0	18	18	0	0	0	100	79
Arizona	19	7	10	36	11	24	0	1	97	41
Arkansas	37	0	2	39	31	8	0	0	100	55
California	58	11	26	95	74	18	0	3	97	280
Colorado	27	2	5	34	28	6	0	0	100	58
Connecticut	17	0	0	17	15	2	0	0	100	43
Delaware	6	0	0	6	6	0	0	0	100	15
Dist. of Columbia	1	0	1	2	2	0	0	0	100	5
Florida	37	7	10	54	54	0	0	0	100	109
Georgia	47	2	2	51	36	12	3	0	100	100
Hawaii	3	0	0	3	3	0	0	0	100	12
Idaho	17	2	6	25	21	1	0	3	88	25
Illinois	68	3	7	78	52	24	2	0	100	158
Indiana	49	4	0	53	19	34	0	0	100	103
Iowa	59	2	7	68	37	21	2	8	88	97
Kansas	73	0	6	79	71	4	4	0	100	106
Kentucky	34	3	6	43	28	14	0	1	98	59
Louisiana	26	5	6	37	36	1	0	0	100	98
Maine	34	0	5	39	36	2	0	1	97	77
Maryland	15	3	3	21	20	1	0	0	100	78
Massachusetts	39	0	0	39	36	3	0	0	100	108
Michigan	64	6	7	77	77	0	0	0	100	133
Minnesota	43	0	15	58	32	19	0	7	88	83
Mississippi	30	2	5	37	34	2	0	1	97	51
Missouri	48	0	8	56	42	11	3	0	100	105
Montana	21	1	7	29	27	2	0	0	100	40
Nebraska	23	0	11	34	9	18	3	4	88	40
Nevada	9	1	11	21	20	0	0	1	95	22
New Hampshire	17	0	1	28	16	1	1	0	100	22
New Jersey	46	5	3	54	53	0	0	1	98	125
New Mexico	13	1	11	25	25	0	0	0	100	28
New York	98	4	10	112	106	4	2	0	100	252
North Carolina	45	4	1	50	36	12	1	1	98	74
North Dakota	14	5	15	34	14	16	0	4	88	33
Ohio	59	2	10	71	62	7	2	0	100	162
Oklahoma	42	2	2	46	13	8	0	25	46	31
Oregon	29	0	1	30	27	2	1	0	100	104
Pennsylvania	122	2	8	132	97	0	0	35	73	136
Rhode Island	3	1	0	4	4	0	0	0	100	32
South Carolina	30	0	1	31	31	0	0	0	100	70
South Dakota	20	0	10	30	20	0	0	10	67	33
Tennessee	25	2	5	32	30	2	0	0	100	51
Texas	111	20	42	173	76	97	0	0	100	298
Utah	11	0	4	15	11	4	0	0	100	27
Vermont	9	0	1	10	9	1	0	0	100	16
Virginia	47	3	5	55	45	4	0	6	80	125
Washington	29	2	2	33	31	0	2	0	100	200
West Virginia	30	4	9	43	38	3	0	2	93	52
Wisconsin	51	7	8	66	61	4	1	0	100	100
Wyoming	14	1	3	18	5	0	1	12	33	6
Total	1,785	128	318	2,241	1,685	392	28	126	94	4,157

[1] The column headed "Public" includes supplies owned by municipalities as well as those used by municipalities but owned by private companies.

[2] A "private" supply refers to a small well or spring used only by the carrier and the person owning it.

SUPERVISION OF WATER SUPPLIES ON VESSELS

During the year 52.6 percent of all vessels in active service, including all passenger-carrying vessels, were inspected and certified.

District no. 3 extended cooperation to the officials of the Eleventh Lighthouse District at Detroit by preparing plans for the installation of small water-treatment plants on their tenders. Five lighthouse tenders have now been equipped with the water-treatment plants developed in the district office in addition to the hypochlorite feeder

installed on the United States Lake Survey vessel. This equipment has functioned satisfactorily in all cases.

A total of 1,012 laboratory examinations of water taken from several drinking-water supplies have been made by the health departments of cities on the Great Lakes and the Mississippi and Ohio Rivers. Of the samples collected from Great Lakes vessels 87 percent conformed to the Drinking Water Standards of the Treasury Department.

The following table gives the status of the inspection work carried on during the year:

Vessels for calendar year 1933

District	Vessels on active status	Percentage of total vessels in district	Certification [1]				Percentage of district vessels certified	Percentage of total vessels certified
			Permanent	Temporary	Not approved	Total		
1	616	36.6	75	254	1	330	53.6	19.6
2	92	5.5	88	4	0	92	100	5.5
3	430	25.6	369	61	0	430	100	25.6
4	147	8.7	109	5	6	120	81.6	7.1
5 and 6	396	23.6	243	7	1	251	63.4	14.9
Total	1,681		884	331	8	1,223		72.7

[1] Only the latest certificate issued on a vessel was counted in case that vessel was both temporarily and permanently certified during the year.

Forty-six cases of typhoid fever were reported as occurring among crews and passengers on all vessels during the year. Very few occurred on vessels coming under the interstate quarantine regulations, and in no case was the water supply implicated. For the first time since inspection by the Public Health Service was inaugurated no cases occurred on vessels operating on the Great Lakes. The records show a constant downward trend from 70 cases in 1916 to 0 for 1933.

Railway Sanitation

One hundred and thirty-five inspections of coach yards, terminals, and watering points were made during the year; and 129 inspections of dining cars were made with particular reference to grade and source of milk supply and source of shellfish. Cooperation of the carrier companies is excellent in correcting unsatisfactory conditions found.

Shellfish Sanitation

Assistance has been rendered the several shellfish-producing States in their control work, particularly in matters pertaining to growing areas. A study was made jointly with the Food and Drug Administration and the State Department of Health of New Jersey of the conditions under which oysters have been floated in the Maurice River section in New Jersey.

Publication and distribution of the list of dealers certified by the producing States were continued. Shellfish shippers are finding that maintenance of markets is dependent upon their being on the approved list. During the year 1,498 certificates issued by producing States were approved and listed. Thirty-two areas and 536 shucking and packing

plants were inspected in connection with surveys to determine the efficiency of State control.

Reciprocity with Canada

Inspection and certification of drinking and culinary water supplies used by international carriers, supervision of drinking water-supply systems on vessels operating in the Great Lakes and border waters, and certification of international shellfish shippers were continued through reciprocity with the Department of Pensions and National Health of Canada. Seven Canadian water supplies used by United States carriers were inspected and certified by the Canadian health authorities; 71 United States supplies used by Canadian carriers were inspected and certified; and, in addition, the Canadian authorities were supplied with reports on 11 United States supplies used by United States carriers crossing the international line.

The Canadian authorities were supplied with copies of all certificates issued to shellfish shippers by the producing States and approved by the Public Health Service. They, in turn, have furnished certificates on all Canadian shippers desiring to ship to the United States, 51 such certificates having been received.

Cooperative Work with States Relative to Stream Sanitation

The greater part of the activity of the Office of Stream Sanitation during the year has been concerned with a study of the pollution of the lower part of Chesapeake Bay. This work was financed through a grant of $25,000 to the Public Health Service from the Public Works Administration, made at the request of the Chesapeake Bay Authority for the purpose of determining the practicability of removing sewage pollution from the Hampton Roads area by the construction of sewage-disposal works for the North Shore communities and for other neighboring cities. The State department of health cooperated in this study by providing some of the personnel and laboratory and boat service. The investigation has included a review of data obtained through studies carried on during the past several years by the Public Health Service and the State Department of Health of Virginia; bacteriological examinations to supplement the data already available; a study of sewerage of the various municipalities and Government reservations within the area, with the development of general plans for collection and treatment of sewage; and an economic study to ascertain if possible the effect of increasing pollution on the shellfish industry and recreational facilities in the district.

As time has permitted, the Office of Stream Sanitation has cooperated with the Ohio River Board of Engineers in a study of the pollution of the Ohio River in the vicinity of waterworks intakes; with the Minnesota State Department of Health and the Provincial Department of Health of Ontario in planning a survey of the Rainy River, an international boundary stream; and with the Tennessee health authorities in planning a sanitary survey of a stream in that State. On several occasions officers also have conferred with the Board of Consulting Engineers studying methods of sewage treatment for the District of Columbia relative to the bacteriological and

chemical results obtained by the Public Health Service during an investigation of the Potomac River in 1932.

At the request of the Governor of Colorado an investigation was made of the use of water polluted by sewage from the city of Denver for irrigating vegetables and farm crops in the South Platte River Valley.

With funds and labor made available by the Civil Works Administration, cooperative work was undertaken in the States for protection of public water supplies through sealing abandoned coal mines to prevent pollution of streams with acid mine wastes.

Cooperative Public Health Engineering Work

The cooperative public health engineering work with other divisions of the Public Health Service and other Federal agencies has been greatly increased during the year on account of the increased construction made possible through the emergency activities. A total of 1,866 engineer-days, or 43 percent of the time of the field engineers, was devoted to this work. Of this time, 1,146 days, or 26.5 percent, was for the National Park Service and the Office of Indian Affairs.

National Park Service.—With the reorganization of the National Park Service the cooperative work in the eastern division was greatly increased. This division now has jurisdiction over 53 reservations of all kinds, including the National Capital Parks and 71 Federal buildings in the District of Columbia. In the eastern division, surveys were made of 14 areas, in 7 of which studies were carried on in connection with water supply and sewage disposal. At the close of the year plans were being made for more effective cooperation in connection with the sanitary work necessary in the National Capital Parks and in the inspection of Federal buildings in the District of Columbia.

In the western division, surveys were made of the 19 national parks, and plans and specifications for water supply and sewage disposal were prepared for 10. General supervision over the operation of the sewage treatment plants at the Grand Canyon and Yosemite Parks was maintained.

On May 26, 1934, the treatment plant at Yosemite was awarded the medal given yearly by the California Sewage Works Association to the most efficiently operated treatment plant in California.

Under the direction of the district engineer, a building code was prepared for the Park Service. This code contains 13 sections, with a total of 381 pages.

Office of Indian Affairs.—With the establishment of Civilian Conservation Corps camps on many of the reservations and the allotment of funds from the Public Works Administration, much additional work has been required in cooperation with this agency. Service rendered has included advice as to the location and sanitary features, as well as inspection of the camps. Over 250 surveys were made, and plans and specifications were prepared for 19 sewage treatment plants and 9 water treatment plants. Additional engineering personnel has been supplied by the Office of Indian Affairs to assist in the design of treatment plants when necessary.

Bureau of Prisons.—Inspections have been made and advice relative to sanitation and operation of water-treatment or sewage-disposal

plants has been given at the Lewisburg, Atlanta, and McNeil Island Penitentiaries, Fort Eustis and Camp Lee prison camps, and the La Tuna jail.

A small sewage tank was designed for the Atlanta Penitentiary, and advice and assistance were given in the design of a water supply at McNeil Island Penitentiary.

Bureau of Agricultural Engineering.—A sewage-disposal plant was designed for the Beltsville (Md.) homestead development. On account of the uncertainty and variability of load it was necessary to design a plant providing unusual flexibility of operation. Some unusual features therefore were included.

Procurement Division, Public Works Branch.—Advice was given relative to water supplies at several of the border inspection stations, with recommendations as to chlorination in several cases. Inspection of water supplies and water systems were made at two new post-office buildings.

Forest Service.—Data were furnished the regional forester, intermountain district, for design of laundry, shower, and comfort station, and for design of sewage-disposal plants.

Lighthouse Service.—Water-treatment plants were designed and their installation supervised on three Lighthouse Service tenders in the Eleventh Lighthouse District. Advice was given relative to water supplies at airway stations.

District of Columbia.—The Division of Sanitary Engineering was assisted in a study of the amount of chlorine necessary to control odor nuisance at the main outfall sewer of the municipal system during the summer low-water period.

Public Health Service.—A survey of sanitary conditions was made at the United States marine hospital at Fort Stanton, N. Mex., for the hospital division.

United States Army.—Advice has been given, when requested, relative to sanitary problems at the Civilian Conservation Corps camps.

Summary of Work Carried on by the Various Districts

Distribution of time, in days, of the field personnel under the engineering section (exclusive of engineering personnel employed on Public Works Administration projects), fiscal year 1934

	Days
Interstate quarantine:	
Office	1,378
Field:	
Water	590
Shellfish	277
National Park Service:	
Office	299
Field	132
Office of Indian Affairs:	
Office	389
Field	326
Chesapeake Bay study:	
Office and field	424
Other agencies:	
Office	109
Field	187
Technical meetings	23
Leave	194
Total days accounted for	4,328

TABULAR SUMMARY

TABLE 1.—*Vessel water-supply supervision*

	Days		Days
First inspections:		Major conferences:	
Passenger	70	With shipping officials	69
Freight	114	With others	13
Water boats	10	Water examinations made:	
Reinspections:		U. S. Public Health Service laboratories	5
Passenger	198	Other laboratories	1, 007
Freight	383	Typhoid fever cases reported:	
Water boats	10	U. S. Public Health Service hospitals	23
Certificates issued:		U. S. Public Health Service quarantine stations	2
Regular, favorable	856	Health departments	21
Regular, not approved	1		
Temporary, favorable	413		
Plans for vessel water systems examined:			
Approval granted	6		
Approval withheld	1		

TABLE 2.—*Railroad sanitation supervision*

Inspections:		Water examinations:	
Sources of water supply	94	U. S. Public Health Service laboratories	50
Coachyards	20	Other laboratories	928
Terminals	11	Major conferences:	
Watering points	104	With railroad officials	20
Dining cars	129	With others	40
Certificates:			
Data reports reviewed	1, 959		
Certificates prepared	4, 062		

TABLE 3.—*Shellfish sanitation supervision*

Inspections:		Laboratory examinations:	
Areas	32	U. S. Public Health Service laboratories	542
Plants	536	Other laboratories	3, 142
State certificates:		Conferences	106
Approved	1, 498		
Not approved	0		
Approval withdrawn	1		
Canceled	174		

TABLE 4.—*Miscellaneous cooperation with Governmental agencies*

Public Health Service (other divisions):		Bureau of Prisons:	
Surveys	4	Surveys	11
Conferences	26	Conferences	14
National Park Service:		Other:	
Surveys	47	Surveys	13
Conferences	42	Conferences	77
Office of Indian Affairs:			
Surveys	210		
Conferences	82		

Rural Health Work

For a number of years the Public Health Service has given financial assistance to States for the establishment of health organizations to serve the population living in rural areas and the smaller cities. Owing to reduction in appropriation, it has not been possible to continue these grants in aid during the fiscal year 1934.

While the withdrawal of aid came at a time when State and local governments could least afford to assume the added burden, nevertheless the discontinuance of health units has not been so great as might be expected. At the close of the calendar year 1932, 581 county health departments were in operation; during the calendar year 1933, 48 were discontinued, leaving a total of 533 at the close of the year. The distribution of these health organizations by States is shown in the accompanying table:

State	Number of units	State	Number of units	State	Number of units
Alabama	46	Maine	5	Oregon	6
Arizona	4	Maryland	22	Pennsylvania	3
Arkansas	21	Massachusetts	3	South Carolina	23
California	15	Michigan	30	South Dakota	1
Connecticut	2	Minnesota	1	Tennessee	34
Delaware	3	Mississippi	24	Texas	8
Florida	2	Missouri	9	Utah	2
Georgia	30	Montana	4	Virginia	16
Illinois	1	New Mexico	6	Washington	8
Iowa	1	New York	5	West Virginia	13
Kansas	4	North Carolina	37		
Kentucky	73	Ohio	40	Total	533
Louisiana	31				

The reduction in *service* has been more marked than the figures suggest, since a number of employees in county health units have been dismissed and sufficient funds are not available for necessary operating expenses. This condition is almost certain to be reflected in a lower level of health in the communities affected at a later date.

Since the sum of $25,068 actually made available out of the Federal appropriation for rural health work was not sufficient to permit contributions toward the support of local health organizations, this amount was devoted to special studies of rural health and the maintenance of a consultation service to State and local health departments on organization and procedure.

In cooperation with the Division of Scientific Research 4 representative counties with health departments were selected for intensive study with a view to assembling more information on the health needs of rural families and the suitability of prevailing practices to existing problems. These studies are discussed more fully in the section of this report devoted to the Division of Scientific Research.

Three regular commissioned officers, 2 acting assistant surgeons, and 1 scientific assistant were on assignment with State health departments for the purpose of promoting the establishment of rural health organizations and assisting in the supervision of their activities. One public health nurse with extensive training and experience in rural health work has been added to the staff of the central office for consulation with State and local authorities on rural public health nursing work. By drawing on the resources of the Division of

Scientific Research, technical advice was rendered to a number of State and local health departments in such matters as general administration, problems in sanitation, and the control of specific diseases. On the request of State and local authorities, complete surveys covering public health organizations and services were made in Columbus, Georgia, Cincinnati city and Hamilton County, Ohio, and the State of Oregon. Similar surveys were made on a representative of Indian reservations on the request of the Commissioner of Indian Affairs.

Preventing the Spread of Psittacosis

The Public Health Service continued its cooperation with the State health authorities in the application of measures directed toward preventing the interstate spread of psittacosis through shipment of infected birds of the parrot family.

As a result of the continuing occurrence of outbreaks of human psittacosis it became necessary to apply more rigid control measures during the past year, both by the several States and by the Public Health Service. At the present time, four States and one Territory have regulations forbidding the importation of parrakeets within their borders. No psittacine bird may enter the United States without first undergoing, in addition to other sanitary requirements, a 15-day period of quarantine detention. The wisdom of requiring this detention in quarantine has been shown repeatedly. Many shipments of such birds, although apparently in perfect health upon arrival, have, while in detention, proved to be infected with psittacosis. On December 20, 1933, the interstate quarantine regulations were amended to require that psittacine birds shipped in interstate traffic must be not less than 8 months of age, and that existing State requirements for a certificate of health be supplemented by such laboratory examination as the certifying authority may deem necessary. It was subsequently decided by the State Health Department of California, the center of the parrakeet-breeding industry in the United States, that a 10 percent sample from such aviary would be practicable for laboratory testing. Since it developed that infected birds might be missed by a 10 percent test, a triple test later was decided upon, 10 percent of the birds from each aviary to be tested on the first survey, and the aviaries found negative to be retested by taking a second 10 percent sample. If, after the second testing the aviary is still found to be negative, the owner is permitted to resume breeding activities, provided that he agrees not to import new stock. When the newly hatched stock has reached the age of 8 months, it also must undergo a 10 percent test, and if negative, the aviary is certified as being free from psittacosis and birds from this aviary may then be sold within the State for breeding purposes or shipped in interstate commerce.

On February 1 the shipment of birds from California was suspended pending a State-wide test of aviaries for psittacosis. From February 1 to the end of the fiscal year only a very few birds under special circumstances have been cleared for interstate shipment from California.

Prior to March 1, 1934, 52 California aviaries had been found by the State or the Public Health Service laboratories to be infected

with psittacosis. During the first 3 months of the State survey begun on March 1, 1934, 112 aviaries were tested by the State laboratories. These 112 aviaries, in which 10 percent of the birds were tested, comprised a total of approximately 36,000 birds. Of the 112 aviaries tested, 24, or 21 percent, were found to be infected. They were for most part small, involving only 1,428 birds.

Federal Civil Works Projects of the Public Health Service

In planning the work program to be undertaken in the several States, the Civil Works Administration considered it desirable that the projects be in the interest of the public welfare and community improvement as far as possible. Accordingly, the Public Health Service was asked, along with other Federal agencies, to suggest projects on which beneficiaries of the Civil Works Administration might be profitably employed. Four projects were recommended by the Public Health Service, namely, an intensive malaria-control drainage program in the 14 States where malaria has prevailed most extensively; the construction of sanitary privies in the small towns and villages and in the unsewered outskirts of larger cities; surveys to determine the extent of endemic typhus fever in rodents in important seaports and in certain inland areas where the disease now prevails; and the sealing of abandoned coal mines to reduce the acid wastes being discharged into streams used for water supplies.

In order that these projects might be given proper technical direction, they were placed under the general supervision of the Public Health Service, and special allotments were made to the Office of the Surgeon General for the employment of additional technical supervisory personnel, traveling expenses, purchase of tools, and the like.

The health officers of the States participating in the several programs were made the agents of the Public Health Service for technical supervision of the work. Special allotments were reserved for the Public Health Service projects out of the funds given to the several States for the employment of labor and local supervisory personnel. The sums set aside for labor amounted to approximately $4,500,000 for malaria control, $5,000,000 for community sanitation, $1,000,000 for typhus-fever surveys, and $1,500,000 for sealing abandoned coal mines. However, difficulties encountered in securing local allotments of labor and some unavoidable loss of time in organizing the work prevented the actual expenditure of the entire amounts allotted before the Civil Works program came to an end on February 15, 1934. It is estimated that not more than one-half of the funds tentatively allotted for labor on the malaria-control and sanitation projects actually were expended and not more than one-third for sealing mines.

MALARIA CONTROL

In each of the States selected for this work, malaria is the major public-health problem in much of its territory. In the malarious sections of these States the school-child infection rate (the rate for the only accurately measured group) varies from 10 to 60 percent, and in some places is as high as 95 percent. The effects of the infection are such that the school children not only do not make reasonable progress in their studies but are not able to put forth on an average

more than two-thirds of the effort normally to be expected of them. This result of illness is reflected not only in the schools, but on the farms and plantations and in the industries of the South. In the area affected there are approximately 2,000,000 cases of malaria each year, and the annual loss is estimated at half a billion dollars. Although the death rate from malaria is not high in comparison with the rates for some other diseases, it does, in a number of States, exceed the death rate for typhoid fever and causes more deaths than smallpox.

The program was inaugurated in early December 1933 and was approaching its maximum of development by early January 1934. When the work commenced, the malaria projects were designated as Federal projects, and an allotment of laborers was made for this purpose to each State. At the height of labor employment (Jan. 20, 1934) there were 28,000 laborers at work daily on Federal malaria projects. The work proved so popular and the benefits accruing from it were so apparent that the State directors of the Civil Works Administration supplemented the Federal projects by creating State and local projects of similar type. At the labor peak, reports showed the employment of 53,000 people on State and local projects, a total actually much greater than the number on the Federal projects. The reported number at work on malaria drainage at the height of employment was over 130,000 laborers.

The results of the work can only be estimated. Drainage commenced after the last malaria transmission season had ended, and the new season has not yet arrived. We cannot at this time even approximate the number of persons living within possible flight range of those areas now drained which heretofore have produced *Anopheles* mosquitoes. However, in view of our knowledge of the general areas covered by the drainage program, it is conservatively estimated that not less than one-fifth of the population will be removed from the hazard of malaria if the drainage effected should be properly maintained in the future. It is believed that the economic benefit derived from the removal of this hazard will represent an annual saving of not less than $100,000,000. The actual saving probably will be considerably greater than the estimates here given.

A project for establishing the malaria index by blood examination in the areas where the work has been carried on is now under way. This will furnish a "base-line" for measurement of the results of tne work in the future, as well as an excellent measure of the endemicity of malaria in the United States. Over 150,000 blood specimens have been taken and more than 40,000 of these have been examined to date.

COMMUNITY SANITATION PROJECT

The community sanitation project was selected as a profitable means of employment of civil works labor because of the opportunity afforded to perform a service of value to the whole population of rural and semirural communities and because the project was well adapted to the use of the type of labor predominating in such communities.

The work was carried on in 24 States, including all of the Southern States, and Delaware, Pennsylvania, Ohio, Indiana, Illinois, Kansas,

and Washington. The health officers of all of the States were informed of the possibility of using work-relief labor on privy construction and were given an opportunity to signify their willingness to participate in the project. The States selected were those which responded to the invitation.

The program in each State was set up under and administered through the State department of health. The supervisory personnel consisted of a State director, in general charge of the whole program in the field; district supervisors, selected from the reemployment rolls, each having responsibility for the work in a group of counties; and a county supervisor for each county, selected from the local reemployment rolls. It was the function of this force to promote local adoption of the program, sell the project to individuals, and train and supervise labor engaged in construction. Labor was assigned for the construction of sanitary privies only where materials were furnished by the property owner or by some public agency such as the county board of education, county supervisors, or the municipal government. Some municipalities purchased the materials in one lot for the sanitation of the entire community, the privies constructed being regarded as a public utility. Others purchased the materials and offered to furnish what was needed for the installation of a sanitary privy in any home in the community where the property owner would pay a certain proportion of the cost. Others purchased the material in order to take advantage of wholesale prices and expedite the work, and assessed the cost against the property on which the sanitary privies were erected, or provided other means for reimbursing the municipality. In some sections the labor was used to construct privies for farm homes throughout the county, but for the most part the work was confined to unsewered towns and villages, and the unsewered sections surrounding the sewered areas of the larger communities. The work was concentrated in these more congested areas because the health menace of an insanitary privy is proportionate to the number of persons who live within fly range of it, because typhoid fever is most prevalent in small towns and villages, and because more effective supervision could be exercised where the labor could be used in large groups.

Only a small number of men could be used at the very beginning, because materials for the project could not be furnished from Federal funds. However, the number employed increased steadily from the time the work was begun in December, reaching a total of 35,000 at the peak of activities. All materials had to be furnished by individual property owners or local public agencies. It was therefore necessary to make arrangements for materials and to develop sufficient interest in each community to create a demand for the work in advance of the assignment of labor. The local interest that developed in this program exceeded the most optimistic expectations of everybody connected with it. It is estimated that at the peak of activities there were enough materials on hand and commitments made by property owners to furnish materials to make work for at least five times the number of laborers available.

Accomplishments.—(1) Incomplete reports show more than 200,000 privies constructed. It is believed that the complete report will show at least 25,000 more constructed or partially completed by the end of March 1934.

(2) While it will be impossible for some time to measure the result of the work in terms of actual prevention of disease, it is believed that there will be both immediate and remote benefits which will thoroughly justify the undertaking.

(*a*) As to immediate benefits, in communities where the program proceeded far enough to effect complete elimination of insanitary privies, it is expected that a noticeable reduction in the prevalence of excreta-borne diseases will occur.

(*b*) As to future benefits, even in communities where the program did not proceed far enough to accomplish a complete or almost complete elimination of insanitary privies, the community has been made "sanitation conscious" and there has been provided a standard of sanitation which will induce further progress on the part of both the public and the local governmental agencies. Modern standards of sanitation have been introduced into hundreds of communities and in several States which heretofore have given little attention to practical sanitary privy construction.

3. The supplying of materials by property owners and local governmental agencies has helped private industry. These purchases of materials by private individuals and agencies other than the Federal Government involved a total expenditure at least equal to the amount paid by the Civil Works Administration to labor employed on this project. It is estimated that the materials purchased included approximately—

100,000,000 board feet of lumber;
40,000 barrels of cement;
1,000,000 pounds of nails; and
6,000,000 square feet of roofing.

Most of the materials were purchased from local dealers.

TYPHUS FEVER CONTROL

Although formerly not an important cause of illness in this country, endemic typhus fever has been increasing steadily and markedly in prevalence in certain areas of the United States during the past 3 years. While in 1931 only 332 cases were reported in the entire country, the number rose to 995 in 1932, and to 2,043 in 1933. This increasing prevalence had emphasized the necessity that measures be undertaken for reduction and limitation of the spread of the disease. The Federal Emergency Relief Administration desired to employ people on socially useful projects, and an attack upon this form of typhus through the medium of a restricted and properly directed campaign against disease-carrying rats and their parasites appeared to fulfill this requirement.

At the request of the Civil Works Administration, the Public Health Service indicated areas harboring the greatest amount of infection. The Biological Survey undertook a campaign of destruction of the rats in these areas by means of trapping and poisoning. At the same time it was planned that groups of men recruited from the ranks of the unemployed, and working under the supervision of the Public Health Service, would test the efficacy of these control measures and make tests on new areas to ascertain where additional control measures would be required in order to secure effective results. Unfortunately, the time of actual operation of the project was so short that

very little progress could be made in that part of the control program which was to be carried out by the Public Health Service.

However, the Service was able to make considerable progress with another part of the program, that consisting of a rodent ectoparasite survey and having for its objective the determination of the vulnerability of our principal seaports and a few inland cities with respect to endemic typhus fever and bubonic plague.

Originally, a program was laid out to cover 7½ months' operation. Later, with the inauguration of the Civil Works Administration, this plan was revised for a 2½-month period. Actually, however, less than a month of scheduled operations resulted, because of the delays in the initiation of the project and its sudden unforeseen curtailment in January. At the height of the work, a total of 3,757 men were employed. The control work was carried on in three Southern States, and the rodent ectoparasite surveys were made in 30 seaports. The surveys are being continued in several of the cities as work-relief projects.

In spite of the very short time of unrestricted operations (1 month from the time of approval of the project), it is felt that some worthwhile results were accomplished. In several communities where rapidly increasing prevalence of typhus fever had created wide-spread apprehension on the part of the citizens, it was possible to locate the exact sources of infection and promptly institute intensive control measures. In other parts of the infected areas, where the early termination of the projects precluded complete achievement of the desired objectives, the partially completed work has at least been of substantial educational value, and the people have been awakened to the need of continued effort on their own part if a permanent reduction in the incidence of this disease is to be effected.

SEALING ABANDONED COAL MINES

This project was undertaken to provide work for unemployed miners to protect the public health through the safeguarding of water supplies from the effects of acid mine drainages. The action of oxygen, pyrites, and water in abandoned or idle bituminous coal mines brings about the formation of acid salts and sulphuric acid. In many sections the amount of acid thus formed and discharged into streams is sufficient to bring about an acid condition in these streams and in the larger rivers into which they discharge. This condition has been increasing in intensity in recent years and is materially affecting the efficiency of treatment of many public water supplies and in some instances has made it impossible to use the water from these streams for smaller supplies.

This problem has been one of considerable concern to the health authorities in several of the soft-coal mining States for many years. In spite of the extent to which abandoned mines have contributed this acid water, little had been done in interesting mine operatives in an attempt to care for sections of mines properly as they became worked out.

Experimental work by the United States Bureau of Mines and the State Health Department of Pennsylvania had demonstrated that if air could be eliminated from abandoned workings, oxidation would

cease and the water in, and flowing from, these openings would remain alkaline.

Two methods were possible by which this could be brought about:

(1) Flooding of the workings, and

(2) Air sealing.

In either method the flow of water would not be interrupted. Certain dangers existed in the flooding method which made it practicable only under certain conditions. Air sealing in general appeared more satisfactory, although requiring more careful attention to insure that all openings, however small, were closed.

Funds were made available by the Civil Works Administration for the actual starting of operations on December 17, 1933, for carrying on the project in 10 States.

In Pennsylvania, West Virginia, and Alabama, where certain information was already available, permitting work in certain sections to start immediately, a considerable amount of actual sealing was effected. In other States, surveys were completed and work had just been started on the sealing when the restrictions on the employment of labor became effective, January 19, thus preventing any extensive construction.

While it was not possible to complete the project as planned, sufficient work was done to accomplish the following results:

The furnishing of records to State departments of health covering the location of mines discharging acid water and the extent of this discharge; demonstration of the practicability of air sealing for control of acid mine water; development of methods for air sealing under varying conditions; the training of a considerable group of coal-mining engineers and others in the methods of acid mine water control; and creating in the mine operators an interest in the work.

The maximum number of persons were employed in this work during the week ending February 15, when 2,927 men and 24 women were on the pay roll. Of this number, approximately 2,700 were employed in Alabama, Pennsylvania, and West Virginia.

At the termination of the work on February 15, approximately 7,000 openings of various types had been closed, and several hundred additional openings were being closed.

After the Civil Works program was terminated, the relief administrators in a number of States elected to continue the malaria-control and community-sanitation projects as work-relief activities. The Public Health Service was able to continue its assistance by providing a limited number of technical supervisors in each State. The work therefore was being continued at the close of the fiscal year in most of the States where it had been inaugurated.

Conference of the Surgeon General with the State and Territorial Health Officers

In accordance with the act of July 1, 1902, the Thirty-second Annual Conference of State and Territorial Health Officers with the Public Health Service was held June 7 and 8, 1934, in Washington, D. C. Delegates from 41 States and the District of Columbia were in attendance. An interesting program was arranged and participated in by the members and delegates.

DIVISION OF FOREIGN AND INSULAR QUARANTINE AND IMMIGRATION

Asst. Surg. Gen. F. A. CARMELIA in charge

The various quarantinable diseases were prevalent in many parts of the world during the fiscal year. Plague was present in the island of Hawaii, on the western coast of South America, in many parts of Africa, in Madagascar, in Marseille, France, and in several Asiatic ports. Cases also occurred in the interior of California and in Oregon. Cholera was confined to Asia and adjacent islands, including the Philippine Islands. While smallpox decreased in England and Wales during the year, it was prevalent in many ports in all parts of the world except Australia. Typhus fever was also widespread; an extensive outbreak of the virulent type occurred in Chile, and it was also present in Mexico. In eastern Europe, where typhus fever was epidemic during and following the World War, it is now endemic. In Egypt and in other parts of Africa, the disease causes many deaths. Yellow fever was reported as having occurred in Brazil, in the States of Para, Amazonas, Ceara, Pernambuco, Acre Territory, Bahia, and Matto-Grosso; and in Africa it was reported in Senegal, Guinea, Niger Territory, Ivory Coast, Gold Coast, Togoland, and Nigeria.

During the year, 14,796 vessels from foreign countries, carrying 1,737,416 persons, were inspected by medical officers of the Public Health Service prior to entry at United States ports to prevent the introduction of any of the quarantinable diseases. 11,576 vessels, 524,283 passengers, and 852,749 seamen were inspected upon arrival at ports in the continental United States, and 3,220 vessels, 135,125 passengers, and 225,259 seamen were inspected upon arrival at insular ports. In addition, 3,668 airplanes carrying 26,951 persons, arrived at airports of entry in the United States from foreign ports, requiring quarantine inspection. Of this number, only 2,456 airplanes, carrying 23,899 persons, of whom 4,364 were aliens, were examined by medical officers of the Public Health Service. The remainder, comprising 1,212 airplanes, carrying 3,052 persons, entered the United States without undergoing the medical examinations required under the quarantine and immigration laws due to the designation of airports of entry at which medical officers of the Public Health Service are not available for duty.

None of the quarantinable diseases was imported into the United States or its dependencies during the year. A British ship arrived at the port of South Bend, Wash., with a case of smallpox contracted in Shanghai; one case of typhus fever arrived at New York, N. Y., on a small passenger vessel from the Mediterranean; one case of typhus fever was present on a vessel which arrived at Jacksonville, Fla., and a vessel carrying two cases of human plague arrived at San Pedro, Calif. Effective measures taken at the respective quarantine stations, however, prevented the introduction of these diseases into the United States. No detentions of vessels were made during the year because of the presence on board of yellow fever or cholera.

A total of 120,800 persons was vaccinated against smallpox, and 2,157 persons were vaccinated against cholera; 1,297 laboratory examinations were made for evidence of cholera infection, and 1,263 laboratory examinations were made to determine infection with cerebrospinal meningitis.

The weekly sanitary reports issued by the American consuls at the various ports in the Orient and the Eastern Bureau, Health Organization, League of Nations, at Singapore, regarding the occurrence of quarantinable and communicable diseases continued to be of great value and assistance to the medical officers detailed for duty in the Philippines in carrying out the quarantine functions. Because the Philippine Islands are so close to oriental foci of one or more of the quarantinable diseases, it is necessary for the quarantine officers on duty there to take all of the recognized precautions in connection with vessels coming from infected districts, in order to prevent the transmission of such diseases into the Philippines.

Due to the almost universal application of the provisions of the International Sanitary Convention of Paris (revised 1926), and to the rat-proofing of old ships and the modern type of construction of new ships, in which rat harborage is reduced to a minimum, the number of fumigations of ships performed in recent years has greatly decreased. During the past year, only 1,289 vessels were required to undergo fumigation upon arrival at United States ports. Of the 6,070 rats retrieved following fumigation, 4,229 were examined for evidence of plague infection, with negative results. One thousand seven hundred and ninety-one vessels from foreign countries presented international standard certificates of deratization, of which only 195 were determined to be not acceptable, and 1,457 vessels presented foreign certificates of deratization exemption, of which only 139 were refused. International standard certificates of deratization exemption were issued to 1,676 vessels by quarantine officers at United States ports.

In accordance with an informal agreement reached between the delegate representing the United States and the other delegate members of the Quarantine Commission of the International Office of Public Hygiene, Paris, quarantine officers of the United States were authorized to accept a foreign certificate of deratization or deratization exemption which had not been visaed by the American consular officer at the port where it was originally issued when the certificate is otherwise acceptable and the quarantine officer is satisfied that the vessel at the time of obtaining it was not scheduled to proceed to a United States port. Quarantine officers were also informed that visa of foreign certificates of deratization or deratization exemption will not be required when there is no American consular officer listed in the Foreign Service list of the State Department at the foreign port where the certificate was issued.

While the International Sanitary Convention of Paris (revised 1926) permits requiring that vessels obtain bills of health at foreign ports of departure and specifically enumerates the requirements to be observed at such ports, facilities for the proper observation of the measures prescribed in the convention at ports of departure are not universally available, and it is therefore not practicable to limit the issuance of bills of health to vessels which have complied with such requirements in those ports of departure at which such facilities are not available. Recommendation was therefore made to the Secretary of the Treasury

that the quarantine regulations administered by the American consular service and the Public Health Service in foreign ports prescribed under the authority contained in the Quarantine Act of 1893, as amended, be revised to prescribe that the master of a vessel bound for a port of the United States shall make every effort to observe the specific measures enumerated in the International Sanitary Convention for observation at ports of departure and that, at ports in which facilities are not available for the observation of such measures, or the master is unable to observe such measures, the consular bills of health shall be notated accordingly, setting forth in brief the circumstances involved. The quarantine treatment at the port of arrival of vessels carrying such bills of health would be based then upon the nature of such qualifying endorsement. This recommendation was approved by the Assistant Secretary of the Treasury, subject to the Secretary's approval of the revised regulations.

During the year, the Department assessed penalties aggregating only $510 for violations of the quarantine laws of the United States by masters of vessels coming from foreign ports.

Special research in the fumigation of ships for the destruction of rats as a plague-preventive measure was continued throughout the year. The studies included the possible adaptation of liquid sulphur dioxide to the fumigation of ships; further improvement in hydrocyanic acid gas fumigation, particularly in methods of fumigating the bilges on loaded vessels; the use of chloropicrin as a warning gas, with particular reference to its use before hydrocyanic acid gas is placed in the spaces to be fumigated which cannot be searched; and the use of calcium cyanide in dust form as an intensive preliminary treatment of concealed structural space in cargo holds which are then to be fumigated with liquid hydrocyanic acid gas. Experiments were also made in the use of carboxide gas as an insecticidal fumigant, particularly in the treatment of airplanes, and in the use of amyl nitrite in the treatment of hydrocyanic acid gas poisoning.

The work of many of the quarantine stations was materially increased during the year by the rodent-control surveys which were undertaken, in cooperation with the recovery program of the President under Service supervision with funds supplied by the Civil Works Administration. A large number of rats collected as a result of the surveys were examined macroscopically to determine the presence of plague, or inoculated into guinea pigs to determine the presence of endemic typhus fever. All ectoparasites found were classified. These surveys, in addition to furnishing much needed employment, resulted in the collection of much interesting data of quarantine import.

On December 20, 1933, the regulations governing the importation of birds of the parrot family into ports of the United States, prescribed in accordance with the provisions of Executive Order No. 5264, approved January 24, 1930, were revised to permit such laboratory examinations of birds selected by quarantine officers from suspected shipments arriving at the respective ports of entry as might be deemed necessary to assure that the birds are free from psittacosis infection. Further revision also was made in order to prohibit the entry at United States ports from foreign ports or ports in the possessions and dependencies of the United States of birds of the parrot family under 8 months of age. This latter provision was considered advisable

because it had been found that psittacosis is more likely to be transmitted by young birds.

The reservations subject to which the United States had indicated its willingness to sign the International Sanitary Convention for Aerial Navigation were accepted by all prior signatory governments, and the convention was signed on behalf of the United States by the American Minister at The Hague on April 6, 1934. The latest date on which the convention was open for original signatures was April 12, 1934, at which time 23 countries had signed; namely, United States of America, Germany, Australia, Austria, Belgium, Egypt, Spain, France, Great Britain and Northern Ireland, Greece, Irish Free State, Italy, Morocco, Monaco, New Zealand, Holland, Poland, Rumania, Sweden, Syria, Lebanon, Tunis, and the Union of South Africa. The convention will become effective 120 days after the ratifications of 10 countries have been deposited with the Government of the Netherlands. A number of countries have already taken the necessary preliminary steps to secure ratification. The convention embodies provisions which have received world-wide approval, and it is evident that it represents a code of general applicability which many governments are ready to accept in order to reconcile the interests of international air traffic with legitimate requirements for the protection of the public health. The advantage, both in the interests of aerial navigation and of international public health, of having the convention become effective as soon as possible cannot be stressed too strongly.

During the fiscal year there was completed the construction of a stone breakwater and 1 double set of junior medical officer's quarters at the Boston (Mass.) Quarantine Station; 1 set of senior medical officer's quarters at the Reedy Island (Del.) Quarantine Station; 1 set of senior medical officer's quarters and a disinfecting plant at the Baltimore (Md.) Quarantine Station, and 2 sets of junior medical officer's quarters at the New Orleans (La.) Quarantine Station.

During the latter part of the fiscal year, two Diesel wrought-iron quarantine launches, 41 feet in length, designated as the *Q–25* and *Q–26*, were constructed, respectively, for the Marcus Hook (Pa.) Quarantine Station, and the Portland (Maine) Quarantine Station.

Medical inspection of aliens.—During the fiscal year 680,152 alien immigrants were examined and 783,377 alien seamen were inspected at United States ports of entry by medical officers of the United States Public Health Service for mental or physical defects or diseases in accordance with the provisions of the immigration laws. A total of 1,502 alien immigrants (about 0.2 percent) and 507 alien seamen (about 0.06 percent) were certified to be afflicted with one or more of the defects or diseases requiring mandatory exclusion, and 15,131 alien immigrants (about 2.2 percent) and 569 alien seamen (about 0.07 percent) were certified to be afflicted with a defect or disease which was likely to affect their ability to earn a living.

A total of 35,539 applicants for immigration visas was examined by medical officers in American consulates in foreign countries. Of this number, 573 (about 1.6 percent) were reported by the medical officers to the American consuls as being afflicted with one or more of the defects or diseases requiring mandatory exclusion, and 6,431 (about 18.1 percent) were reported as afflicted with a disease or condition which was likely to affect their ability to earn a living. None of the

aliens who had been given a preliminary medical examination in American consulates in foreign countries and to whom visas had been issued was certified upon arrival at a United States port as being afflicted with a defect or disease requiring mandatory deportation.

In order to facilitate the entry of native-born and naturalized citizens of Mexico desirous of temporarily visiting the United States, the Department of State and the Department of Labor arranged, for immigration purposes, to have American consular officers in the interior of Mexico issue to such persons identification cards, bearing the photograph and signature of the holder. These cards are to be issued by American consular officers only to bona fide temporary visitors coming to the United States briefly for business or pleasure who at the time of issuance are apparently free from any communicable disease and who have either previously had smallpox or have been successfully vaccinated against that disease. Quarantine officers were accordingly authorized to pass the holders of these identification cards upon presentation at the United States ports of entry on the Mexican border provided they then show no evidence of quarantinable disease.

The Philippine Islands Independence Act, which was approved March 24, 1934, and accepted by the Philippine Legislature on May 1, 1934, provides for the application of the immigration laws of the United States to citizens of the Philippine Islands and for the detail of Foreign Service officers of the United States to Manila for the administration of the immigration laws. In accordance with a request made by the State Department, the medical officers of the Public Health Service on duty in Manila were authorized to perform the medical examinations of citizens of the Philippine Islands who apply for immigration visas under the Philippine quota.

The Philippine Islands Independence Act also specially authorizes, without reference to quota restriction, the temporary migration of Filipino laborers to the Hawaiian Islands under regulations approved by the Secretary of the Interior. These regulations, which were issued June 15, 1934, provide for the issuance of permits following the examination of such laborers by the consular officer of the State Department stationed in Manila, with the assistance of medical officers of the Public Health Service, for the purpose of determining whether or not such applicants are members of one or more of the classes of aliens who are inadmissible into United States territory under the provisions of the Immigration Act of 1917. At the request of the Secretary of the Interior, the medical officers of the Public Health Service on duty at Manila were also authorized to perform the medical examinations required in connection with the issuance of such workers' permits to laborers destined to the Hawaiian Islands, when requested to do so by the American consular officer on duty in Manila.

TRANSACTIONS AT MARITIME QUARANTINE STATIONS

TABLE 1.—*Summary of transactions at maritime stations for the fiscal year 1934*

Station	Vessels inspected	Vessels granted free pratique	Vessels fumigated		Passengers inspected	Crew inspected	Bills of health and port sanitary statements issued	Amount of bills rendered for quarantine services
			Cyanide	Sulphur				
Aberdeen, Wash.	5	5	0	0	0	198	271	$60.00
Angel Island, Calif. (San Francisco)	448	301	47	0	20,783	34,592	0	11,498.37
Astoria, Oreg.	42	42	4	0	5	1,558	530	420.00
Baltimore, Md.	386	320	53	0	266	12,887	0	9,404.78
Beaufort, S. C.	0	0	0	0	0	0	0	0
Boca Grande, Fla.	19	1	0	0	19	601	0	210.00
Boston, Mass.	799	611	85	0	33,665	61,635	0	18,085.07
Brunswick, Ga.	13	13	0	0	9	377	0	155.00
Carrabelle, Fla.								
Charleston, S. C.	138	130	15	0	117	4,889	0	1,939.33
Corpus Christi, Tex.[1]	37	36	0	0	12	1,232	543	365.00
Eastport, Me.	2	2	0	0	0	41	4	0
Eureka, Calif.	1	1	0	0	0	30	25	10.00
Fall River, Mass.	9	9	0	0	0	342	94	130.00
Fernandina, Fla. (Cumberland Sound)	3	3	0	0	0	115	24	30.00
Fort Monroe, Va.	306	293	6	31	5,536	16,998	0	4,943.45
Freeport, Tex.	8	7	0	0	0	326	0	76.00
Galveston, Tex.	534	524	27	0	393	16,583	0	6,976.96
Georgetown, S. C.	1	0	0	0	0	5	7	5.00
Gulfport, Miss.	9	9	0	0	10	282	90	90.00
Jacksonville, Fla. (St. Johns River)	116	107	14	0	39	2,617	601	1,609.38
Key West, Fla.	136	132	0	3	9,747	9,367	60	1,981.05
Lewes, Del. (Delaware Breakwater)	1	1	0	0	0	19	0	10.00
Marcus Hook, Pa.	640	507	77	0	508	21,025	4,219	12,143.15
Marshfield, Oreg. (Coos Bay)	7	7	0	1	0	272	28	75.00
Miami, Fla.	645	645	31	0	14,542	19,991	559	5,064.00
Mobile, Ala.	138	117	8	0	156	4,480	0	1,972.61
New Bedford, Mass.	6	4	0	2	72	119	0	59.04
New London, Conn.	19	9	0	0	1	291	39	80.00
New Orleans, La.	901	846	44	0	8,419	37,530	3,602	14,922.87
Newport, R. I.	9	9	0	0	26	2,047	20	60.00
New York, N. Y.[2]	3,358	2,951	211	0	394,328	481,470	18,790	68,714.77
Ogdensburg, N. Y.	0	0	0	0	0	0	0	0
Panama City, Fla.	32	31	0	0	14	1,151	60	375.00
Pensacola, Fla.	45	36	0	0	13	1,317	839	570.00
Plymouth, Mass.	9	7	0	0	36	238	0	120.00
Port Everglades, Fla.								
Portland, Maine	114	96	0	0	41	3,363	60	1,240.00
Portland, Oreg.	17	15	17	0	19	632	2,310	1,725.46
Port San Luis, Calif. (San Luis Obispo)	29	29	0	0	0	1,101	0	520.00
Port Townsend, Wash.[3]	73	20	36	0	17	3,186	1,716	4,651.23
Providence, R. I.	40	39	0	0	681	1,672	56	537.00
Sabine, Tex.	346	295	5	0	97	11,312	0	3,578.86
San Diego, Calif. (Point Loma)	431	415	4	0	9,446	17,884	0	3,738.37
San Pedro, Calif.	1,239	972	91	0	24,791	69,025	7,986	24,652.18
Savannah, Ga.	57	53	10	0	67	1,771	0	913.00
Searsport, Maine	22	22	0	0	0	476	22	215.00
South Bend, Wash.	17	16	0	2	0	676	61	198.00
Southport, N. C. (Cape Fear)	50	47	0	7	2	1,595	0	714.84
Tampa, Fla.	247	214	17	0	347	5,143	0	3,021.54
Vineyard Haven, Mass.	0	0	0	0	0	0	0	0
West Palm Beach, Fla.	72	72	0	0	59	288	0	360.00
Total	11,576	10,021	796	46	524,283	852,749	42,616	208,221.31
Alaska:								
Ketchikan	0	0	0	0	1	0	0	0
Wrangell	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	0
Hawaii:								
Ahukini	0	0	0	0	0	0	31	0
Hilo	12	12	0	0	539	919	189	140.00
Honolulu	181	176	9	0	30,565	42,810	622	3,733.00
Kahului	3	3	0	0	0	104	143	30.00
Port Allen	3	3	0	0	0	107	87	30.00

[1] Includes Port Aransas, Tex.
[2] Includes Perth Amboy, N. J.
[3] Includes all ports on Puget Sound.

TABLE 1.—*Summary of transactions at maritime stations for the fiscal year 1934*—Continued

Station	Vessels inspected	Vessels granted free pratique	Vessels fumigated		Passengers inspected	Crew inspected	Bills of health and port sanitary statements issued	Amount of bills rendered for quarantine services
			Cyanide	Sulphur				
Hawaii—Continued.								
Lahaina	0	0	0	0	0	0	54	0
Makaweli	0	0	0	0	0	0	0	0
Total	199	194	9	0	31,104	43,940	1,126	$3,933.00
Philippines:								
Cavite	2	2	0	0	0	172	2	0
Cebu	664	0	0	111	18,324	19,325	436	0
Davao	59	0	0	0	900	3,926	138	0
Iloilo	149	4	0	106	1,271	7,572	301	0
Jolo	27	0	0	0	517	982	65	0
Legaspi	19	1	0	0	22	714	93	0
Manila	1,044	202	50	133	66,656	97,222	1,295	0
Olongapo	1	1	0	0	0	122	0	0
Zamboanga	36	0	0	11	534	3,045	88	0
Total	2,001	210	50	361	88,224	133,080	2,418	0
Puerto Rico:								
Aguadilla	3	3	0	0	0	175	169	55.00
Arecibo	0	0	0	0	0	0	74	0
Arroyo	2	2	0	0	0	31	131	15.00
Central Aguirre	0	0	0	0	0	0	78	0
Fajardo	35	34	0	0	0	144	406	175.00
Guanica	89	89	2	0	296	3,816	90	790.00
Humacao	9	8	0	0	0	87	64	50.00
Mayaguez	27	27	0	0	37	496	262	175.00
Ponce	45	44	0	0	51	1,025	371	415.00
San Juan	479	427	7	0	10,456	27,611	795	6,300.12
Total	689	634	9	0	10,840	33,385	2,440	7,975.12
Virgin Islands:								
Christiansted	5	5	0	0	12	69	297	40.00
Frederiksted	47	47	0	0	2,313	3,064	93	667.00
St. Thomas	279	220	0	18	2,631	11,721	370	3,498.60
Total	331	272	0	18	4,956	14,854	760	4,205.60
Total, all stations	14,796	11,331	864	425	659,408	1,078,008	49,360	224,335.03

TABLE 2.—*Statement of quarantine services rendered at maritime quarantine stations during the fiscal year 1934*

Station	Inspection services	Detention services	Special services	Fumigation services	Total charges
Aberdeen, Wash	$60.00	0	0	0	$60.00
Angel Island, Calif. (San Francisco)	6,061.00	$62.00	$1,370.00	$4,005.37	11,498.37
Astoria, Oreg	420.00	0	0	0	420.00
Baltimore, Md	4,005.00	0	1,340.00	4,059.78	9,404.78
Beaufort, S. C	0	0	0	0	0
Boca Grande, Fla	210.00	0	0	0	210.00
Boston, Mass	10,070.00	0	370.00	7,645.07	18,085.07
Brunswick, Ga	155.00	0	0	0	155.00
Carrabelle, Fla	0	0	0	0	0
Charleston, S. C	1,440.00	0	60.00	439.33	1,939.33
Corpus Christi, Tex.[1]	365.00	0	0	0	365.00
Eastport, Maine	0	0	0	0	0
Eureka, Calif	10.00	0	0	0	10.00
Fall River, Mass	90.00	0	40.00	0	130.00
Fernandina, Fla. (Cumberland Sound)	25.00	0	0	5.00	30.00
Fort Monroe, Va	3,220.00	0	200.00	1,523.45	4,943.45
Freeport, Tex	76.00	0	0	0	76.00
Galveston, Tex	5,480.00	0	615.00	881.96	6,976.96
Georgetown, S. C	5.00	0	0	0	5.00
Gulfport, Miss	90.00	0	0	0	90.00
Jacksonville, Fla. (St. Johns River)	1,025.00	0	140.00	444.38	1,609.38

[1] Includes Port Aransas, Tex.

TABLE 2.—*Statement of quarantine services rendered at maritime quarantine stations during the fiscal year 1934*—Continued

Station	Inspection services	Detention services	Special services	Fumigation services	Total charges
Key West, Fla	$1,937.00	$3.00	$20.00	$21.05	$1,981.05
Lewes, Del. (Delaware Breakwater)	10.00	0	0	0	10.00
Marcus Hook, Pa	6,895.00	0	830.00	4,418.15	12,143.15
Marshfield, Oreg. (Coos Bay)	70.00	0	0	5.00	75.00
Miami, Fla	4,909.00	0	0	155.00	5,064.00
Mobile, Ala	1,420.00	0	290.00	262.61	1,972.61
New Bedford, Mass	30.00	0	0	29.04	59.04
New London, Conn	80.00	0	0	0	80.00
New Orleans, La	10,196.00	521.00	1,395.00	2,810.87	14,922.87
Newport, R. I	60.00	0	0	0	60.00
New York, N. Y.[2]	45,185.00	78.00	7,406.25	16,045.52	68,714.77
Ogdensburg, N. Y	0	0	0	0	0
Panama City, Fla	345.00	0	30.00	0	375.00
Pensacola, Fla	460.00	0	110.00	0	570.00
Plymouth, Mass	110.00	0	10.00	0	120.00
Port Everglades, Fla					
Portland, Maine	1,170.00	0	70.00	0	1,240.00
Portland, Oreg	175.00	0	80.00	1,470.46	1,725.46
Port San Luis, Calif. (San Luis Obispo)	520.00	0	0	0	520.00
Port Townsend, Wash.[3]	825.00	0	300.00	3,526.23	4,651.23
Providence, R. I	477.00	0	60.00	0	537.00
Sabine, Tex	2,945.00	0	470.00	163.86	3,578.86
San Diego, Calif. (Point Loma)	2,995.00	288.00	340.00	115.37	3,738.37
San Pedro, Calif	15,934.00	0	1,980.00	6,738.18	24,652.18
Savannah, Ga	550.00	0	30.00	333.00	913.00
Searsport, Maine	215.00	0	0	0	215.00
South Bend, Wash	185.00	0	8.00	5.00	198.00
Southport, N. C. (Cape Fear)	500.00	0	0	214.84	714.84
Tampa, Fla	1,895.00	0	390.00	736.54	3,021.54
Vineyard Haven, Mass	0	0	0	0	0
West Palm Beach, Fla	360.00	0	0	0	360.00
Total	133,260.00	952.00	17,954.25	56,055.06	208,221.31
Alaska:					
Ketchikan	0	0	0	0	0
Wrangell	0	0	0	0	0
Total	0	0	0	0	0
Hawaii:					
Ahukini	0	0	0	0	0
Hilo	140.00	0	0	0	140.00
Honolulu	3,723.00	0	10.00	0	3,733.00
Kahului	30.00	0	0	0	30.00
Port Allen	30.00	0	0	0	30.00
Lahaina	0	0	0	0	0
Makaweli	0	0	0	0	0
Total	3,923.00	0	10.00	0	3,933.00
Puerto Rico:					
Aguadilla	55.00	0	0	0	55.00
Arecibo	0	0	0	0	0
Arroyo	15.00	0	0	0	15.00
Central Aguirre	0	0	0	0	0
Fajardo	175.00	0	0	0	175.00
Guanica	780.00	0	0	10.00	790.00
Humacao	50.00	0	0	0	50.00
Mayaguez	175.00	0	0	0	175.00
Ponce	335.00	0	80.00	0	415.00
San Juan	5,957.00	0	273.00	70.12	6,300.12
Total	7,542.00	0	353.00	80.12	7,975.12
Virgin Islands:					
Christiansted	40.00	0	0	0	40.00
Frederiksted	667.00	0	0	0	667.00
St. Thomas	3,456.00	0	0	42.60	3,498.60
Total	4,163.00	0	0	42.60	4,205.60
Total, all stations	148,888.00	952.00	18,317.25	56,177.78	224,335.03

[2] Includes Perth Amboy, N. J.
[3] Includes all ports on Puget Sound.

MEXICAN BORDER STATIONS

TABLE 3.—*Summary of quarantine transactions on the Mexican border for the fiscal year 1934*

Station	Number of persons from interior Mexico inspected	Number of local persons inspected	Total number of persons inspected	Total number of persons disinfested	Total number of persons passed without treatment	Total number of persons vaccinated	Total number of sick refused admission	Total pieces of baggage disinfected
Brownsville, Tex	2,005	745,941	747,946	6	747,485	453	2	0
Calexico, Calif	0	18,126	18,126	0	17,002	1,124	142	0
Columbus, N. Mex	133	904	1,037	0	742	299	0	0
Del Rio, Tex	459	80,055	80,514	783	79,152	758	1	390
Douglas, Ariz	1,222	2,973	4,195	0	3,837	322	36	0
Eagle Pass, Tex	5,482	578,752	584,234	7,647	567,707	8,873	7	8,011
El Paso, Tex.[1]	6,920	4,721,338	4,728,258	25,119	4,658,774	44,344	21	775
Hidalgo, Tex	1,999	191,405	193,404	24	191,615	1,764	1	2
Laredo, Tex.[2]	74,044	1,755,151	1,829,195	2,141	1,810,005	19,190	0	2,515
Naco, Ariz	46	4,543	4,589	0	3,995	580	14	0
Nogales, Ariz	4,918	15,628	20,546	1	19,885	660	0	1
Presidio, Tex	30	38,934	38,964	39	38,378	540	7	0
Rio Grande City, Tex	231	10,216	10,447	1	10,011	436	0	39
Roma, Tex	2,186	44,782	46,968	17	46,154	812	0	0
San Ysidro, Calif	3,150	9,256	12,406	0	11,003	1,403	0	0
Thayer (Mercedes), Tex	79	56,019	56,098	8	55,830	260	0	0
Zapata, Tex	347	7,745	8,092	0	6,592	1,500	0	0
Total	103,251	8,281,768	8,385,019	35,786	8,268,167	83,318	231	11,733

[1] Includes Fort Hancock, Guadalupe Gate, and Ysleta.
[2] Includes Minera and San Ygnacio.

TABLE 4.—*Summary of transactions at continental and insular stations for the fiscal year 1934*

Location	Name of airport	Distance in miles to nearest Public Health Service station	Date designated	Number of airplanes arriving from foreign ports	Number of airplanes inspected by Public Health Service	Number of persons arriving from foreign ports or places	Number of persons inspected by Public Health Service	Number of aliens inspected by Public Health Service	Number of aliens certified for disease
Ajo, Ariz	Municipal Airport	6	Nov. 15, 1929	0	0	0	0	0	0
Akron, Ohio [1]	Municipal Airport [2]		Apr. 8, 1929						
Albany, N. Y	Municipal Field		Sept. 28, 1928	0	0	0	0	0	0
Bellingham, Wash	Graham Airport [2]		Apr. 18, 1931	2	0	5	0	0	0
Brownsville, Tex	Municipal Airport	5	Jan. 8, 1930	473	473	3,101	3,101	395	7
Buffalo, N. Y	Municipal Airport		June 10, 1929	0	0	0	0	0	0
	Buffalo Marine Airport [2]		July 29, 1933						
Burlington, Vt.[1]	Burlington Municipal Airport [2]		June 29, 1934						
Calexico, Calif	Calexico Municipal Airport [2]		Jan. 10, 1933	11	11	35	35	8	0
Cape Vincent, N. Y.[1]	Cape Vincent Harbor [2]		Apr. 25, 1934						
Caribou, Maine [1]	Caribou Municipal Airport [2]		Oct. 31, 1932						
Cleveland, Ohio	Cleveland Municipal Airport [2]		Sept. 23, 1932	0	0	0	0	0	0
Crosby, N. Dak.[1]	Crosby Municipal Airport [2]		June 28, 1934						
Detroit, Mich	Wayne County Airport	20	Feb. 10, 1931	97	0	212	0	0	0
	Detroit Municipal Airport [2]	10	June 19, 1931						
	Ford Airport [2]		Aug. 1, 1929						
Douglas, Ariz	Douglas Airport [2]		Jan. 8, 1930	0	0	0	0	0	0
Duluth, Minn	Duluth Municipal Airport [2]		Sept. 4, 1931	2	0	6	0	0	0
	Duluth Boat Club Seaplane Base [2]		do						
Eagle Pass, Tex	Eagle Pass Airport [2]	1½	Mar. 5, 1930	0	0	0	0	0	0
El Paso, Tex	Municipal Airport	9	Aug. 23, 1932	194	194	1,180	1,180	215	11
Great Falls, Mont.[1]	Great Falls Municipal Airport [2]		June 2, 1930						
Havre, Mont	Havre Municipal Airport [2]		do	0	0	0	0	0	0
Juneau, Alaska	Juneau Airport [2]		June 18, 1930	0	0	0	0	0	0
Ketchikan, Alaska	Ketchikan Airport [2]		do	0	0	0	0	0	0
Key West, Fla	Meacham Field	4	Dec. 20, 1927	5	5	10	10	1	0
Laredo, Tex	Laredo Airdrome [2]	3½	Jan. 24, 1930	21	21	47	47	0	0
Malone, N. Y	Malone Airport [2]		Apr. 18, 1930	7	0	17	0	0	0
Miami, Fla	Pan-American Field	8½	Oct. 16, 1928	1,095	1,095	14,939	14,939	3,085	10
	Dinner Key Seaplane Base [2]	6	Mar. 7, 1930						
	Viking Airport and Seaplane Base [2]	2	May 16, 1934						
Minot, N. Dak.[1]	Port of Minot [2]		Nov. 30, 1931						
Nogales, Ariz	Nogales Municipal Airport	9	June 27, 1929	202	202	597	597	147	0
Ogdensburg, N. Y	Billings Field [2]		Nov. 30, 1931	6	0	14	0	0	0
	Ogdensburg Harbor [2]		Mar. 1, 1932						

[1] No medical officer of Public Health Service on duty.

[2] Temporary permission.

TABLE 4.—*Summary of transactions at continental and insular stations for the fiscal year 1934*—Continued

Location	Name of airport	Distance in miles to nearest Public Health Service station	Date designated	Number of airplanes arriving from foreign ports	Number of airplanes inspected by Public Health Service	Number of persons arriving from foreign ports or places	Number of persons inspected by Public Health Service	Number of aliens inspected by Public Health Service	Number of aliens certified for disease
Pembina, N. Dak.	Fort Pembina Airport [2]		Feb. 2, 1930	334	0	650	0	0	0
Plattsburg, N. Y.[1]	Mobodo Airport [2]		June 2, 1930						
Portal, N. Dak.	Portal Airport [2]		Jan. 8, 1930	0	0	0	0	0	0
Port Angeles, Wash.	Port Angeles Airport [2]	52	do	0	0	0	0	0	0
Port Townsend, Wash.	Port Townsend Airport [2]	12	June 18, 1930	0	0	0	0	0	0
Put-in-Bay, Ohio [1]	Put-in-Bay Airport [2]		Mar. 12, 1934						
Rouses Point, N. Y.	Rouses Point Seaplane Base [2]		July 14, 1932	0	0	0	0	0	0
St. Thomas, Virgin Islands	St. Thomas Airport [3]			52	52	538	538	0	0
San Diego, Calif.	San Diego Municipal Airport [2]	6	Jan. 24, 1930	658	47	1,951	164	17	0
San Juan, P. R.	Isla Grande [2]		Jan. 19, 1929	243	218	2,498	2,445	390	1
Sault Ste. Marie, Mich.	Sault Ste. Marie Airport [2]		Aug. 4, 1933	0	0	0	0	0	0
Scobey, Mont.	Scobey Airport [2]		June 2, 1930	0	0	0	0	0	0
Seattle, Wash.	Boeing Municipal Air Field		Sept. 11, 1928	128	0	308	0	0	0
	Lake Union		Dec. 27, 1928						
Skagway, Alaska [1]	Skagway Municipal Airport [2]		Nov. 30, 1931						
	Skagway Seaplane Base [2]		do						
Spokane, Wash.[1]	Spokane Municipal Airport [2]		June 2, 1931						
Swanton, Vt.[1]	Missisquoi Airport [2]		July 18, 1930						
Tampa, Fla.	International Airport [2]	7	Dec. 1, 1933	79	79	664	664	81	0
Watertown, N. Y.[1]	Watertown Municipal Airport [2]		June 2, 1930						
West Palm Beach, Fla.	Roosevelt Flying Service Base [2]		Mar. 10, 1931	59	59	179	179	26	0
Wrangell, Alaska	Wrangell Seaplane Base [2]		Nov. 30, 1931	0	0	0	0	0	0
Total				3,668	2,456	26,951	23,899	4,364	29

[3] Authorized for use but not officially designated.

Canal Zone

TABLE 5.—*Quarantine activities of the government of the Canal Zone during the fiscal year 1934* [1]

Activities	Balboa	Cristobal	Total
Vessels boarded and passed	2,852	3,483	6,335
Vessels granted pratique by radio	138	50	188
Total number of vessels passed	2,990	3,533	6,523
Crew passed at quarantine	135,444	232,104	367,548
Crew passed by radio	43,527	15,439	58,966
Total number of crew passed	178,971	247,543	426,514
Passengers passed at quarantine	33,637	88,549	122,186
Passengers passed by radio	7,929	1,501	9,430
Total number of passengers passed	41,566	90,050	131,616
Supplementary sanitary inspections of vessels	736	2,689	3,425
Vessels fumigated with HCN gas	9	30	39
Box cars fumigated with HCN gas	90	47	137
Fumigation certificates issued to vessels	9	30	39
Deratization exemption certificates issued	8	6	14
Rodents recovered after fumigation	6	57	63
Airplanes inspected and passed	13	484	497
Crew of airplanes inspected and passed	26	1,546	1,572
Passengers of airplanes inspected and passed	57	2,125	2,182
Vessels detained in quarantine	1	0	1
Crew detained on board ship for quarantine	57	0	57

[1] Senior Surg. C. V. Akin, U. S. Public Health Service, detailed as chief quarantine officer.

Medical Inspection of Aliens

TABLE 6.—*Alien passengers and seamen inspected and certified at maritime ports in the United States and possessions during the fiscal year 1934*

Place	Number of alien passengers examined	Alien passengers certified [1]					Number of alien seamen examined	Alien seamen certified [1]				
		Class A		Class B	Class C	Total		Class A		Class B	Class C	Total
		I	II					I	II			
ATLANTIC COAST												
Baltimore, Md.	73					0	8,545		32	20		52
Beaufort, S. C.	0					0	0					0
Boston, Mass.	5,392		5	104	29	138	56,568	4	40	317	43	404
Brunswick, Ga.	0					0	377					0
Charleston, S. C.	22					0	2,765		5			5
Fall River, Mass.	0					0	236					0
Fernandina, Fla.	0					0	111					0
Fort Monroe, Va.[2]	421			25		25	7,084	3	23	16		42
Fort Pierce, Fla.	0					0	0					0
Georgetown, S. C.	0					0	2					0
Gloucester, Mass.	0					0	170	1				1
Jacksonville, Fla.	4					0	1,516		3			3
Key West, Fla.	4,208			39		39	1,035					0
Lewes, Del.	0					0	19					0
Miami, Fla.	5,232	6		8	1	15	12,319					0
New Bedford, Mass.	28					0	42					0
New London, Conn.	0					0	0					0
Newport, R. I.	0					0	0					0

[1] Class A–I: Aliens certified for idiocy, imbecility, feeble-mindedness, insanity, epilepsy, chronic alcoholism. Class A–II: Aliens certified for tuberculosis or other loathsome or dangerous contagious disease. Class B: Aliens certified for diseases or defects which affect ability to earn a living. Class C: Aliens certified for diseases or defects of less degree.

[2] Includes Norfolk, Va., and Newport News, Va.

TABLE 6.—*Alien passengers and seamen inspected and certified at maritime ports in the United States and possessions during the fiscal year 1934*—Continued

Place	Number of alien passengers examined	Alien passengers certified					Number of alien seamen examined	Alien seamen certified				
		Class A		Class B	Class C	Total		Class A		Class B	Class C	Total
		I	II					I	II			
ATLANTIC COAST—contd.												
New York, N. Y. (Ellis Island)	124,967	29	47	4,868	34	4,978	403,693	----	131	3	2	136
Perth Amboy, N. J	2	----	----	----	----	0	1,125	----	----	----	----	0
Philadelphia, Pa	228	----	----	----	----	0	19,120	16	30	----	----	46
Plymouth, Mass	3	----	----	----	----	0	133	2	----	----	----	2
Port Everglades, Fla	----	----	----	----	----	----	----	----	----	----	----	----
Portland, Maine	41	----	----	----	----	0	3,363	----	8	----	----	8
Providence, R. I	200	----	----	5	----	5	1,424	----	4	3	----	7
Savannah, Ga	38	----	1	----	----	1	1,136	----	8	1	3	12
Searsport, Maine	0	----	----	----	----	0	476	1	----	----	----	1
Vineyard Haven, Mass	0	----	----	----	----	0	0	----	----	----	----	0
Washington, N. C	0	----	----	----	----	0	0	----	----	----	----	0
West Palm Beach, Fla	35	----	----	----	----	0	125	----	----	----	----	0
Wilmington, N. C	0	----	----	----	----	0	0	----	----	----	----	0
Total	140,894	35	53	5,049	64	5,201	521,384	27	284	360	48	719
GULF COAST												
Boca Grande, Fla	0	----	----	----	----	0	168	----	----	----	----	0
Carrabelle, Fla	----	----	----	----	----	----	----	----	----	----	----	----
Cedar Keys, Fla	0	----	----	----	----	0	0			----	----	0
Corpus Christi, Tex	6	----	----	----	----	0	801	----	----	----	----	0
Freeport, Tex	0	----	----	----	----	0	326	----	----	----	----	0
Galveston, Tex	108	----	----	----	----	0	11,710	----	----	----	----	0
Gulfport, Miss	0	----	----	----	----	0	95	----	----	----	----	0
Mobile, Ala	40	----	----	----	----	0	3,049	----	6	----	1	7
Morgan City, La. (Atchafalaya)	----	----	----	----	----	----	----	----	----	----	----	----
New Orleans, La	2,723	6	12	22	78	118	20,716	----	36	12	17	65
Panama City, Fla	0	----	----	----	----	0	161	----	----	----	----	0
Pascagoula, Miss	----	----	----	----	----	----	----	----	----	----	----	----
Pensacola, Fla	7	----	----	----	----	0	892	----	1	1	----	2
Port Aransas, Tex	0	----	----	----	----	0	0	----	----	----	----	0
Port St. Joe, Fla	0	----	----	----	----	0	0	----	----	----	----	0
Sabine, Tex	29	----	----	----	----	0	8,417	----	8	----	----	8
Tampa, Fla	222	----	----	----	----	0	2,012	----	8	----	----	8
Total	3,135	6	12	22	78	118	48,347	0	59	13	18	90
PACIFIC COAST												
Aberdeen, Wash	0	----	----	----	----	0	198	----	----	----	----	0
Angel Island, Calif. (San Francisco)	6,009	----	8	184	29	221	32	----	27	1	----	28
Astoria, Oreg	7	----	----	----	----	0	1,558	----	3	1	----	4
Eureka, Calif	0	----	----	----	----	0	0	----	----	----	----	0
Fort Bragg, Calif	0	----	----	----	----	0	34	----	----	----	----	0
Marshfield, Oreg. (Coos Bay)	0	----	----	----	----	0	272	----	----	----	----	0
Monterey, Calif	----	----	----	----	----	----	----	----	----	----	----	----
Portland, Oreg	22	----	----	2	----	2	500	----	1	----	----	1
San Diego, Calif	482	2	11	5	----	18	4,213	----	4	4	----	8
San Luis Obispo, Calif	0	----	----	----	----	0	803	----	----	----	----	0
San Pedro, Calif	4,292	6	3	70	8	87	45,912	8	66	21	4	99
Santa Barbara, Calif	0	----	----	----	----	0	0	----	----	----	----	0
Seattle, Wash.[3]	2,031	22	6	18	51	97	10,008	----	7	----	2	9
South Bend, Wash	0	----	----	----	----	0	676	----	----	----	----	0
Total	12,843	30	28	279	88	425	64,206	8	108	27	6	149
INSULAR												
Alaska:												
Ketchikan	0	----	----	----	----	0	0	----	----	----	----	0
Hawaii:												
Honolulu	2,596	1	12	7	12	32	30,980	1	11	----	1	13
Philippines:												
Cebu	2,000	----	----	----	----	0	6,318	----	----	----	----	0
Davao	503	----	----	----	----	0	3,926	----	----	----	----	0
Iloilo	1,120	----	----	----	----	0	7,106	----	----	----	----	0
Jolo	248	----	----	----	----	0	788	----	----	----	----	0

[3] Includes all ports on Puget Sound.

TABLE 6.—*Alien passengers and seamen inspected and certified at maritime ports in the United States and possessions during the fiscal year 1934*—Continued

Place	Number of alien passengers examined	Alien passengers certified					Number of alien seamen examined	Alien seamen certified				
		Class A		Class B	Class C	Total		Class A		Class B	Class C	Total
		I	II					I	II			
INSULAR—continued												
Philippines—Continued.												
Legaspi	6					0	280					0
Manila	21,984		36	33		69	69,340					0
Zamboanga	152					0	2,664					0
Total	26,013	0	36	33	0	69	90,422	0	0	0	0	0
Puerto Rico:												
Aguadilla	0					0	71					0
Arecibo	0					0	0					0
Arroyo	0					0	31					0
Central Aguirre (Jobos)	0					0	0					0
Fajardo	26					0	173					0
Guanica	25					0	2,246					0
Humacao	0					0	51					0
Mayaguez	12					0	219					0
Ponce	25					0	375		4			4
San Juan	6,505	1		2	1	4	15,561		2			2
Total	6,593	1	0	2	1	4	18,727	0	6	0	0	6
Total, all stations	192,074	73	141	5,392	243	5,849	774,066	36	468	400	73	977

TABLE 7.—*Aliens inspected and certified at international border stations during the fiscal year 1934*

Place	Number of persons making permanent entry examined	Number of persons making temporary entry examined	Other persons examined	Total number of persons examined	Aliens certified				
					Total	Class A		Class B	Class C
						I	II		
MEXICAN BORDER									
Ajo, Ariz	0	0	1,050	1,050	2	2	0	0	0
Brownsville, Tex	282	33	7,819	8,134	397	3	24	218	152
Calexico, Calif	195	28	17,903	18,126	210	7	135	6	62
Columbus, N. Mex	0	0	1,038	1,038	0	0	0	0	0
Del Rio, Tex	40	0	4,836	4,876	3	0	1	2	0
Douglas, Ariz	1,222	0	2,973	4,195	96	7	22	10	57
Eagle Pass, Tex	184	0	2,842	3,026	50	6	0	18	26
El Paso, Tex.[1]	690	7,618	17,147	25,455	3,392	44	254	2,698	396
Hidalgo, Tex	55	3	1,539	1,597	259	6	53	109	91
Laredo, Tex	28,348	771	13,074	42,193	459	6	79	368	6
Naco, Ariz	46	1	4,542	4,589	303	18	39	57	189
Nogales, Ariz	247	5,149	10,370	15,766	704	8	64	389	243
Presidio, Tex	3	18	491	512	80	1	4	32	43
Rio Grande City, Tex	0	0	450	450	26	0	12	8	6
Roma, Tex	3	0	252	255	68	1	8	31	28
San Ysidro, Calif	588	738	11,080	12,406	207	3	32	172	0
Thayer (Mercedes), Tex	0	0	337	337	26	0	2	12	12
Tucson, Ariz	4	23	264	291	83	15	51	10	7
Zapata, Tex	115	95	137	347	4	0	0	2	2
Total	32,022	14,477	98,144	144,643	6,369	127	780	4,142	1,320

[1] Includes Fort Hancock, Guadalupe Gate, and Ysleta.

TABLE 7.—*Aliens inspected and certified at international border stations during the fiscal year 1934*—Continued

Place	Number of persons making permanent entry examined	Number of persons making temporary entry examined	Other persons examined	Total number of persons examined	Aliens certified				
					Total	Class A		Class B	Class C
						I	II		
CANADIAN BORDER									
Bellingham, Wash.	0	0	0	0	0	0	0	0	0
Blaine, Wash.	227	0	390	617	91	11	2	29	49
Buffalo, N. Y.	44	689	49	782	143	16	6	85	36
Calais, Maine	99	0	18	117	10	0	2	7	1
Chicago, Ill.	0	0	12	12	12	4	4	2	2
Detroit, Mich.	1,487	2,219	1,909	5,615	850	103	40	706	1
Duluth, Minn.	0	0	1,494	1,494	4	0	0	4	0
Eastport, Idaho	60	152	11	223	59	0	0	46	13
Eastport, Maine	6	0	48,238	48,244	0	0	0	0	0
Erie, Pa.	0	0	0	0	0	0	0	0	0
Halifax, Nova Scotia, Canada	345	275	74	694	319	3	3	85	228
Havre, Mont.	0	0	3	3	0	0	0	0	0
Houlton, Maine									
International Falls, Minn.	43	144	232,106	232,293	26	4	0	19	3
Jackman, Maine	119	0	83	202	89	9	2	14	64
Lewiston, N. Y.	19	127	17,452	17,598	33	0	4	13	16
Malone, N. Y.	8	6	43	57	16	5	0	0	11
Montreal, Canada	1,453	0	0	1,453	365	35	0	300	30
Newport, Vt.	280	102	289	671	125	7	1	21	96
Niagara Falls, N. Y.	175	285	832	1,292	48	8	1	29	10
Northport, Wash.									
Noyes, Minn.	5	0	35	40	10	1	0	6	3
Ogdensburg, N. Y.	25	4	1	30	8	2	0	4	2
Oroville, Wash.	2	242	17,996	18,240	1	1	0	0	0
Portal, N. Dak.	33	0	17	50	6	1	0	5	0
Port Angeles, Wash.	0	0	0	0	0	0	0	0	0
Port Huron, Mich.	163	237	461	861	179	25	0	105	49
Quebec, Canada	851	1,216	572	2,639	465	2	0	377	86
Rouses Point, N. Y.	180	0	475	655	44	2	3	35	4
St. Albans, Vt.	28	0	67	95	8	1	0	2	5
St. John, New Brunswick, Canada	311	316	0	627	30	1	1	20	8
Sault Ste. Marie, Mich.	0	7	0	7	6	4	0	1	1
Scobey, Mont.	2	0	0	2	1	1	0	0	0
Sumas, Wash.	52	24	23	99	50	5	0	34	11
Sweetgrass, Mont.	65	1,005	0	1,070	0	0	0	0	0
Van Buren, Maine	6	10	7	23	6	3	0	0	3
Vanceboro, Maine	266	600	16	882	4	3	1	0	0
Vancouver, British Columbia, Canada	0	376	0	376	140	14	4	121	1
Victoria, British Columbia, Canada	234	0	0	234	53	5	1	12	35
Winnipeg, Manitoba, Canada	2,118	791	3,173	6,082	1,172	12	11	960	189
Yarmouth, Nova Scotia, Canada	6	4	46	56	42	4	3	34	1
Total	8,712	8,831	325,892	343,435	4,415	292	89	3,076	958
Total, all stations	40,734	23,308	424,036	488,078	10,784	419	869	7,218	2,278

TABLE 8.—*Alien seamen inspected and certified at international border stations during the fiscal year 1934*

Place	Number of alien seamen examined	Alien seamen certified				
		Class A		Class B	Class C	Total
		I	II			
Bellingham, Wash.	63	0	0	0	0	0
Buffalo, N. Y.	8,197	0	0	30	62	92
Chicago, Ill.	256	0	3	4	0	7
Duluth, Minn.	83	0	0	0	0	0
Eastport, Maine	414	0	0	0	0	0
Erie, Pa.	19	0	0	0	0	0
Lewiston, N. Y.	114	0	0	0	0	0
Ogdensburg, N. Y.	165	0	0	0	0	0
Total	9,311	0	3	34	62	99

TABLE 9.—*Number and character of the mandatorily excludable conditions certified at United States ports during the fiscal year 1934*

	Idiocy, imbecility, or feeble-mindedness	Epilepsy	Insanity	Constitutional psychopathic inferiority	Chronic alcoholism	Tuberculosis	Trachoma	Favus	Syphilis	Soft chancre	Gonorrhea	Other dangerous or loathsome contagious diseases	Total
Alien passengers	148	31	86	116	39	80	258	2	194	26	327	38	1,345
Alien seamen	1	0	2	0	0	1	11	0	87	77	181	74	434

TABLE 10.—*Distribution, according to class, of applicants for immigration visas who were medically examined during the fiscal year 1934*

Country and consular office	Total number of applicants examined	Number of applicants in each class			Percentage of applicants in each class		
		Quota	Non-quota	Non-immigrants	Quota	Non-quota	Non-immigrants
WESTERN HEMISPHERE							
Cuba: Habana	884	355	529	0	40.2	59.8	0
Canada, total	12,235	2,912	7,939	1,384	23.8	64.9	11.3
Montreal	3,641	675	2,328	638	18.5	64.0	17.5
Quebec	766	2	764	0	.3	99.7	0
Toronto	2,134	1,095	1,039	0	51.0	49.0	0
Vancouver	836	225	611	0	26.9	73.1	0
Windsor	2,594	622	1,971	1	24.0	76.0	0
Winnipeg	1,994	285	964	745	14.3	48.3	37.4
Yarmouth	270	8	262	0	2.9	97.1	0
All countries, Western Hemisphere	13,119	3,267	8,468	1,384	24.9	64.5	10.6
EUROPE							
Belgium: Antwerp	697	476	221	0	63.3	31.7	0
England: London	2,167	1,264	903	0	58.3	41.7	0
Irish Free State: Dublin	583	229	354	0	39.3	60.7	0
Northern Ireland: Belfast	312	189	123	0	39.4	60.6	0
Scotland: Glasgow	744	382	362	0	51.3	48.7	0
Germany, total	6,586	5,548	1,035	3	84.2	15.7	.1
Berlin	2,410	2,112	295	3	87.6	12.2	.2
Hamburg	1,073	752	321	0	70.1	29.9	0
Stuttgart	3,103	2,684	419	0	86.0	14.0	0
Holland: Rotterdam	616	508	108	0	83.4	17.6	0
Poland: Warsaw	2,346	1,267	1,079	0	54.0	46.0	0
Denmark: Copenhagen	344	221	123	0	64.0	36.0	0
Norway: Oslo	487	294	193	0	60.0	40.0	0
Sweden, total	567	260	306	1	45.8	54.0	.2
Goteborg	278	87	190	1	31.3	68.4	.3
Stockholm	289	173	116	0	60.0	40.0	0
Italy, total	5,638	1,519	4,105	14	27.0	72.8	.2
Genoa [1]	374	151	223	0	40.3	59.7	0
Naples	5,264	1,368	3,882	14	26.0	73.7	.3
Czechoslovakia: Prague	829	336	493	0	40.5	59.5	0
Austria: Vienna	504	332	172	0	65.9	34.1	0
All European countries	22,420	12,825	9,577	18	57.2	42.7	.1

[1] Closed Sept. 30, 1933.

TABLE 11.—*Number and percentage of quota and nonquota applicants examined who were notified for different classes of disabilities during the fiscal year 1934*

Country	Quota					Nonquota				
	Total number quota applicants examined	Number notified for—		Percentage of total examined who were notified for—		Total number nonquota applicants examined	Number notified for—		Percentage of total examined who were notified for—	
		Class A conditions	Class B conditions	Class A conditions	Class B conditions		Class A conditions	Class B conditions	Class A conditions	Class B conditions
WESTERN HEMISPHERE										
Cuba	355	32	49	9.0	13.8	529	18	53	3.4	10.0
Canada	2,912	26	386	.9	13.2	7,939	46	1,081	.6	13.6
All countries, Western Hemisphere	3,267	58	435	1.7	13.3	8,468	64	1,134	.8	13.4
EUROPE										
Belgium	476	3	128	.6	26.9	221	1	67	.4	30.3
England	1,264	1	222	.1	17.6	903	1	107	.1	10.8
Irish Free State	229	1	39	.4	17.0	354	2	52	.6	14.7
Northern Ireland	189	1	17	.1	9.0	123	0	25	0	20.3
Scotland	382	6	58	1.5	15.2	362	1	35	.3	9.6
Germany	5,548	37	1,241	.7	22.4	1,035	14	209	1.3	20.1
Holland	508	5	128	9.8	25.2	108	2	26	1.8	24.1
Poland	1,267	27	327	.2	2.5	1,079	22	182	.2	1.6
Denmark	221	0	58	0	26.2	123	0	25	0	20.3
Norway	294	3	46	1.0	15.6	193	2	29	1.0	15.0
Sweden	260	4	56	1.5	21.5	306	1	53	.3	17.3
Italy	1,519	56	633	3.7	41.7	4,105	235	595	5.7	14.5
Czechoslovakia	336	3	59	.9	17.6	493	8	63	1.6	12.8
Austria	332	6	78	1.2	15.5	172	3	45	.6	8.9
All European countries	12,825	153	3,090	1.2	24.1	9,577	292	1,513	3.0	15.8

TABLE 12.—*Percentage distribution of total quota and nonquota applicants of each sex examined who were notified for different classes of disabilities during the fiscal year 1934*

Country	Quota				Nonquota			
	Male		Female		Male		Female	
	Class A	Class B	Class A	Class B	Class A	Class B	Class A	Class B
WESTERN HEMISPHERE								
Cuba	9.2	11.9	8.6	17.3	3.8	11.6	2.9	8.0
Canada	.9	12.8	.9	14.0	.7	15.4	.5	16.1
All countries, Western Hemisphere	1.8	12.6	1.7	14.1	.9	15.1	.6	15.7
EUROPE								
Belgium	.7	22.4	.5	33.5	0	35.2	9.0	25.7
England	.2	18.6	0	16.7	.2	13.2	0	10.5
Irish Free State	0	14.8	.7	18.2	1.0	10.2	.4	16.4
Northern Ireland	0	6.0	.9	11.3	0	23.2	0	17.9
Scotland	2.3	16.5	1.2	14.5	.9	6.3	0	11.1
Germany	.9	21.8	.4	22.9	1.5	20.2	1.2	20.1
Holland	1.3	23.1	.5	27.9	3.2	22.6	0	26.1
Poland	1.5	2.2	2.7	2.8	2.2	1.9	1.8	1.5
Denmark	0	24.1	0	28.7	0	10.3	0	32.7
Norway	1.2	15.9	.7	15.2	1.1	20.2	.9	10.5
Sweden	1.0	18.2	.7	18.2	.4	17.7	.7	13.3
Italy	2.6	36.6	4.8	44.8	3.5	13.0	7.1	15.4
Czechoslovakia	.6	9.1	1.2	25.7	2.4	12.8	1.0	12.7
Austria	1.2	19.5	2.4	27.4	1.6	27.4	1.8	25.4
All European countries	1.0	22.7	1.3	27.1	2.9	20.0	1.7	23.8

TABLE 13.—*Distribution according to sex of applicants for immigration visas who were medically examined and notified for disabilities during the fiscal year 1934*

Country and consular office	Number of each sex examined		Percentage of each sex examined		Percentage of males notified for—		Percentage of females notified for—	
	Male	Female	Male	Female	Class A conditions	Class B conditions	Class A conditions	Class B conditions
WESTERN HEMISPHERE								
Cuba: Habana	520	364	58.8	41.2	6.1	11.7	5.0	11.2
Canada, total	6,539	5,696	53.5	46.5	.6	13.1	.5	15.2
Montreal	1,837	1,804	50.4	49.6	.6	12.9	.3	18.0
Quebec	430	336	56.1	43.9	0	17.2	.3	27.7
Toronto	1,246	888	58.3	41.7	1.7	6.6	1.1	5.9
Vancouver	382	454	43.3	56.7	.3	9.4	0	8.4
Windsor	1,434	1,160	55.3	44.7	.4	18.5	.5	21.0
Winnipeg	1,108	886	55.5	44.5	.5	11.4	.3	7.7
Yarmouth	102	168	37.7	62.3	1.0	37.0	.6	26.6
All counties, Western Hemisphere	7,059	6,060	53.7	46.3	1.0	13.0	.8	15.7
EUROPE								
Belgium: Antwerp	393	304	56.4	43.6	.5	25.7	.6	30.6
England: London	1,030	1,137	47.5	52.5	.1	16.2	0	14.2
Irish Free State: Dublin	179	404	30.7	69.3	.6	12.3	.5	17.1
Northern Ireland: Belfast	139	173	44.5	55.4	0	12.9	.6	13.9
Scotland: Glasgow	238	506	32.0	68.0	1.7	11.7	.6	12.8
Germany, total	3,158	3,428	47.9	52.1	1.0	21.5	.6	22.4
Berlin	1,247	1,163	51.7	48.3	1.3	22.4	.9	22.8
Hamburg	550	523	51.3	48.7	1.5	15.5	.8	21.4
Stuttgart	1,361	1,742	40.6	59.4	.1	23.1	.3	22.5
Holland: Rotterdam	369	247	59.9	40.1	1.6	23.3	.4	27.5
Poland: Warsaw	1,086	1,260	46.2	53.8	1.8	21.6	2.3	21.7
Denmark: Copenhagen	188	156	54.6	45.4	0	13.0	0	30.1
Norway: Oslo	252	235	51.7	48.3	1.2	17.4	.8	13.2
Sweden, total	271	296	47.8	52.2	1.0	20.3	1.3	18.3
Goteborg	140	138	50.3	49.7	2.1	18.6	1.4	18.8
Stockholm	131	158	45.3	54.6	0	22.1	1.3	17.7
Italy, total	2,237	3,401	39.7	60.3	3.2	20.2	6.5	22.8
Genoa [1]	151	223	40.4	59.6	1.3	20.5	2.2	23.7
Naples	2,086	3,178	39.7	60.3	3.3	20.1	6.8	22.7
Czechoslovakia: Prague	367	462	44.2	55.7	1.6	11.2	1.1	15.4
Austria: Vienna	226	278	44.8	55.2	1.3	21.5	2.2	26.8
All European countries	10,133	12,287	45.2	54.8	1.5	19.8	2.4	21.1

[1] Closed Sept. 30, 1933.

TABLE 14.—*Number and percentage of quota and nonquota applicants of each sex who were refused visas for mental conditions during the fiscal year 1934*

Country	Quota						Nonquota					
	Male			Female			Male			Female		
	Number examined	Number refused	Percent refused	Number examined	Number refused	Percent refused	Number examined	Number refused	Percent refused	Number examined	Number refused	Percent refused
WESTERN HEMISPHERE												
Cuba	228	2	0.9	127	2	1.6	292	0	0	237	0	0
Canada	1,242	1	.1	1,070	5	.5	3,778	18	.5	4,161	11	.3
All countries, Western Hemisphere	1,470	3	.2	1,197	7	.6	4,070	18	.4	4,398	11	.3
EUROPE												
Belgium	285	1	.4	191	1	.5	108	0	0	113	1	.8
England	575	35	6.1	689	29	4.2	455	11	2.4	448	9	2.0
Irish Free State	81	0	0	148	0	0	98	1	1.0	256	1	.4
Northern Ireland	83	0	0	106	1	.9	56	0	0	67	0	0
Scotland	127	7	5.5	255	6	2.3	111	2	1.8	251	2	.8
Germany	2,752	154	5.6	2,796	94	3.4	395	12	3.0	640	15	2.3
Holland	307	2	1.7	201	1	.5	62	0	0	46	0	0
Poland	653	5	.7	614	9	1.4	433	5	1.1	646	8	1.2
Denmark	120	0	0	101	0	0	68	0	0	55	0	0
Norway	163	1	.6	131	1	.7	89	0	0	104	0	0
Sweden	122	2	1.6	138	2	1.4	148	0	0	158	1	0
Italy	655	1	.1	864	10	1.2	1,578	0	.6	2,527	77	3.2
Czechoslovakia	165	0	.1	171	0	0	202	2	1.0	291	3	1.0
Austria	164	1	.6	168	2	1.2	62	0	0	110	2	1.8
All European countries	6,252	209	3.3	6,573	156	2.4	3,865	33	1.1	5,712	119	2.0

TABLE 15.—*Number and character of the mandatorily excludable conditions notified during the fiscal year 1934*

WESTERN HEMISPHERE

Disease or defect	Cuba: Habana	Canada								Total, all stations
		Montreal	Quebec	Toronto	Vancouver	Windsor	Winnipeg	Yarmouth	Total	
Class A–I										
Chronic alcoholism						1			1	1
Insanity	2	4		2		1	2		9	11
Mentally defective	1	11		6		1			18	19
Epilepsy		1				2	1		4	4
Feeble-mindedness				3		4			7	7
Constitutional psychopathic inferiority	1	8		3			2		13	14
Imbecility			1			1			2	2
Total class A–I	4	24	1	14	0	10	5	0	54	58
Class A–II										
Leprosy	1									1
Trachoma	1	6					1	1	8	9
Tuberculosis, pulmonary	5	8		2	1	2	2		15	20
Tuberculosis, other forms				2		2			4	4
Ringworm	33			1		1			2	35
Venereal diseases	6	9		12					21	27
Total class A–II	46	23	0	17	1	5	3	1	50	96
Grand total	50	47	1	31	1	15	8	1	104	154

TABLE 15.—*Number and character of the mandatorily excludable conditions notified during the fiscal year 1934*—Continued

EUROPE

Disease or defect	Belgium	England	Irish Free State	Northern Ireland	Scotland	Germany	Holland	Poland	Denmark	Norway	Sweden	Italy	Czechoslovakia	Austria	Total
Class A-I															
Insanity	----	----	1	----	1	5	----	----	----	----	5	2	----	----	14
Mentally defective	1	1	1	----	2	2	1	21	----	----	----	58	3	----	90
Epilepsy	----	----	----	----	----	2	----	----	----	----	----	2	----	----	4
Feeble-mindedness	1	----	1	----	1	----	----	4	----	1	----	29	2	4	43
Constitutional psychopathic inferiority	----	----	----	1	1	4	2	1	----	1	1	3	----	----	14
Imbecility	----	----	----	----	----	----	----	1	----	----	----	1	----	----	2
Total class A-I	2	1	3	1	5	13	3	27	0	2	6	95	5	4	167
Class A-II															
Trachoma	----	----	----	----	----	----	1	19	----	----	----	173	3	3	199
Tuberculosis, pulmonary	1	----	----	----	1	9	3	1	----	1	----	6	----	1	23
Ringworm	----	----	----	----	----	----	----	2	----	1	----	2	----	1	6
Venereal diseases	----	----	----	----	----	1	----	----	----	1	----	5	----	----	7
Total class A-II	1	0	0	0	1	10	4	22	0	3	0	186	3	5	235
Grand total	3	1	3	1	6	23	7	49	0	5	6	281	8	9	402

TABLE 16.—*Number and percentage of applicants examined who were notified and refused visas on medical notification for different classes of disabilities during the fiscal year 1934*

Country and consular office	Number notified for—		Percentage of applicants examined who were notified for—		Number of visas refused for—		Percentage of applicants examined who were refused visas for—	
	Class A conditions	Class B conditions	Class A conditions	Class B conditions	Class A conditions	Class B conditions	Class A conditions	Class B conditions
WESTERN HEMISPHERE								
Cuba: Habana	50	102	5.7	11.5	50	15	5.7	1.7
Canada, total	77	1,726	.6	14.8	76	740	.6	6.0
Montreal	18	563	.5	15.4	17	250	.5	6.6
Quebec	1	167	.1	21.8	1	83	.1	10.8
Toronto	32	135	1.5	6.3	32	7	1.5	.3
Vancouver	1	74	.1	8.8	1	5	.1	.6
Windsor	15	509	.6	19.6	15	239	.6	9.2
Winnipeg	8	196	.4	1.0	8	114	.4	5.2
Yarmouth	2	82	.8	30.3	2	42	.8	15.5
All countries, Western Hemisphere	127	1,828	1.0	13.9	126	755	1.0	5.7
EUROPE								
Belgium: Antwerp	4	195	.6	27.9	4	114	.6	58.4
England: London	2	329	.1	15.1	2	82	.1	.4
Irish Free State: Dublin	3	91	.5	15.6	2	5	.3	.9
Northern Ireland: Belfast	1	42	.3	13.5	1	12	.3	3.8
Scotland: Glasgow	7	93	.9	12.5	7	10	.9	1.3
Germany, total	51	1,450	.7	22.0	51	273	.7	4.1
Berlin	27	546	1.1	22.6	27	236	1.1	9.8
Hamburg	12	197	1.1	18.4	12	4	1.1	2.0
Stuttgart	12	707	.4	22.8	12	33	.4	1.1

TABLE 16.—*Number and percentage of applicants examined who were notified and refused visas on medical notification for different classes of disabilities during the fiscal year 1934.*—Continued

Country and consular office	Number notified for—		Percentage of applicants examined who were notified for—		Number of visas refused for—		Percentage of applicants examined who were refused visas for—	
	Class A conditions	Class B conditions	Class A conditions	Class B conditions	Class A conditions	Class B conditions	Class A conditions	Class B conditions
EUROPE—continued								
Holland: Rotterdam	7	154	1.1	25.0	7	85	1.1	55.2
Poland: Warsaw	49	509	2.0	21.2	49	159	2.0	6.7
Denmark: Copenhagen	0	83	0	24.1	0	33	0	39.8
Norway: Oslo	5	75	1.0	15.4	5	35	1.0	6.9
Sweden, total	6	109	1.0	19.2	6	35	1.0	6.1
Goteborg	5	52	1.8	18.7	5	16	1.8	5.7
Stockholm	1	57	.3	19.7	1	19	.3	6.5
Italy, total	291	1,228	5.3	21.8	291	111	5.3	1.8
Genoa [1]	7	84	1.8	22.5	7	9	1.8	2.4
Naples	284	1,144	5.4	21.7	284	102	5.4	1.9
Czechoslovakia: Prague	11	122	1.3	14.7	11	38	1.3	3.4
Austria: Vienna	9	123	1.8	24.4	9	9	1.8	1.8
All European countries	446	4,603	1.9	20.5	445	1,001	1.9	4.4

[1] Closed Sept. 30, 1933.

TABLE 17.—*Percentage distribution of the total quota and nonquota applicants notified for each class of disabilities who were refused visas on medical grounds during the fiscal year 1934*

Country	Quota						Nonquota					
	Number notified		Number refused visas		Percentage of notified cases refused visas		Number notified		Number refused visas		Percentage of notified cases refused visas	
	Class A	Class B	Class A	Class B	Class A	Class B	Class A	Class B	Class A	Class B	Class A	Class B
WESTERN HEMISPHERE												
Cuba	32	49	32	6	100	12.2	18	53	18	9	100	16.9
Canada	26	386	26	168	100	43.5	46	1,151	46	553	100	48.0
All countries, Western Hemisphere	58	435	58	174	100	40.0	64	1,204	64	562	100	46.6
EUROPE												
Belgium	2	128	2	87	100	67.7	2	67	2	27	100	40.0
England	1	222	1	63	100	28.3	1	107	1	19	100	17.7
Irish Free State	1	39	0	2	0	5.1	2	52	2	3	100	5.8
Northern Ireland	1	17	1	7	100	41.2	0	25	0	5	100	20.0
Scotland	6	58	6	7	100	12.1	1	35	1	3	100	8.5
Germany	37	1,241	37	251	100	20.2	14	209	14	22	100	10.5
Holland	5	128	5	76	100	59.4	2	26	2	9	100	34.6
Poland	27	327	27	112	100	34.2	22	182	22	47	100	25.8
Denmark	0	58	0	27	100	46.6	0	25	0	6	100	24.0
Norway	3	46	3	25	100	54.3	2	29	2	10	100	35.5
Sweden	4	56	4	21	100	37.5	1	53	1	14	100	26.4
Italy	56	633	56	50	100	7.8	235	595	235	61	100	10.2
Czechoslovakia	3	59	3	10	100	16.9	8	63	8	28	100	44.4
Austria	6	78	6	7	100	8.9	3	45	3	2	100	4.4
All European countries	152	3,090	151	745	99.3	21.9	293	1,513	293	256	100	16.9

TABLE 18.—*Number and percentage of male and female applicants notified for class B disabilities who were refused visas on medical grounds during the fiscal year 1934*

Country and consular office	Number of applicants notified for class B conditions		Number of applicants refused visas for class B conditions		Percentage of applicants notified who were refused visas for class B conditions	
	Male	Female	Male	Female	Male	Female
WESTERN HEMISPHERE						
Cuba: Habana	61	41	8	7	13.1	17.0
Canada, total	860	866	450	299	52.3	34.5
Montreal	237	326	121	129	51.0	39.5
Quebec	74	93	53	30	71.6	32.4
Toronto	83	52	5	2	6.0	3.8
Vancouver	36	38	2	3	6.1	7.9
Windsor	266	243	166	73	62.4	30.0
Winnipeg	127	69	78	45	61.4	65.2
Yarmouth	37	45	25	17	67.5	37.7
All countries, Western Hemisphere	921	907	458	306	49.7	33.7
EUROPE						
Belgium: Antwerp	102	93	62	52	61.0	55.9
England: London	167	162	44	38	26.3	23.4
Irish Free State: Dublin	22	69	1	4	4.5	5.8
Northern Ireland: Belfast	18	24	7	5	38.9	20.8
Scotland: Glasgow	28	65	5	5	17.8	7.7
Germany, total	680	770	158	115	23.2	14.9
Berlin	280	266	141	95	50.3	35.7
Hamburg	85	112	2	2	2.4	1.8
Stuttgart	315	392	15	18	4.8	4.6
Holland: Rotterdam	86	68	48	37	62.5	55.4
Poland: Warsaw	235	274	95	64	40.4	23.7
Denmark: Copenhagen	36	47	19	14	52.8	29.8
Norway: Oslo	44	31	25	10	56.8	32.2
Sweden, total	55	54	20	15	36.3	27.7
Goteborg	26	26	8	8	30.7	30.7
Stockholm	29	28	12	7	41.4	25.0
Italy, total	451	777	70	41	15.5	5.3
Genoa [1]	31	53	5	4	16.1	7.5
Naples	420	724	65	37	15.4	5.1
Czechoslovakia: Prague	41	81	19	9	46.3	11.1
Austria: Vienna	49	74	6	3	12.2	4.0
All European countries	2,014	2,589	579	412	28.7	15.9

[1] Closed Sept. 30, 1933.

TABLE 19.—*Summary of medical inspection of aliens, fiscal year 1934*

MARITIME STATIONS

GROUP I.—ALIEN PASSENGERS NOT EXAMINED ABROAD, EXAMINED UPON ARRIVAL

Class	Total examined	Intensively examined	Passed	Certified on arrival				Total certified
				A-I	A-II	B	C	
First	61,649	796	61,367	8	4	255	15	282
Second	22,255	304	21,973	4	1	266	11	282
Third	90,259	3,414	88,578	12	66	1,530	73	1,681
Stowaways	399	261	365	2	8	10	14	34
Warrant cases	4,420	2,114	4,069	47	62	132	110	351
Total	178,982	6,889	176,352	73	141	2,193	223	2,630

GROUP II.—ALIEN PASSENGERS EXAMINED ABROAD, REEXAMINED ON ARRIVAL

Class	Total examined	Intensively examined	Passed abroad	Passed on arrival	Certified on arrival (condition noted abroad)				
					A-I	A-II	B	C	Number certified
First	1,325	169	1,126	1,123	0	0	194	5	199
Second	1,959	36	1,481	1,481	0	0	476	2	478
Third	9,808	74	7,269	7,269	0	0	2,526	13	2,539
Total	13,092	279	9,876	9,873	0	0	3,196	20	3,216

Class	Certified on arrival (condition not noted abroad)					Total certified
	A-I	A-II	B	C	Number certified	
First	0	0	3	0	3	202
Second	0	0	0	0	0	478
Third	0	0	0	0	0	2,539
Total	0	0	3	0	3	3,219

GROUP III.—ALIEN SEAMEN EXAMINED ON ARRIVAL

	Total examined	Intensively examined	Passed	Certified on arrival				Total certified
				A-I	A-II	B	C	
Alien crew	783,165	231,942	782,089	36	471	434	135	1,076
Workaways	212	53	212	0	0	0	0	0
Total	783,377	231,995	782,301	36	471	434	135	1,076

CANADIAN AND MEXICAN BORDER STATIONS

GROUP I.—ALIEN PASSENGERS NOT EXAMINED ABROAD, EXAMINED UPON ARRIVAL

Class	Total examined	Intensively examined	Passed	Certified on arrival				Total certified
				A-I	A-II	B	C	
Statistical, making permanent entry (bona fide immigrants)	40,649	36,069	38,611	115	57	1,389	477	2,038
Statistical, making temporary entry	22,577	6,922	20,328	89	106	1,700	354	2,249
Nonstatistical, making entry (local crossers, etc.)	420,495	41,365	414,938	113	489	3,630	1,325	5,557
Warrant cases	2,969	2,838	2,196	102	217	332	122	773
Total	486,690	87,194	476,073	419	869	7,051	2,278	10,617

TABLE 19.—*Summary of medical inspection of aliens, fiscal year 1934*—Continued

CANADIAN AND MEXICAN BORDER STATIONS—Continued

GROUP II.—ALIEN PASSENGERS EXAMINED ABROAD, REEXAMINED ON ARRIVAL

Class	Total examined	Intensively examined	Passed abroad	Passed on arrival	Certified on arrival (condition noted abroad)				
					A-I	A-II	B	C	Number certified
Statistical, making permanent entry (bona fide immigrants)	85	85	63	63	0	0	22	0	22
Statistical, making temporary entry	731	731	731	638	0	0	0	0	0
Nonstatistical, making entry (local crossers, etc.)	572	572	572	520	0	0	0	0	0
Total	1,388	1,388	1,366	1,221	0	0	22	0	22

Class	Certified on arrival (condition not noted abroad)					Total certified
	A-I	A-II	B	C	Number certified	
Statistical, making permanent entry (bona fide immigrants)	0	0	0	0	0	22
Statistical, making temporary entry	0	0	93	0	93	93
Nonstatistical, making entry (local crossers, etc.)	0	0	52	0	52	52
Total	0	0	145	0	145	167

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. R. C. Williams in charge

During the fiscal year the Division of Sanitary Reports and Statistics continued to act as a clearing house for the reports of outbreaks of diseases dangerous to the public health and of the prevalence of quarantinable and other communicable diseases in the United States and foreign countries.

Morbidity and Mortality Reports

Reports were received from officers of the Public Health Service at home and abroad, from consular officers of the United States, from the International Office of Public Hygiene, the Pan American Sanitary Bureau, and the health section of the League of Nations, from foreign governments, and from all other reliable sources. The data were arranged, compiled, abstracted, or tabulated and published for the information of health officers and others interested in the protection of the public health.

During the fiscal year reports of cases of quarantinable diseases were forwarded to foreign governments, to the International Office of Public Hygiene, and to the Pan American Sanitary Bureau in accordance with the provisions of international sanitary conventions to which the United States is a party.

Indiana and Tennessee were added to the list of States which have qualified for admission to the morbidity reporting area. Thirty-two States have now reached the standard set for admission.

At the close of the fiscal year there were 4,674 collaborating and assistant collaborating epidemiologists on the rolls of the Public Health Service. These men are officers of State and local health departments and their appointments as Federal officers are made at the nominal salary of $1 per annum. Their duties are to collect and forward to the Public Health Service information as to outbreaks of diseases dangerous to the public health and reports of the current prevalence of communicable diseases.

Telegraphic reports of the current prevalence of diphtheria, influenza, measles, meningococcus meningitis, poliomyelitis, Rocky Mountain spotted fever, scarlet fever, smallpox, typhoid fever, typhus fever, and undulant fever were received each week from the health officers of all States except Nevada. The reports were published in the Public Health Reports, and mimeographed copies of tabulations were sent to all State health officers.

Monthly reports of the prevalence of notifiable diseases were received from all of the States, and weekly tabulations giving numbers of cases and deaths in cities of over 10,000 population were received during the year. Brief summaries of these reports were published in the Public Health Reports, and the data were compiled and filed for reference.

The annual summary of notifiable diseases in States for the calendar year 1932 was issued and the volume for 1933 was nearly ready at the close of the fiscal year. Similar data for cities were collected, tabulated, and filed. The summaries for cities have not been printed since 1930.

Prevalence of Communicable Diseases in the United States, 1933

The following table gives a comparison of the numbers of cases of the principal communicable diseases and deaths from these diseases reported in the United States for the calendar years 1931, 1932, and 1933:

CASES

Disease	Number of States[1]	Aggregate population (in thousands)			Cases			Cases per 100,000 population		
		1931	1932	1933	1931	1932	1933	1931	1932	1933
Chicken pox	42	108,067	108,744	109,529	201,860	201,492	223,486	186.8	185.3	204.0
Diphtheria	47	123,558	124,307	125,175	70,671	59,784	50,378	57.2	48.1	40.2
Influenza	47	123,558	124,307	125,175						
Malaria	46	116,844	117,554	118,377						
Measles	47	123,558	124,307	125,175	474,549	403,294	396,941	384.1	324.4	317.1
Meningococcus meningitis	35	106,428	107,082	107,839	5,076	2,971	2,606	4.8	2.8	2.4
Mumps	39	87,063	87,603	88,228	98,858	97,002	83,179	113.5	110.7	94.3
Pellagra	45	104,088	104,702	105,412						
Pneumonia (all forms)	45	113,430	114,063	114,795						
Poliomyelitis	40	105,271	105,913	106,656	15,756	3,588	4,855	15.0	3.4	4.6
Scarlet fever	47	123,558	124,307	125,175	200,607	210,014	210,982	162.4	168.9	168.5
Smallpox	47	123,558	124,307	125,175	30,151	11,194	6,460	24.4	9.0	5.2
Tuberculosis (all forms)	47	123,558	124,307	125,175						
Tuberculosis (respiratory system)	43	114,139	114,833	115,638						
Typhoid fever and paratyphoid fever	47	123,558	124,307	125,175	26,459	26,618	23,287	21.4	21.4	18.6
Whooping cough	47	123,558	124,307	125,175	169,283	214,310	177,233	137.0	172.4	141.6

DEATHS

Disease	Deaths			Deaths per 100,000 population			Cases reported for each death registered		
	1931	1932	1933	1931	1932	1933	1931	1932	1933
Chicken pox	128	94	127	0.1	0.1	0.1	1,577	2,144	1,760
Diphtheria	6,132	6,017	4,852	5.0	4.8	3.9	12	10	10
Influenza	32,356	37,874	31,706	26.2	30.5	25.3			
Malaria	2,643	2,682	4,463	2.3	2.3	3.8			
Measles	3,345	1,881	2,167	2.7	1.5	1.7	142	214	183
Meningococcus meningitis	2,378	1,343	1,105	2.2	1.3	1.0	2	2	2
Mumps	65	52	45	.1	.1	.1	1,521	1,865	1,848
Pellagra	5,808	4,120	3,781	5.6	3.9	3.6			
Pneumonia (all forms)	96,109	92,955	84,239	84.7	81.5	73.4			
Poliomyelitis	1,926	662	657	1.8	.6	.6	8	5	7
Scarlet fever	2,618	2,568	2,438	2.1	2.1	1.9	77	82	87
Smallpox	104	52	35	.1	(2)	(2)	290	215	185
Tuberculosis (all forms)	83,137	77,222	73,809	67.3	62.1	59.0			
Tuberculosis (respiratory system)	68,801	64,360	61,510	60.3	56.0	53.2			
Typhoid fever and paratyphoid fever	5,721	4,822	4,373	4.6	3.9	3.5	5	6	5
Whooping cough	4,508	5,265	4,162	3.6	4.2	3.3	38	41	43

[1] In addition to the number of States given, the District of Columbia is also included.
[2] Less than 0.1 per 100,000 population.

Sanitary Legislation and Court Decisions

Legislation.—There was prepared during the fiscal year a publication (Supplement 111) containing citations to the various State and Federal laws and regulations on public health enacted and adopted during the calendar year 1931. Copies of public-health ordinances and regulations, adopted during 1933 by cities in the United States of over 10,000 population, were secured for the purpose of making available sample municipal requirements on various health subjects to assist those desiring to draft municipal health legislation.

Court decisions.—Supplement 110, containing a review of those court decisions on public health which had appeared in the Public Health Reports during the 3-year period 1930–32, was prepared and published. There was continued throughout the year the abstracting and publication in the Public Health Reports of current decisions on public health handed down by State and Federal courts of last resort.

Negro Health Work

The Public Health Service rendered assistance in many Negro health activities during the year. Cooperation was effected through the State departments of health, and work was conducted in several counties and communities with local health departments and various voluntary health and civic agencies, including professional and lay groups.

Field service reached 26 communities in 11 States in 84 days of special activities, during which 203 interested organizations participated in 612 lectures and conferences and 25 motion-picture showings and exhibits, with total attendance of 49,945 persons.

The twentieth anniversary of the National Negro Health Week, for which the Public Health Service issued informative materials and provided field service, produced reports showing 41,004 homes engaged in clean-up projects for sanitary and other improvements, 3,090 health lectures to 322,500 persons, 105 radio talks, 809 health articles in newspapers, 128,627 health pamphlets, 218 motion-picture programs, 411 exhibits, and 885 pageants and games attended by a total of 167,629 people. Five hundred and two clinics for babies, children, and adults served 61,109 applicants.

The intensive health-week campaign stimulated year-round activities that produced a number of comprehensive community health surveys and many practical undertakings for constructive use of the health-week experiences and the data of the surveys.

The National Negro Health News, a quarterly bulletin of data on Negro health problems and projects, was issued during the year by the Public Health Service.

On March 1, 1934, supervision of this work was transferred from the Division of Sanitary Reports and Statistics to the Division of Domestic (Interstate) Quarantine, which division maintains cooperative relations with the States on administrative health work.

Publications Issued by the Division

The Public Health Reports, issued by the Division each week, is one of the oldest of regular Government publications. It was first printed in 1878 under the title of "Bulletins of Public Health", later

as "Abstracts of Sanitary Reports", and since 1895 has gone out under the present title. It was issued regularly each week during the year, the 52 issues covering volume 48, part 2, and volume 49, part 1. These issues contained a total of 1,578 pages of text and tabular matter, exclusive of title pages and tables of contents, as compared with 1,762 pages in the fiscal year 1933, 3,008 pages in 1932, and 3,285 pages in 1931. The reduction in the years 1933 and 1934 as compared with prior years was necessitated by the reduction in printing funds and was accomplished by suspending publication of certain statistical matter and revising and condensing the text articles as much as possible. The value of the Public Health Reports as a medium of reporting the results of important current research work and as a means of presenting current morbidity reports was retained to the greatest extent possible in the face of greatly reduced printing funds.

During the year 50 important articles published in the Public Health Reports were issued in separate form as reprints, providing a more extensive and economical distribution to persons interested in the subjects and allowing the printing of sale editions by the Superintendent of Documents. In 1933, 43 such articles were reprinted, 35 in 1932, and 97 in 1931.

Four supplements to the Public Health Reports were issued during the year as follows: No. 107, Malaria Treatment of Parenchymatous Syphilis of the Central Nervous System; No. 108, The Sanitary Privy; No. 109, The Notifiable Diseases in States, 1932; and Supplement No. 110, A Review of Court Decisions on Public Health, 1930–32. Supplement No. 108, which contained numerous detailed drawings and specifications, proved exceedingly valuable in the construction of over 200,000 sanitary privies under the Public Works Administration during the latter part of the fiscal year.

New editions of a number of previously printed publications were issued during the fiscal year, as the demand for such publications justified going to press again. Some of these new editions required revision to bring them up to date.

The Division also issued three National Negro Health Week publications during the year—the National Negro Health Week Bulletin, the health week poster for the 1934 observance, and a health leaflet for school and home, containing in attractive form some fundamental health precepts for children and adults. This work is in keeping with the practice of the Public Health Service, under legislative authority, of aiding in special public health problems. It is designed to stimulate interest in community Negro health activities and aid community leaders in their health campaigns to improve individual hygiene and community sanitation.

Publications Distributed and Exhibits Prepared

During the fiscal year, 76 new publications were distributed by the Division, as compared with 66 during the preceding year. A total distribution of 179,370 copies of new publications and of editions of previously published documents was made. Of these 115,818 were sent in response to individual requests for information and 63,552 were distributed to service mailing lists.

90167—34——7

There were 36 requests for the loan of stereopticon slides, and in response to these requests, 2,003 slides were lent to universities, health officers, public-health lecturers, officials of the Public Health Service, and others.

During the fiscal year the appropriation for exhibits relating to public health was further reduced. Although the funds appropriated for exhibit purposes were inadequate, an exhibit on encephalitis was prepared, in cooperation with the committee on scientific exhibits of the American Medical Association, for display at the annual meeting of the association at Cleveland. Other exhibits of the service were displayed in various cities of the United States. The exhibit of the service at the Century of Progress Exposition at Chicago was reconditioned and displayed during the continuance of this exposition.

The following is a list of publications distributed by the division during the fiscal year:

REPRINTS FROM THE PUBLIC HEALTH REPORTS

1562. The objectives in public health nursing and minimum qualifications for those appointed to positions in public health nursing. March 10, 1933. 8 pages.
1565. Experimental studies of water purification. VI. General summary and conclusions. By H. W. Streeter. April 14, 1933. 24 pages.
1566. Inactivation of antistreptococcus bacteriophage by animal fluids. By Alice C. Evans. April 21, 1933. 16 pages.
1569. Protective value of convalescent sera of Sao Paulo exanthematic typhus against virus of Rocky Mountain spotted fever. By R. R. Parker and Gordon E. Davis. May 12, 1933. 7 pages.
1570. Rocky Mountain spotted fever and boutonneuse fever. A study of their immuniological relationship. By L. F. Badger. May 12, 1933. 4 pages.
1571. Relationship between Rocky Mountain spotted fever and "exanthematic typhus of Sao Paulo." By R. E. Dyer. May 19, 1933. 2 pages.
1572. Maternal, fetal, and neonatal mortality among 1,815 hospitalized American Indians. By E. Blanche Sterling. May 19, 1933. 14 pages.
1573. Rat harborage and its relation to the spread of bubonic plague. By B. E. Holsendorf. May 19, 1933. 4 pages.
1574. Preparation of a scarlet fever streptococcus toxoid and its use in active immunization. By M. V. Veldee. May 26, 1933. 17 pages.
1575. Observations on heart disease in Marine Hospital practice. A study of organic heart disease in the United States Marine Hospital, Stapleton, N. Y., during the fiscal year 1931. By O. F. Hedley. May 26, 1933. 11 pages.
1576. Heterologous experience (immunization) as a factor in resistance to disease. By Charles Armstrong and W. T. Harrison. June 2, 1933. 13 pages.
1577. Malaria in the irrigated regions of New Mexico. By M. A. Barber and Louis R. Forbrich. June 2, 1933. 14 pages.
1578. Public Health Service publications. A list of publications issued during the period July–December 1932. June 2, 1933. 3 pages.
1579. The Shwartzman phenomenon. Factors complicating its use in the testing of antimeningococcic serum. By Anna M. Pabst and Sara E. Branham. June 9, 1933. 13 pages.
1580. Experimental studies of natural purification in polluted waters. VII. The selection of a dilution water for bacteriological examinations. By C. T. Butterfield. June 16, 1933. 11 pages.
1581. Distribution of mottled enamel in the United States. By H. Trendley Dean. June 23, 1933. 32 pages.
1582. The pellagra-preventive value of green cabbage, collards, mustard greens, and kale. By G. A. Wheeler and D. J. Hunt. June 30, 1933. 5 pages.
1583. Rocky Mountain spotted fever: susceptibility of the dog and sheep to the virus. By L. F. Badger. July 7, 1933. 5 pages.
1584. An outbreak of dermatitis among workers in a rubber manufacturing plant. By Louis Schwartz and Louis Tulipan. July 14, 1933. 6 pages.

1585. Whole-time county health officers, 1933. July 14, 1933. 9 pages.
1586. Dermatitis from chemicals used in removing velvet pile. By Louis Schwartz and Louis Tulipan. July 28, 1933. 4 pages.
1587. The injection of mosquito sporozoites in malaria therapy. By Bruce Mayne. August 4, 1933. 7 pages.
1588. Physical impairment and weight. A study of medical examination records of 3,037 men markedly under or over weight for height and age. By Rollo H. Britten. August 4, 1933. 19 pages.
1589. Zinc in relation to general and industrial hygiene. By Cecil K. Drinker and Lawrence T. Fairhall. August 11, 1933. 7 pages.
1590. Relation of arsenoxide content to toxicity of fresh and old samples of arsphenamine. New chemical tests upon the arsphenamines. By Sanford M. Rosenthal and T. F. Probey. August 11, 1933. 8 pages.
1591. Variations of growth in weight of elementary school children, 1921–28. By Carroll E. Palmer. August 18, 1933. 13 pages.
1592. Estimation of basophilic cells (reticulocytes) by examination of ordinary blood film. By R. R. Jones. August 18, 1933. 10 pages.
1593. Bone marrow in tularaemia. By R. D. Lillie and Edward Francis. September 15, 1933. 10 pages.
1594. Incidence and clinical symptoms of minor respiratory attacks with special reference to variation with age, sex, and season. By Selwyn D. Collins and Mary Gover. September 22, 1933. 24 pages.
1595. Public Health Service publications. A list of publications issued during the period January–June 1933. September 29, 1933. 4 pages.
1596. Estimation of fluorides in waters. By Elias Elvove. October 6, 1933. 4 pages.
1597. Extent of rural health service in the United States. January 1, 1929, to December 31, 1932. October 6, 1933. 17 pages.
1598. Sickness and the economic depression. Preliminary report on illness in families of wage earners in Birmingham, Detroit, and Pittsburgh. By G. St. J. Perrott, Selwyn D. Collins, and Edgar Sydenstricker. October 13, 1933. 14 pages.
1599. Growth and the economic depression. A study of the weight of elementary school children in 1921–27 and in 1933. By Carroll E. Palmer. October 20, 1933. 16 pages.
1600. Encephalitis: studies on experimental transmission. By Ralph S. Muckenfuss, Charles Armstrong, and H. A. McCordock. November 3, 1933. 2 pages.
1601. Experimental studies of natural purification in polluted waters. VIII. Dissolved oxygen in the presence of organic matter, hypochlorites, and sulphite wastes. By Emery J. Theriault and Paul D. McNamee. November 10, 1933. 15 pages.
1602. Acute response of guinea pigs to vapors of some new commercial organic compounds. VII. Dichloroethyl ether. By H. H. Schrenk, F. A. Patty, and W. P. Yant. November 17, 1933. 10 pages.
1603. Biological products. Establishments licensed for the propagation and sale of viruses, serums, toxins, and analogous products. November 17, 1933. 5 pages.
1604. State and insular health authorities, 1933. Directory, with data as to appropriations and publications. December 22, 1933. 17 pages.
1605. Experimental studies on acute mercurial poisoning. By Sanford M. Rosenthal. December 29, 1933. 21 pages.
1606. The influenza epidemic of 1928–29 in 14 surveyed localities in the United States. An analysis, according to age, sex, and color of the records of morbidity and mortality obtained in the surveys. By Selwyn D. Collins. January 5, 1934. 42 pages.
1607. The use of pure strain animals in studies on resistance to transplantable tumors. By H. B. Andervont. January 12, 1934. 6 pages.
1608. The physiological response of the peritoneal tissue to dusts introduced as foreign bodies. By John W. Miller and R. R. Sayers. January 19, 1934. 10 pages.
1609. Sulphur dioxide for the fumigation of ships. Methods of use and prospects of improvement. By C. L. Williams. January 19, 1934. 12 pages.
1610. Milk-sanitation ratings of cities. Cities for which milk-sanitation ratings of 90 percent or more have been reported by the State milk-sanitation authorities during the period January 1, 1932, to December 1, 1933. January 26, 1934. 5 pages.

1611. Amoebic dysentery. Problems presented by the outbreak in 1933. By G. W. McCoy. February 2, 1934. 4 pages.
1612. Gas hazards in sewers and sewage-treatment plants. By R. R. Sayers. February 2, 1934. 11 pages.
1613. City health officers, 1933. Directory of those in cities of 10,000 or more population. February 2, 1934. 17 pages.
1614. The sensitivity, in vitro, of bacteria to the beta and gamma rays of radium. By R. R. Spencer. February 9, 1934. 10 pages.
1615. Liquid sulphur dioxide as a fumigant for ships. By C. L. Williams. February 9, 1934. 17 pages.
1616. Effect of flea passage on epidemic typhus virus. By R. E. Dyer. February 16, 1934. 2 pages.
1617. Studies on the standardization of vibrion septique antitoxin. By Ida A. Bengtson. February 23, 1934. 12 pages.
1619. Control of amoebic dysentery. By G. W. McCoy. March 16, 1934. 2 pages.
1620. Viability of endamoeba histolytica and endamoeba coli. Effect of drying. By Bertha Kaplan Spector and Florence Buky. March 23, 1934. 7 pages.
1621. Most probable numbers for evaluation of coli-aerogenes tests by fermentation tube method. By J. K. Hoskins. March 23, 1934. 13 pages.

SUPPLEMENTS

106. Whooping cough: its nature and prevention. Information concerning a wide-spread disease for which familiarity has bred contempt. By Floyd C. Turner. 1933. 4 pages.
107. Malaria treatment of parenchymatous syphilis of the central nervous system. By R. A. Vonderlehr. 1933. 70 pages.
108. The sanitary privy. 1933. 45 pages.
109. The notifiable diseases. Prevalence in States, 1932. 1933. 13 pages.
110. Court decisions on public health. Review of decisions published in the Public Health Reports during 1930–32. Prepared by William Fowler. 1934. 17 pages.

PUBLIC HEALTH BULLETINS

205. Lead poisoning in a storage-battery plant. By Albert E. Russell, Roy R. Jones, J. J. Bloomfield, Rollo H. Britten, and Lewis R. Thompson. June 1933. 55 pages.
206. The intelligence of the prospective immigrant. I. A study of the mental ability, measured by language and nonlanguage tests, of applicants for immigrant visas at Warsaw, Poland. By J. D. Reichard. July 1933. 35 pages.
207. The health of workers in a textile plant. By Rollo H. Britten, J. J. Bloomfield, and Jennie C. Goddard. July 1933. 26 pages.
208. The health of workers in dusty trades. General statement and summary of findings. By Lewis R. Thompson, Albert E. Russell, and J. J. Bloomfield. III. Exposure to dust in coal mining. By Dean K. Brundage and Elizabeth S. Frasier. (Section on pathology contributed by L. U. Gardner.) IV. Exposure to dust in a textile plant. By J. J. Bloomfield and W. C. Dreessen. V. Exposure to the dusts of a silverware manufacturing plant. By Jennie C. Goddard. VI. Exposure to municipal dust (street cleaners in New York City). By Rollo H. Britten. July 1933. 37 pages.
209. Osteitis deformans. A review of the literature and report of 11 cases. By J. W. Kerr. September 1933. 122 pages.
210. Mortality of coal miners. By Dean K. Brundage. July 1933. 17 pages.

NATIONAL INSTITUTE OF HEALTH BULLETIN

162. I. The blacktongue (canine pellagra) preventive value of 15 foodstuffs. By G. A. Wheeler and W. H. Sebrell. II. Pathology of experimental blacktongue. By R. D. Lillie. III. "Yellow liver" of dogs (fatty infiltration) associated with deficient diets. By W. H. Sebrell. IV. The pathology of "yellow liver" of dogs. By R. D. Lillie and W. H. Sebrell. September 1933. 45 pages.

ANNUAL REPORT

Annual Report of the Surgeon General of the United States Public Health Service for the fiscal year 1933. 1933. 128 pages.

MISCELLANEOUS PUBLICATION

11. Official list of commissioned and other officers of the United States Public Health Service. Also a list of all stations of the Service. January 1, 1934. 58 pages.

UNNUMBERED PUBLICATIONS

Index to Public Health Reports, vol. 48, part 1, January–June 1933. 24 pages.
Index to Public Health Reports, vol. 48, part 2, July–December 1933. 1934. 21 pages.
National Negro Health Week poster. Twentieth annual observance. 1934.
National Negro Health Week program. This pamphlet is published annually, usually about the middle of March, for community leaders in an effort to suggest ways and means by which interested individuals and organizations may be organized for a concerted and effective attack upon the community's disease problems. Twentieth annual observance. 1934. 8 pages.
National Negro Health Week leaflet. 1934. 2 pages.
The United States Public Health Service. A descriptive pamphlet. 1934. 4 pages.
Insert entitled "Industrial hygiene and sanitation." To be inserted in the Annual Report of the Surgeon General for the fiscal year 1933. 1934. Pages 32A–B.

DIVISION OF MARINE HOSPITALS AND RELIEF

Asst. Surg. Gen. S. L. CHRISTIAN, in charge

Out-patient and hospital treatment is furnished to American seamen and other legal beneficiaries in 154 ports of the United States and the possessions. Contracts are maintained with 181 hospitals located chiefly in ports not served by the 25 marine hospitals. At the close of the year 4,531 patients remained in hospitals, including 154 insane in St. Elizabeths Hospital and 361 at the National Leper Home. The policy of constructing and maintaining marine hospitals only in large ports or where satisfactory hospital care cannot otherwise be procured was established many years ago. The present number of marine hospitals, exclusive of the Leper Home, is identical with that in 1860, although locations have varied with shipping conditions.

The volume of work, which for 136 years has faithfully reflected the activities of the American merchant marine, was slightly increased for old-line beneficiaries; and on June 30, 1934, there were 157 more such patients in hospitals than a year ago. Many owners of small vessels not previously documented have obtained registration chiefly for the purpose of enabling the crews to become eligible for treatment. The regulations governing the medical treatment of merchant seamen were liberalized by an amendment approved by the President on April 7, 1934, as a partial measure of relief for those seamen who have been thrown out of employment in great numbers by the sharp decline in shipping during the depression, thus causing a considerable increase in the cost of operating the hospitals. Recent liberalization of the medical treatment benefits extended to war veterans since the passage of the Economy Act has contributed to an increased number of patients from that source. Pursuant to the act of March 31, 1933, enrolled members of the Civilian Conservation Corps were furnished hospital care and out-patient treatment during the fiscal year. The cost of hospital care for this class of patients was reimbursed by the War Department at $3.25 per day, but no allowance was made available for the cost of their out-patient care, which entailed considerable additional expense for medications, dressings, dental supplies, and services. Persons engaged in civil-works projects under the Civil Works Administration were also furnished hospital care and out-patient treatments in great numbers, for the extra cost of which no reimbursement was authorized, although the sum of $120,000 was released on this account about June 15, 1934, from the cash reserve of the appropriation "Pay of Personnel and Maintenance of Hospitals, Public Health Service, 1934." Owing to the continued rise in prices of all commodities, especially foodstuffs, it is believed that it will be impossible to continue to operate throughout the fiscal year 1935 on funds now available, unless the standard of hospital care is lowered, which would be seriously detrimental to the established standards of the Service.

For a complete statement of relief furnished at each station and the customary collateral functions performed by the marine hospitals

for the Army, Navy, Civil Service Commission, Steamboat Inspection Service, Coast Guard, Employees' Compensation Commission, Post Office Department, Bureau of Immigration, Coast and Geodetic Survey, Bureau of Fisheries, Bureau of Lighthouses, Bureau of Industrial Alcohol, Veterans' Administration, Civilian Conservation Corps, and Civil Works Administration, see pages 100 to 108.

Classes of Beneficiaries and Amount and Character of Services Rendered

Summary of services by class of beneficiary

Class of beneficiary	Hospital days		Out-patient treatments		Physical examinations (not related to treatment)		Remarks
	Number	Percent of total	Number	Percent of total	Number	Percent of total	
American merchant seamen	1,108,097	68.16	511,056	49.93	8,465	10.32	Communicable diseases are reported to local health officers.
Veterans	20,890	1.29	1,859	.18	342	.42	Patients of the Veterans' Administration.
Lepers	130,118	8.00	7	------	4	------	National Leper Home, Carville, La.
Coast Guard personnel	88,896	5.47	172,510	16.85	6,367	7.76	All medical services and supplies, ashore and afloat.
Injured Federal employees	72,598	4.47	115,543	11.29	24,018	29.26	Patients of the Employees' Compensation Commission.
Immigrants	22,039	1.36	10,519	1.03	183	.22	Patients of the Bureau of Immigration.
Seamen, Engineer Corps and Army Transport Service.	39,667	2.44	15,747	1.54	413	.50	Civilian employees on Army vessels.
Seamen from foreign vessels	5,491	.34	684	.07	15	.01	Pay patients.
Seamen and keepers, Lighthouse Service.	11,703	.72	7,149	.70	89	.11	Medical supplies also furnished to lighthouse vessels.
Civilian Conservation Corps.	56,708	3.49	1,912	.19	633	.77	Patients of the Civilian Conservation Corps.
Civil Works Administration	48,797	3.00	77,425	7.56	7,039	8.58	Patients of the Civil Works Administration.
Alaska cannery workers leaving United States.	------	------	444	.04	6,424	7.83	Vaccinations and other preventive measures.
Pilots and other licensees	------	------	------	------	7,014	8.55	For the Steamboat Inspection Service.
Civil-service applicants and employees.	------	------	------	------	14,459	17.62	For the Civil Service Commission.
Shipping Board	------	------	------	------	2,479	3.02	To determine fitness for sea duty.
All others entitled to treatment.	20,732	1.26	108,763	10.62	4,131	5.03	From Bureau of Fisheries, Army, Navy, Mississippi River Commission, Coast and Geodetic Survey, etc.
Total	1,625,736	100.00	1,023,618	100.00	82,075	100.00	

The average per diem cost in marine hospitals reflects prevailing prices of commodities and rates of salaries. For the past 12 years it has been as follows:

1923	$4.08	1929	$4.03
1924	3.84	1930	4.15
1925	3.80	1931	4.05
1926	3.71	1932	3.77
1927	3.75	1933	3.34
1928	3.80	1934	3.00

The per diem cost was forced down to the low figure of $3.00 during the fiscal year 1934 because of insufficient appropriations, but

this was not done at the expense of services rendered patients. It was accomplished by keeping the personnel at the lowest practicable number and foregoing, for the time being, the replacement and repair of equipment in normal amount. Such a policy cannot continue very long without seriously breaking down the equipment of the hospitals.

DENTAL TREATMENT

Due to curtailment in appropriations, it was necessary at the beginning of the year to discontinue 17 dental internes, 3 dental technicians, and 3 oral hygienists. As a result of this reduction in personnel, the dental clinics throughout the various stations of the Service were less able to handle the demand for dental treatment than in previous years. The demand for this class of treatment seems to be constantly on the increase. During the year, 144,835 patients were given dental treatment. This is practically the same number that requested treatment during the preceding year. However, it will be noted that the number of treatments actually given was materially reduced.

The total cost of all dental treatment at marine hospitals and relief stations, including salaries, supplies, repairs, and overhead expense, was $250,033.39. This makes an average cost per patient of $1.73. Had this amount of treatment been purchased on a fee basis, it would have cost the Service $946,604.69, computed according to a fee table of the Service. This would have cost the Service $6.54 per patient. There is urgent need for additional dental personnel to meet the needs of patients. The major items of treatment were as follows:

	1933	*1934*
Number of patients treated	145, 877	144, 835
Number of sittings	213, 320	197, 192
X rays	39, 823	32, 278
Prophylactic treatments (hours)	13, 544	15, 733
Vincent's stomatitis treatments (hours)	4, 362	4, 274
Pyorrhea treatments (hours)	4, 626	3, 832
Extractions	77, 928	65, 671
Alveolectomies	3, 230	2, 163
Alloy fillings	38, 668	32, 835
Gold inlays	1, 023	610
Porcelain crowns	99	65
Silicate cement fillings	14, 687	14, 134
Dentures (full and partial)	5, 525	6, 203
Fracture hours	470	719
Total number of treatments	619, 392	541, 895

In addition, 2,476 beneficiaries were treated at 32 smaller stations by contract dentists on a fee basis, at a total cost to the Service of $11,466.80, or an average of $4.63 per patient. This is a decrease of two-thirds in the expenditure for this class of treatment, and a decrease of one-third in the number of beneficiaries treated during the preceding year. This was made necessary because of the shortage of funds for this class of treatment. As a result, a limit was placed on the amount of treatment to be rendered at almost every station where a contract dentist was on duty; and in order to come within the limit, it was found that only emergency treatment for the relief of pain could be administered in most cases.

Senior Dental Surg. C. T. Messner is in charge of dental activities in the field and Bureau.

Coast Guard

The average number of Coast Guard beneficiaries on active duty and retired was 10,401. Medical services furnished in recent years are shown in the following table:

Year	Numerical strength of Coast Guard and medical services given				Average amount of medical service per person		
	Number of Coast Guard personnel	Hospital days	Out-patient treatments	Physical examinations	Hospital days	Out-patient treatments	Physical examinations
1923	4,684	41,681	32,530	4,207	8.9	6.7	0.9
1924	4,896	36,504	45,857	7,008	7.6	9.4	1.5
1925	7,077	60,336	90,494	13,394	8.5	12.8	1.9
1926	9,839	71,799	125,226	19,061	7.3	12.7	1.9
1927	10,984	76,564	155,977	18,787	6.9	14.2	1.7
1928	12,462	85,691	137,971	17,220	6.9	11.0	1.4
1929	12,833	88,870	169,697	17,748	6.9	13.2	1.4
1930	12,963	90,179	196,334	14,382	6.9	15.1	1.1
1931	13,020	86,829	187,063	8,262	6.7	14.4	.6
1932	13,189	91,655	198,800	11,481	6.9	15.1	.9
1933	13,181	106,126	214,805	9,557	8.0	16.3	.7
1934	10,401	88,896	172,510	6,367	8.5	16.6	.6

Fifteen medical and dental officers are assigned exclusively to Coast Guard duty, and 102 local physicians under appointment as acting assistant surgeons furnish medical and surgical relief and make physical examinations of Coast Guard and Lighthouse Service personnel at isolated units remote from any Public Health Service relief station.

Medical officers have been assigned, as usual, to the cutters on the international ice patrol, to those on the cadet practice cruise in European waters, and to the Bering Sea patrol. A medical officer and a dental officer were stationed at the patrol base at Unalaska during the cruising season. A medical officer and a dental officer are assigned to the *Northland* on its annual cruise to Point Barrow, Alaska. This cutter has a well-equipped dental unit and a specially appointed sick bay. In addition to their care of Coast Guard personnel, the medical and dental officers extend medical, surgical, and dental relief to a considerable number of Alaskan natives and others to whom such relief is not otherwise available. Valuable scientific observations have also been made on medical, sanitary, and dental conditions among the natives.

Eight medical officers were assigned to Coast Guard destroyers operating under the special service squadron during the Cuban emergency.

Medical Director A. J. McLaughlin is assigned to duty at Coast Guard headquarters as representative of the Surgeon General and chief of the medical section.

Operating Costs

The total amount expended, including reimbursements from the Veterans' Administration and Civilian Conservation Corps, classified according to the General Accounting Office Bulletin, is shown below:

01	Personal services	$2,783,846
0200	Janitor and laundry supplies, X-ray films, etc	48,057

0210	Medical and hospital supplies	$192, 707
0220	Scientific and educational supplies	4, 030
0230	Fuel (coal, gas, oil, and wood)	154, 168
0520	Forage	24, 605
0260	Provisions	814, 569
0280	Sundry supplies	54, 766
03	Subsistence and support of persons (contract hospital care, etc.)	291, 915
04	Care of animals and vehicles (service)	36
0500	Telegraph service	1, 143
0510	Telephone service	26, 122
06	Travel expenses	61, 910
07	Freight	65, 487
10	Furnishing heat, light, power, and water (service)	180, 149
1100	Rent of buildings and offices	11, 159
1110	Other rents	5, 179
1280	Repairs and parts, motor vehicles	3, 387
1290	Repairs and alterations, other equipment	9, 352
1373	Laundry service	27, 391
1375	Ashes and garbage removal	2, 306
1380	Miscellaneous services	1, 075
2250	Burials	21, 548
3000	Passenger-carrying vehicles	3, 193
3010	Furniture, furnishing, and fixtures	126, 142
3020	Scientific equipment	57, 446
3040	Livestock	717
3050	Other equipment	26, 774
	Total	4, 999, 179

Consolidated and Detailed Reports

The following tables give consolidated and detailed reports for the marine hospitals and relief stations:

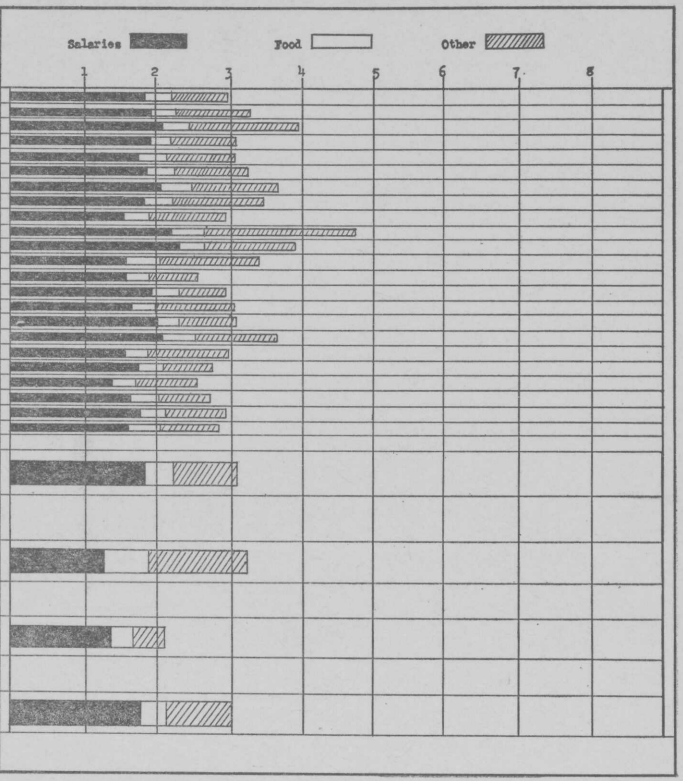
Table 1.—*Number of patients treated annually, 1868 to 1934* [1]

Fiscal year	Sick and disabled patients furnished relief	Fiscal year	Sick and disabled patients furnished relief	Fiscal year	Sick and disabled patients furnished relief
Prior to reorganization:		After reorganization—Continued.		After reorganization—Continued.	
1868	11, 535	1891	52, 992	1914	53, 226
1869	11, 356	1892	53, 610	1915	55, 782
1870	10, 560	1893	53, 317	1916	58, 357
After reorganization:		1894	52, 803	1917	64, 022
1871	14, 256	1895	52, 643	1918	71, 614
1872	13, 156	1896	53, 804	1919	79, 863
1873	13, 529	1897	54, 477	1920	110, 907
1874	14, 356	1898	52, 709	1921	144, 344
1875	15, 009	1899	55, 489	1922	153, 633
1876	16, 808	1900	56, 355	1923 [2]	126, 956
1877	15, 175	1901	58, 381	1924	159, 686
1878	18, 223	1902	56, 310	1925	204, 944
1879	20, 922	1903	58, 573	1926	245, 140
1880	24, 860	1904	58, 556	1927	249, 973
1881	32, 613	1905	57, 013	1928	240, 592
1882	36, 184	1906	54, 363	1929	260, 552
1883	40, 195	1907	55, 129	1930	279, 350
1884	44, 761	1908	54, 301	1931	259, 364
1885	41, 714	1909	53, 704	1932	257, 208
1886	43, 822	1910	51, 443	1933	294, 101
1887	45, 314	1911	52, 209	1934	304, 439
1888	48, 203	1912	51, 078		
1889	49, 518	1913	50, 604		
1890	50, 671				

[1] These figures do not include patients treated in connection with veterans' relief activities of the Service as follows: 1918, 192; 1919, 13,856; 1920, 279,036; 1921, 667, 832; 1922, 242,379; 1923, 9,704; 1924, 3,414; 1925, 4,360; 1926, 3,749; 1927, 2,830; 1928, 3,448; 1929, 4,907; 1930, 6,817; 1931, 9,278; 1932, 9,667; 1933, 8,377; and 1934, 716.

[2] In this year, and subsequently, the practice of recounting out-patients applying for treatment in more than 1 calendar month was discontinued.

GROUP OF HOSPITALS	HOSPITAL LOCATION	RELIEF DAYS	COST PER PATIENT DAY TOTAL	SALARIES	FOOD	OTHER
GENERAL	Baltimore, Md.	73,298	$2.97	$1.84	$0.36	$0.77
	Boston, Mass.	51,224	3.27	1.93	.36	.98
	Buffalo, N.Y.	20,665	3.95	2.09	.36	1.50
	Chicago, Ill.	54,747	3.07	1.92	.31	.84
	Cleveland, Ohio	51,165	3.05	1.78	.37	.90
	Detroit, Mich.	35,668	3.25	1.87	.38	1.00
	Ellis Island, N.Y.	152,043	3.67	2.07	.40	1.20
	Evansville, Ind.	18,921	3.44	1.83	.39	1.22
	Galveston, Texas	51,252	2.95	1.52	.38	1.05
	Key West, Fla.	13,724	4.73	2.21	.44	2.08
	Louisville, Ky.	16,292	3.90	2.33	.34	1.23
	Memphis, Tenn.	23,382	3.37	1.57	.48	1.32
	Mobile, Ala.	40,874	2.57	1.56	.33	.68
	New Orleans, La.	122,139	2.93	1.91	.41	.61
	Norfolk, Va.	79,559	3.01	1.62	.38	1.01
	Pittsburgh, Pa.	20,400	3.04	2.00	.33	.71
	Portland, Me.	19,684	3.64	2.08	.45	1.11
	St. Louis, Mo.	28,888	2.97	1.53	.34	1.10
	San Francisco, Calif.	147,523	2.76	1.75	.37	.64
	Savannah, Ga.	53,870	2.55	1.35	.34	.86
	Seattle, Wash.	90,327	2.75	1.63	.39	.73
	Stapleton, N.Y.	108,864	2.93	1.78	.35	.80
	Vinayard Haven, Mass.	8,344	2.84	1.60	.45	.79
	New York, N.Y. (a)					
	Per diem cost for General Hospitals		3.08	1.80	.38	.90
	Total Relief Days 1,282,853			Cost	$3,946,408.67	
TUBERCULOSIS SANATORIUM	Fort Stanton, N.M.	79,496	3.21	1.26	.57	1.38
				Cost	$255,578.33	
LEPROSARIUM	Carville, La.	130,109	2.14	1.31	.31	.52
				Cost	$277,814.56	
ALL	Per diem cost for all hospitals		3.00	1.73	.38	.89
	Relief days for all hospitals 1,492,458			Cost	$4,479,801.56	



(a) In-patient department of station closed.

Average per diem cost of in-patient relief, United States Marine hospitals, fiscal year 1934.

TABLE 2.—*Transactions at United States Marine hospitals and other relief stations*

	Total number of patients treated	Number of patients treated in hospitals	Died	Patients remaining in hospital June 30, 1934	Number of days relief in hospital	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
Grand total	305,155	42,611	926	4,531	1,625,736	262,544	1,023,618	82,075
FIRST-CLASS STATIONS								
Marine hospitals								
Baltimore, Md	10,070	1,863	40	211	73,298	8,207	44,507	2,692
Boston, Mass	8,633	1,562	38	124	51,224	7,071	32,179	3,457
Buffalo, N. Y	4,907	589	20	47	20,665	4,318	23,624	1,505
Carville, La	1,139	434	23	361	130,109	705	1,338	
Chicago, Ill	4,799	1,328	30	164	54,747	3,471	21,038	1,092
Cleveland, Ohio	8,068	1,546	28	153	51,165	6,522	22,143	640
Detroit, Mich	5,324	1,137	40	129	35,668	4,187	21,685	1,065
Ellis Island, N. Y	6,989	3,299	93	419	152,043	3,690	10,305	164
Evansville, Ind	1,028	505	4	45	18,921	523	1,524	45
Fort Stanton, N. Mex	1,302	342	16	204	79,496	960	3,449	22
Galveston, Tex	4,692	1,662	30	159	51,252	3,030	15,746	844
Key West, Fla	1,748	480	9	40	13,724	1,268	6,631	98
Louisville, Ky	961	463	9	47	16,292	498	2,228	556
Memphis, Tenn	3,118	902	15	67	23,382	2,216	9,810	1,307
Mobile, Ala	4,334	1,275	28	126	40,874	3,059	11,143	1,653
New Orleans, La	10,797	3,422	60	344	122,139	7,375	27,933	3,520
New York, N. Y	33,926					33,926	206,106	11,936
Norfolk, Va	9,341	2,081	52	227	79,559	7,260	30,696	1,230
Pittsburgh, Pa	2,647	605	10	53	20,400	2,042	4,925	654
Portland, Maine	1,524	484	9	72	19,684	1,040	4,504	348
St. Louis, Mo	4,366	679	21	82	28,888	3,687	16,823	4,067
San Francisco, Calif	15,998	4,042	100	416	147,523	11,956	57,020	2,055
Savannah, Ga	4,060	1,636	26	150	53,870	2,424	9,775	1,415
Seattle, Wash	10,302	2,343	63	232	90,327	7,959	22,529	6,681
Stapleton, N. Y	8,895	4,023	54	301	108,864	4,872	27,265	334
Vineyard Haven, Mass	392	222	1	23	8,344	170	284	5
Contract overflow hospitals	126	126	4	38	12,142			
Total	169,486	37,050	823	4,234	1,504,600	132,436	635,210	47,385
SECOND- AND THIRD-CLASS STATIONS								
Aberdeen, Wash	376	17		1	254	359	639	83
Albany, N. Y	114	8			179	106	388	201
Anacortes, Wash	172	13			64	159	382	12
Apalachicola, Fla	64	12			48	52	197	1
Ashtabula, Ohio	300	7	1		137	293	852	9
Astoria, Oreg	563	31	1	3	280	532	925	47
Balboa Heights, C. Z	754	143	1	5	2,082	611	663	
Bangor, Maine	53	4	2		30	49	70	56
Beaufort, N. C	442	71		1	456	371	1,926	27
Bellingham, Wash	281	15			98	266	841	9
Biloxi, Miss	476	4			19	472	530	15
Boothbay Harbor, Maine	33	4			37	29	49	13
Brunswick, Ga	80					80	125	6
Burlington, Iowa	166	25		1	297	141	330	
Cairo, Ill	743	123	2	3	1,016	620	1,698	203
Calais, Maine	1					1	1	8
Cambridge, Md	153	21	3		155	132	358	
Cape May, N. J	1,884	68		1	261	1,816	4,279	159
Charleston, S. C	880	112	2	3	2,584	768	1,531	323
Chincoteague, Va	143					143	313	17
Cincinnati, Ohio	113	11			140	102	218	156
Cordova, Alaska	140	36		2	607	104	152	16
Corpus Christi, Tex	273	48			355	225	366	10
Crisfield, Md	869	7		1	38	862	1,364	6
Duluth, Minn	518	40	1	2	558	478	824	161
Eastport, Maine	24					24	52	1
Edenton, N. C	30					30	95	1
Elizabeth City, N. C	166					166	633	13
El Paso, Tex	422	23	1	4	392	399	1,571	354
Erie, Pa	375	16	1		133	359	1,380	73
Escanaba, Mich	35	4			28	31	58	3
Eureka, Calif	217	41	1	2	332	176	478	10
Everett, Wash	153	19			62	134	214	1
Fall River, Mass	164	17		1	200	147	272	16
Gallipolis, Ohio	132	36		1	427	96	289	7
Gary, Ind	112					112	365	12
Georgetown, S. C	20					20	32	16
Gloucester, Mass	510	12	1		47	498	1,611	76
Grand Haven, Mich	202	7			38	195	445	67
Green Bay, Wis	97	12		1	81	85	144	17

TABLE 2.—*Transactions at United States Marine hospitals and other relief stations*—Continued

	Total number of patients treated	Number of patients treated in hospitals	Died	Patients remaining in hospitals June 30, 1934	Number of days relief in hospitals	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
SECOND- AND THIRD-CLASS STATIONS—continued								
Gulfport, Miss	39	3			8	36	63	3
Hancock, Mich	58					58	66	26
Honolulu, Hawaii	993	126	4	5	1,544	867	2,231	341
Houston, Tex	1,314	61	1		244	1,253	3,427	840
Indiana Harbor, Ind	113	2			12	111	159	
Jacksonville, Fla	844	49	2	1	374	795	2,319	529
Juneau, Alaska	329	37	1	2	619	292	388	194
Ketchikan, Alaska	776	98	3	2	1,053	678	1,263	315
La Crosse, Wis	59	11			147	48	83	34
Lewes, Del	175	16	1	1	189	159	571	9
Los Angeles, Calif	4,920	766	5	8	12,681	4,154	17,719	448
Ludington, Mich	164	12			158	152	425	13
Machias, Maine	37					37	72	8
Manila, P. I	826	54	1	4	1,286	772	1,254	948
Manistee, Mich	68	7			72	61	504	51
Manitowoc, Wis	280	26	1	1	118	254	435	3
Marquette, Mich	289	13	1	1	136	276	755	64
Marshfield, Oreg	62	5			17	57	122	14
Menominee, Mich	53	4		1	146	49	157	3
Miami, Fla	1,234	73	2	1	674	1,161	2,759	269
Milwaukee, Wis	1,020	108	2	3	723	912	2,396	571
Morehead City, N. C	443	35	1		260	408	1,468	3
Nantucket, Mass	116	7			36	109	234	5
Nashville, Tenn	122	2			18	120	305	84
Natchez, Miss	673	61	2		390	612	1,462	133
Newark, N. J	17	4	1		28	13	24	11
New Bedford, Mass	320	15	1		61	305	596	65
New Bern, N. C	419	59		1	438	360	1,002	13
New Haven, Conn	586	39			485	547	1,181	70
New London, Conn	1,281	24		1	262	1,257	2,352	86
Newport, Oreg	115	3			9	112	288	3
Newport, R. I	270	32		2	484	238	452	14
Newport News, Va	279					279	481	35
Ogdensburg, N. Y	241	9	1		79	232	495	49
Olympia, Wash	69	3			59	66	260	
Oswego, N. Y	154	11			61	143	497	23
Paducah, Ky	790	16			131	774	2,038	58
Panama City, Fla	129	13	2		116	116	263	8
Pensacola, Fla	550	52			338	498	1,363	74
Perth Amboy, N. J	61	3			10	58	146	16
Petersburg, Alaska	272	28			204	244	871	24
Philadelphia, Pa	7,558	373	5	10	4,241	7,185	24,441	2,638
Ponce, P. R	124	16			392	108	409	3
Port Angeles, Wash	193	23			81	170	303	31
Port Arthur, Tex	1,578	43	4	1	201	1,535	4,024	199
Port Huron, Mich	357	9			23	348	939	169
Portland, Oreg	2,839	213	3	5	2,796	2,626	7,443	2,060
Port Townsend, Wash	384	8			44	376	1,661	58
Providence, R. I	532	42	2	2	719	490	1,082	208
Provincetown, Mass	137					137	322	23
Reedville, Va	501					501	1,485	12
Richmond, Va	212	37	2	2	252	175	302	12
Rock Island, Ill	6,488	4		1	22	6,484	19,420	7,175
St. Thomas, Virgin Islands	61	4			30	57	114	
San Diego, Calif	806	21		2	681	785	2,487	403
Sandusky, Ohio	85	4		1	56	81	152	14
San Juan, P. R	930	114	1	3	1,795	816	2,037	145
San Pedro, Calif	4,280	302	4	19	3,604	3,978	10,217	682
Sault Ste. Marie, Mich	1,143	71	1	4	882	1,072	2,016	103
Seward, Alaska	254	48	2	2	931	206	350	
Sheboygan, Wis	79	2			12	77	167	10
Sitka, Alaska	458	9			96	449	675	142
South Bend, Wash	51	14	1		188	37	91	6
Southport, N. C	581	122	2	1	1,412	459	577	9
Superior, Wis	320	37	1	2	495	283	626	9
Tacoma, Wash	355	16	3	2	185	339	754	30
Tampa, Fla	761	36	2		280	725	1,523	154
Toledo, Ohio	584	58	4	4	604	526	1,282	175
Vicksburg, Miss	560	22	2		95	538	1,764	355
Washington, D. C	40,858	347	4	6	5,096	40,511	81,259	9,617
Washington, D. C., dental clinic	1,080					1,080	15,385	
Washington, N. C	246	10			53	236	386	6

TABLE 2.—*Transactions at United States Marine hospitals and other relief stations*—Continued

	Total number of patients treated	Number of patients treated in hospitals	Died	Patients remaining in hospitals June 30, 1934	Number of days relief in hospitals	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
SECOND- AND THIRD CLASS STATIONS—continued								
White Stone, Va.	643					643	2,802	13
Wilmington, N. C.	516	59		2	485	457	1,105	112
Wrangell, Alaska	78	11		1	144	67	176	15
FOURTH-CLASS STATIONS								
Ashland, Wis.	115	13		1	194	102	188	92
Bath, Maine	27	2			131	25	129	
Bay City, Mich.	78	7			47	71	315	
Beaufort, S. C.	15					15	47	
Bridgeport, Conn.	44	20			192	24	38	
Hartford, Conn.	2	2			15			
Nome, Alaska	20	1			6	19	31	
Portsmouth, N. H.	4					4	7	
Saginaw, Mich.	16	2			14	14	64	
Wilmington, Del.	37	2			21	35	65	
MISCELLANEOUS								
Curtis Bay, Md. (U.S. Coast Guard)	2,502					2,502	10,646	176
U. S. Coast Guard Academy, New London, Conn.	1,902	264	3	6	3,942	1,638	7,286	324
St. Elizabeth's Hospital, Washington, D. C.	175	175	8	154	54,458			
Special acting assistant surgeons for Coast Guard and Lighthouse Service	3,827	87			914	3,740	11,768	621
U. S. Coast Guard vessels and bases	18,403					18,403	90,310	1,226
Emergency	60	17			202	43	132	1
Total	135,669	5,561	103	297	121,136	130,108	388,408	34,690
Grand total	305,155	42,611	926	4,531	1,625,736	262,544	1,023,618	82,075

TABLE 3.—*Medical services for various classes of beneficiaries*

Beneficiary	Total number of patients treated	Number of patients treated in hospitals	Died	Patients remaining in hospitals June 30, 1934	Number of days relief in hospitals	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
American seamen	145,958	25,167	671	3,040	1,108,097	120,791	511,056	8,465
Foreign seamen	494	244	11	16	5,491	250	684	15
Coast Guard	42,061	3,464	23	191	88,896	38,597	172,510	6,367
Bureau of Fisheries	49	7			139	42	97	
Army	340	77	2	1	953	263	892	306
Navy and Marine Corps	331	115	2	9	1,885	216	639	14
Mississippi River Commission, Engineer Corps and Army Transport Service	14	4			32	10	17	
Lighthouse Service	6,068	1,281	34	129	39,667	4,787	15,747	413
Coast and Geodetic Survey	2,412	399	15	32	11,703	2,013	7,149	89
Employees' Compensation Commission	1,013	162	3	7	3,934	851	4,160	376
Veterans' Administration	26,421	3,411	25	215	72,598	23,010	115,543	24,018
Immigration Service	716	591	53	99	20,890	125	1,859	342
Public Health Service officers and employees	4,660	1,260	8	50	22,039	3,400	10,519	183
Lepers	7,835	691	13	33	13,015	7,144	51,737	1,238
Civilian Conservation Corps	437	435	23	361	130,118	2	7	4
Civil Works Administration	4,052	2,896	11	230	56,708	1,156	1,912	633
Miscellaneous	24,649	2,370	29	113	48,797	22,279	77,425	7,039
	37,645	37	3	5	774	37,608	51,665	32,573
Total	305,155	42,611	926	4,531	1,625,736	262,544	1,023,618	82,075

TABLE 4.—*Cause of admission and condition on discharge, marine hospitals and other relief stations*

Disease or condition	Number having specified diseases or injury [1]					Condition on discharge of patients for specified diseases or injuries				
	Major condition for which admitted [2]	Condition second in importance	Condition third in importance [3]	Sequelae to major condition	Total number of persons having each specified disease or injury	Cured	Improved	Not improved	Died	Other conditions
Abnormalities and congenital malformations	43					8	22	2		11
Blood and blood-forming organs, diseases and injuries of	55					2	28		7	18
Bones and cartilages, diseases and injuries of	2,360					280	1,159	18	35	868
Circulatory system, diseases and injuries of:										
Heart disease, valvular	171	155	56	2	384	1	109		29	32
Varicose veins	225	198	82		505	55	129	2	1	38
All others	1,176					96	686	22	147	225
Communicable and infectious diseases, not including tuberculosis and venereal:										
Conjunctivitis, granular trachomatous	15	5	1		21		8			7
Influenza	326	27	6	1	360	128	164		3	31
Malaria	415	72	12	38	537	58	313		5	39
Rheumatic fever, acute	43	7	2	1	53	9	28	1		5
Typhoid fever	36	6			42	18	10		5	3
All others	1,292					564	625	3	14	86
Dental	318	5,197	3,709	3	9,227	63	151	2		102
Digestive system, diseases and injuries of:										
Appendicitis	1,198	196	76		1,470	585	494	2	18	99
Gastritis	313	50	9	4	376	51	229	1		32
Hemorrhoids	650	321	176		1,147	282	307	3	2	56
All others	1,806					352	1,134	12	62	246
Ear, nose, and throat, diseases and injuries of:										
Deviation of nasal septum	391	582	504		1,477	125	204	1		61
Otitis media	246	135	68	9	458	40	162	3	2	39
Tonsillitis	2,279	1,081	423	4	3,787	842	1,242	6	3	186
All others	911					241	522	14	6	128
Endocrines, diseases and injuries of	230					9	157	4	7	53
Eye and adnexa, diseases and injuries of	781					188	390	15	1	187
Genito-urinary system, diseases and injuries of (exclusive of venereal):										
Nephritis	92	97	73	2	264	2	49	2	21	18
All others	1,473					316	861	8	29	259
Hernia	2,091	444	200	3	2,738	1,089	735	11	21	235
Joints and bursae, diseases and injuries of:										
Arthritis	641	298	98	155	1,192	37	453	17	7	127
All others	537					74	293	19	3	148
Leprosy	71						21		23	27
Lymphatic system, diseases and injuries of:										
Lymphadenitis	248	111	34	85	478	68	137		1	42
All others	45					11	21	1		12
Muscles, fasciae, tendons, and tendon sheaths, diseases and injuries of	1,575					319	756	17	2	481
Nervous system, diseases and injuries of:										
Epilepsy without psychosis	39	14	3		56	1	22	6		10
Neuritis	170	46	14	8	238	18	113	3	3	33
All others	435					50	216	21	25	123

[1] Except in the case of specific diseases, statistics are given only for the major condition for which admitted.
[2] Represents number of discharges for each condition.
[3] Where sequelae were given, no third diagnosis was recorded.

TABLE 4.—*Cause of admission and condition on discharge, marine hospitals and other relief stations*—Continued

Disease or condition	Number having specified diseases or injury					Condition on discharge of patients for specified diseases or injuries				
	Major condition for which admitted	Condition second in importance	Condition third in importance	Sequelae to major condition	Total number of persons having each specified disease or injury	Cured	Improved	Not improved	Died	Other conditions
Obstetric and gynecological conditions	60					16	35	2		7
Parasitic diseases:										
Uncinariasis	72	378	92		542	18	50			4
All others	161					35	105			21
Poisonings and intoxications:										
Alcohol (ethyl) poisoning, acute	111	37	7		155	33	59		1	18
Alcoholism, chronic (without psychosis)	52	26	14		92	5	39	1		7
All others	112					51	38	1		22
Psychiatric diseases:										
Drug addiction without psychosis	40	6	2		48	5	9	1	1	24
All others	330					26	143	44	11	106
Respiratory system, diseases and injuries of (exclusive of tuberculosis):										
Asthma	145	60	10		215	4	111	1	8	21
Bronchitis	476	251	69	4	800	79	317	2	3	75
Pleurisy	201	79	23	5	308	32	133	1	9	26
Pneumonia	307	96	51	35	489	101	111		59	36
All others	68					10	31	1	11	15
Skin and its appendages, diseases and injuries of	1,072					280	535	10	4	243
Tuberculosis:										
Tuberculosis, pulmonary	736	99	52		887		254	10	148	324
Tuberculosis (otherwise unclassified)	54	62	14	8	138		29	1	11	13
Tumors:										
Carcinoma	199	43	23	1	266	7	60	11	77	44
All others	410					128	191	3	9	79
Venereal diseases:										
Chancroidal infections	303	51	11	104	469	78	185			40
Gonococcus infections	2,346	323	53	295	3,017	188	1,722	2	5	429
Syphilis	1,832	1,055	324	9	3,220	7	1,343	16	23	443
All others	21					6	12			3
Inoculations	5					3	2			
Under observation	449									449
Miscellaneous:										
Cellulitis	311	103	16	28	458	87	159	1	5	59
All others	4,558					967	2,113	36	54	1,388
Total	37,128					8,148	19,736	360	921	7,963

NOTE.—Immigration patients at United States Marine Hospital, Ellis Island, N. Y., are not included in this table.

TABLE 5.—*Number of days in hospital for patients discharged from marine hospitals and other relief stations*

Group	Class of beneficiary																	
	Total	American seamen	Foreign seamen	Coast Guard	Army	Navy and Marine Corps	Mississippi River Commission	Seamen, Engineer Corps and Army Transport Service	Lighthouse Service	Coast and Geodetic Survey	Employees' Compensation Commission	Veterans' Administration	Immigration Service	Public Health Service officers and employees	Lepers	Civilian Conservation Corps	Civil Works Administration	Special study	Miscellaneous
Abnormalities and congenital malformations	1,084	910	-----	39	----	-----	-----	-----	-----	-----	124	-----	-----	-----	-----	11	-----	----	----
Blood and blood-forming organs, diseases and injuries of	3,279	2,528	41	134	----	8	-----	-----	-----	-----	136	300	-----	117	-----	-----	15	----	----
Bones and cartilages, diseases and injuries of	104,471	57,636	1,038	4,475	164	271	-----	968	979	96	22,265	953	8	757	-----	3,343	11,497	----	21
Circulatory system, diseases and injuries of	99,832	83,946	30	4,577	99	-----	-----	2,683	1,653	73	916	2,991	49	1,514	-----	675	603	----	23
Communicable and infectious diseases, not including tuberculosis and venereal	38,274	16,529	469	2,402	60	168	-----	4,228	219	31	375	11	162	938	-----	12,530	108	----	44
Dental	4,514	2,091	10	583	22	28	-----	547	17	14	554	24	-----	24	-----	547	53	----	----
Digestive system, diseases and injuries of	98,957	70,499	783	9,696	166	461	3	3,143	960	538	454	2,574	163	1,543	-----	7,739	161	----	74
Ear, nose, and throat, diseases and injuries of	53,738	33,738	170	7,588	98	104	-----	2,265	433	522	491	299	29	794	-----	7,113	64	----	30
Endocrines, diseases and injuries of	14,066	11,581	-----	819	----	-----	-----	351	378	75	23	289	-----	86	-----	169	267	--	28
Eye and adnexa, diseases and injuries of	17,952	10,918	35	1,823	1	-----	-----	245	315	23	1,589	42	114	322	-----	721	1,776	----	28
Genito-urinary system, diseases and injuries of (exclusive of venereal)	51,636	41,243	68	2,448	22	109	-----	2,492	710	32	323	1,571	347	303	-----	1,264	672	----	32
Hernia	59,772	38,968	21	1,244	69	4	-----	1,460	425	128	10,693	55	-----	340	-----	2,931	3,434	----	----
Joints and bursae, diseases and injuiries of	60,110	44,170	194	3,688	----	28	-----	605	244	114	5,432	1,493	-----	452	-----	1,100	2,590	----	----
Leprosy	111,020	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	111,020	-----	-----	-----	-----
Lymphatic system, diseases and injuries of	9,426	7,161	374	595	18	44	-----	300	-----	28	92	39	45	15	-----	467	248	----	----
Muscles, fasciae, tendons, and tendon sheaths, diseases and injuries of	29,073	13,107	32	2,248	1	5	1	548	29	36	5,317	212	20	147	-----	1,155	6,215	----	----
Nervous system, diseases and injuries of	37,635	28,869	57	2,690	----	-----	-----	1,801	319	40	2,192	492	29	80	-----	658	408	----	----
Obstetric and gynecological conditions	1,234	878	-----	-----	----	-----	-----	13	-----	-----	-----	-----	2	335	-----	-----	6	----	----
Parasitic diseases	5,796	3,512	-----	925	6	-----	-----	269	37	31	50	89	6	33	-----	802	11	25	----
Poisonings and intoxications	3,417	2,415	1	108	6	9	-----	249	11	-----	121	-----	-----	44	-----	235	194	----	24
Psychiatric diseases	71,055	61,501	-----	5,201	----	-----	-----	16	362	-----	3,233	314	111	28	-----	266	23	----	----
Respiratory system, diseases and injuries of (exclusive of tuberculosis)	42,764	31,784	263	2,207	7	97	-----	1,028	251	122	173	1,721	51	1,459	-----	3,065	439	----	97

Skin and its appendages, diseases and injuries of	26,721	16,888	302	2,641	54	27	5	675	174	197	863	410	139	189	----	1,524	2,633	----	----
Tuberculosis	203,594	174,083	91	9,227	----	----	----	8,121	420	74	3,592	3,264	1,123	3,192	----	401	6	----	----
Tumors	22,074	17,444	64	2,337	14	----	----	683	187	38	449	311	1	135	----	236	120	----	55
Venereal diseases	218,167	184,104	510	17,128	26	130	19	5,288	738	415	248	1,621	5,260	121	----	2,414	117	27	1
Inoculations	37	----	----	30	----	----	----	----	----	----	----	----	----	4	----	3	----	----	----
Under observation	2,678	1,050	9	627	----	1	----	57	83	4	322	91	65	42	206	60	60	----	1
Miscellaneous	101,535	55,054	1,159	5,186	123	385	----	1,141	729	259	15,912	1,327	74	802	----	4,166	15,041	----	177
Total	1,493,911	1,012,607	5,721	90,666	956	1,879	28	39,176	9,673	2,890	75,939	20,493	7,798	13,816	111,226	53,595	46,761	52	635

NOTE.—Immigration patients at Marine Hospital, Ellis Island, N. Y., are not included in this table.

TABLE 6.—*Classification of out-patient treatments furnished at United States marine hospitals and other relief stations*

	General medical	Dental	Eye, ear, nose, and throat	Neuro-psychi-atric	Tuber-culosis	Surgical
Marine hospitals	80,414	199,913	34,443	31	225	97,373
Other relief stations	112,916	18,521	16,310	298	321	73,387
Special acting assistant surgeons	6,903	135	928	49	30	2,031
Coast Guard vessels and bases	36,955	16,071	12,597	22	79	19,295
Emergency	132					
Total	237,320	234,640	64,278	400	655	192,086

	Venereal diseases	Inocula-tions and vaccina-tions	Arsenicals	Physio-therapy and X-ray	Total
Marine hospitals	75,245	4,263	18,909	124,394	635,210
Other relief stations	14,153	7,637	5,273	30,096	278,912
Special acting assistant surgeons	182	1,250	88	172	11,768
Coast Guard vessels and bases	5,885	3,116	1,309	2,267	97,596
Emergency					132
Total	95,465	16,266	25,579	156,929	1,023,618

DIVISION OF VENEREAL DISEASES

Asst. Surg. Gen. JOHN MCMULLEN in charge

The Division of Venereal Diseases was established by law to study the cause, treatment, and prevention of syphilis, gonorrhea, and chancroid; to cooperate with the State departments of health in the control of these diseases; and to prevent their spread through interstate travel. For the fiscal year ended June 30, 1934, the appropriation for the work of the Division, after deductions required by law, amounted to $58,000. This sum, however, does not represent the entire amount of money available to cover all activities of the Division. Grants have been made by two philanthropic organizations in order that special pieces of work might be continued.

COOPERATIVE CLINICAL STUDIES

For the past several years the Division has participated in studies of the clinical aspects of syphilis and the results of treatment. These studies are sponsored by the League of Nations Health Organization and carried on in this country by the combined efforts of the Public Health Service and a group of five of the leading clinics, with the financial assistance of the Milbank Memorial Fund. During the past year a procedure of treatment for early syphilis was formulated and published in Venereal Disease Information and the Journal of the American Medical Association under the title "Standard Treatment Procedure in Early Syphilis. A Résumé of Modern Principles." Two other studies growing out of this cooperative undertaking were completed. The subjects were "Arsenical Reactions" and "Syphilis in Pregnancy." The findings reported in the latter confirm the observation that transmission of syphilis from mother to infant can be prevented in almost every case if the pregnant woman is treated.

An exhibit was prepared by the American Social Hygiene Association and the Public Health Service, with the permission of the five cooperating clinics, to illustrate the findings of these cooperative clinical studies. This exhibit was shown at the annual meeting of the American Medical Association held in Cleveland and also at the meeting of the National Medical Association held in Nashville. Miniature reproductions of the exhibit were made in the expectation that these charts might be of value for the instruction of medical students and talks before medical societies. Reprints of the published articles coming from the cooperative group, and mimeographed articles by some of the participating clinicians were distributed at the Cleveland exhibit.

HEALTH SURVEY IN THE SOUTH

The effects of treatment have also been studied from another angle. At the suggestion of a representative of the Julius Rosenwald Fund, surveys have been set in motion to go over the ground covered a few

years ago by the health demonstrations in various Southern communities. The major interest at the outset of these projects was the development of more effective medical service to persons infected with syphilis as a means of curing and preventing the spread of the disease. An evaluation of that work in Macon County, Ala., Glynn County, Ga., Pitt County, N. C., and Albemarle County, Va., was undertaken during the past year, but has not yet been completed.

Research

Experimental studies have been continued at the laboratory of the Stapleton Marine Hospital. A study of the role of old and latent syphilis in the dissemination of the disease, designed to determine the frequency and importance of the syphilis carrier, was continued during the year. Animal experimentation was employed in the evaluation of mercury in the prevention of infection and the testing of several substances which are apparently capable of exerting a definite spirocheticidal influence before the infecting organism has penetrated the exposed integument. The conclusions were published in Venereal Disease Information. The life cycle of the *Spirochaeta pallida* has been the subject of experimentation. A study of the effect of temperature elevation upon experimental disease in the rabbit has been completed. The results indicate that a considerable sterilizing effect can be obtained from either intermittent or continuous hyperpyrexia.

Prevalence Studies

Prevalence studies have been continued, a survey having been made in Miami and Dade County, Fla., and a State-wide survey in New Mexico. Results of a survey of San Francisco which was made during the preceding year were published during this fiscal year. A resurvey to determine the trend of venereal diseases was completed in Cleveland. In that city the case rates per 1,000 population were as follows: Syphilis, 5.3; gonorrhea, 2.8, showing a decrease from the estimate of several years ago.

Statistical analyses of the prevalence of syphilis among in-patient hospital beneficiaries of the United States Public Health Service hospitals were begun in the preceding fiscal year. Preliminary figures show that 17 percent of all patients admitted to the marine hospitals were infected with syphilis.

Work in Cooperation with State Health Departments

Preventive measures were carried forward in cooperation with State and local health departments. Forty-seven States are now reporting cases of venereal diseases to the Division. The total numbers of cases reported were 230,890 cases of syphilis, 153,255 cases of gonorrhea, and 1,808 cases of chancroid. These figures show a slight decrease from last year. Doses of arsphenamine distributed by State health departments amounted to 1,279,690. Reports from 616 cooperating clinics were furnished through the State departments of health. From this source, 76,089 new cases of syphilis, 51,254 of gonorrhea, and 1,419 of chancroid were recorded. There were 55,710 cases discharged as arrested or cured, 3,068,685 treatments given, and 824,626 doses of an arsphenamine administered. During the

preceding year only 572 clinics reported; the total number of cases of venereal diseases was about 20,000 less this year.

In an effort to arouse the interest of the private physician in reporting his cases of syphilis and gonorrhea to the health authorities, mimeographed copies of morbidity reports and prevalence rates for the two diseases by States have been distributed to all health officers. Medical journals have also been asked to publish these reports.

State departments of health were requested to cooperate in more efficient distribution of information to the practicing physicians of the country. One hundred thousand copies of a leaflet describing the publication Venereal Disease Information have been sent to 28 States for distribution to physicians and others interested in the control of venereal diseases. The assistance of the State medical journals has also been enlisted.

Public Health Service officers were detailed to direct venereal-disease control activities in two States, North Carolina and Tennessee. In North Carolina the cooperative clinician plan was put into practice. The State department of Health appointed 33 physicians and furnished them with free drugs for the treatment of patients who were carried on the active relief rolls and others who, in the judgment of the local relief officers, were unable to pay for treatment. While only a few new clinics were established, there was a marked improvement in the management of many of the clinics operated by full-time county health departments. An exhibit arranged for the State fair held in Raleigh was attended by approximately 11,000 persons. Talks to college and high-school students, parent-teacher associations, civic clubs, and industrial groups reached 20,000 persons. Radio talks were broadcast from the Raleigh station. The newspapers have published much information, and in several instances special articles were given publicity. Addresses were made to 12 medical societies.

In Tennessee the director of control activities was detailed to assist in the formulation of a venereal-disease program for the Norris Area of the Tennessee Valley Authority, at the request of the medical director of the Tennessee Valley Authority. The program included all means at the command of health authorities—educational, medical, legal, and epidemiological. In one plant in the State, affected by the National Recovery Act code, it was found necessary to employ 1,000 additional men. All applicants were examined serologically, and treatment was given to the men as well as to the members of their families found to be infected. In this group 4.1 percent gave positive reactions to the blood examination. Blood and spinal fluid examinations of inmates of penal institutions were made and uniform records and reporting systems installed.

At the request of the State health officer of New Mexico, a 1-day census of venereal diseases was taken, the New Mexico State Department of Health and the American Social Hygiene Association cooperating.

The Florida State Department of Health and the Florida Medical Association requested an officer to give a series of lectures on the venereal diseases to physicians of the State during a postgraduate course at the University of Florida. Ninety doctors registered for the course. The director of the Hot Springs Clinic was detailed to this work.

Venereal Disease Clinic, Hot Springs, Ark.

The only clinic which is maintained by the Public Health Service is the one at Hot Springs, Ark. The tremendous influx of transients into the city has added greatly to the volume of work in the clinic. Six thousand six hundred and eighty-two persons applied for treatment, an increase of 65.6 percent over the preceding year. Four thousand six hundred and ninety-two were found to be suffering from a venereal disease, 62.7 percent more patients than in 1933. The increase in the number of cases of venereal disease was, however, only 25.0 percent—16.8 percent increase in cases of syphilis and 39.3 percent increase in cases of gonorrhea. Injections of arsphenamine amounted to 25,072—74.8 percent more than last year. All of the different forms of treatment were increased in the same proportion. Treatment for this group of patients has been rendered more effective by the fact that the stay of many of these patients in Hot Springs has been considerably prolonged through the cooperation of the Transient Bureau, which provided maintenance for patients unable to pay their own living expenses.

One Public Health Service officer was detailed to the Hot Springs Clinic for 6 months' training.

Prevention of Spread by Interstate Travel

An interesting example of the prevention of spread of venereal disease by interstate travel is seen in the case of the men of the Conservation Corps Camps who are discharged on account of venereal infection.

To prevent these men from being returned to their homes in an infectious stage, the Army amended its regulations governing the discharge of infected men to provide that they be hospitalized until the acute stage of the disease is over and the danger of transmission of infection is past; and when patients are transferred to hospital, a Government ambulance or conveyance other than common carrier is used.

Venereal Disease Information

The division carried on its educational work through Venereal Disease Information, a journal of abstracts of interest primarily to practicing physicians and health officers, pamphlets on venereal diseases and sex instruction, and exhibits and films, all of which are available to the public. Subscriptions to Venereal Disease Information have shown a gradual gain in the past 6 months, due in part at least to the circularization of the State and county medical societies and fourth-year students of the medical schools. Reprints of six of the special articles have been widely distributed. The information service which is maintained in connection with Venereal Disease Information has grown during the year, an increasing number of requests for information being received by the Division from syphilologists, general practitioners, and others interested in the treatment and control of syphilis and gonorrhea. Bulletins found most useful in the program of sex education have been reprinted. Two—Keeping Fit and Healthy Happy Womanhood—have been revised and will be ready for distribution shortly. State departments of health have distributed 385,743 bulletins and pamphlets. The Public Health

Service has distributed to State health departments and others 106,536 pamphlets. Lectures, exhibits, and film showings reported by State health departments numbered 1,530. The one educational film "Science of Life", which is furnished by the Division on request, has been sent to 29 schools and other organizations. The film was lent 208 times.

Proposed Serologic Conference

The American Association of Clinical Pathologists has proposed to the Public Health Service, Division of Venereal Diseases, that a North American serologic conference be held, such as the conferences held in previous years in Paris, Copenhagen, and Montevideo. This conference is to be Nation-wide, however, instead of international. Preliminary arrangements have been made and it is expected that the conference will be held in the coming year.

Table 1.—*Report of State departments of health showing the number of cases of syphilis and gonorrhea reported, the annual rates per 1,000 inhabitants, the amount of arsphenamine distributed, and the laboratory examinations made, from July 1, 1933, to June 30, 1934*

State	Number of cases		Annual rate for syphilis and gonorrhea per 1,000 inhabitants [1]	Doses of arsphenamines distributed	Laboratory examinations		
	Syphilis	Gonorrhea			Wassermann (or other similar) tests	Microscopic examinations for *Spirochaeta pallida*	Microscopic examinations for gonococcus
Total	230,890	153,255	3.1	1,279,690	1,716,489	6,040	342,935
Alabama	3,714	1,379	1.9	23,115	66,132	301	13,467
Arizona	265	789	2.3				
Arkansas	3,326	2,118	2.9	30,852	33,388	261	11,343
California	18,229	14,293	5.4	239,900	77,693	605	27,568
Colorado [2]	41	22	.7		748		218
Connecticut	2,105	1,561	2.2	[3] 8,750	[3] 4,537	[3] 14	[3] 1,265
Delaware	1,259	363	6.7	3,856	5,863		627
District of Columbia	1,770	1,366	6.3	11,439	6,111	76	5,782
Florida	5,047	632	3.7				
Georgia	5,960	4,569	3.6	67,953	84,578		4,562
Idaho					14,761		1,907
Illinois	15,487	14,563	3.8	92,953	101,441	2,874	47,802
Indiana	2,263	1,475	1.1	48,873	125,164		5,112
Iowa	1,689	2,136	1.5	5,677	1,482	40	1,954
Kansas	1,177	846	1.1	9,821	36,532	13	2,615
Kentucky	2,812	4,192	2.7	21,227	9,214	344	5,679
Louisiana	2,229	1,279	1.6	13,791	22,680	86	3,696
Maine	514	522	1.3	4,196	10,597		3,424
Maryland	7,145	2,842	6.0	48,416	13,176	70	5,757
Massachusetts	4,488	6,678	2.6	87,466	113,099		8,888
Michigan	6,026	6,085	2.4	44,208	35,968		30,373
Minnesota	4,002	4,057	3.1	9,476	127,312		13,692
Mississippi	11,421	18,494	14.6		29,804		10,494
Missouri [3]	5,625	3,391	3.0	5,048	22,812	182	4,163
Montana	443	346	1.5				
Nebraska	588	976	1.1	5,725	27,313	5	4,989
Nevada [4]							
New Hampshire	173	264	.9	2,348	6,989		2,426
New Jersey	7,135	3,478	2.5	40,335	50,375		9,426
New Mexico	420	319	1.7				
New York	59,414	16,996	5.9	96,604	310,720		33,661
North Carolina	10,426	4,213	4.5	44,429	81,925	99	1,874
North Dakota [5]	279	600	1.4		6,774	4	1,702
Ohio	7,752	3,382	1.6	54,241	36,689	580	10,764
Oklahoma	1,840	1,620	1.7				

[1] Excludes chancroid which formerly was included in the annual rates.
[2] For 1 month.
[3] For 10 months.
[4] Not reporting.
[5] For 11 months.

TABLE 1.—*Report of State departments of health showing the number of cases of syphilis and gonorrhea reported, the annual rates per 1,000 inhabitants, the amount of arsphenamine distributed, and the laboratory examinations made, from July 1, 1933, to June 30, 1934*—Continued

State	Number of cases		Annual rate for syphilis and gonorrhea per 1,000 inhabitants	Doses of arsphenamines distributed	Laboratory examinations		
	Syphilis	Gonorrhea			Wassermann (or other similar) tests	Microscopic examinations for *Spirochaeta pallida*	Microscopic examinations for gonococcus
Oregon	554	729	1.3	5,531	12,882	27	4,512
Pennsylvania [6]	3,398	2,942	.7	40,129	69,262		14,610
Rhode Island	947	616	2.2	9,778	14,214	47	3,438
South Carolina	4,630	6,149	6.2				
South Dakota	134	351	.7		5,853		76
Tennessee	12,482	6,220	7.0	71,490	57,343	157	7,011
Texas	3,413	725	.7	56,245	9,693	7	1,334
Utah [4]							
Vermont	241	371	1.7	1,706	5,597	7	1,320
Virginia	4,844	3,312	3.3	17,097	13,320	12	3,499
Washington	2,000	2,516	2.8	10,407	46,019	137	20,679
West Virginia	2,714	1,384	2.3	37,411	9,031	19	3,276
Wisconsin	[7] 459	2,076	.9	9,197	9,398	73	7,950
Wyoming [8]	10	18	.5				

[4] Not reporting.
[6] In the absence of reporting regulations in Pennsylvania only the reports received rom the clinics operated by the State health departments are included.
[7] Only cases of syphilis in the infectious stage are reported.
[8] For 3 months.

TABLE 2.—*Report of 127 correctional and penal institutions cooperating with State departments of health* [1]

New cases admitted:	*Number*
Syphilis	8,479
Gonorrhea	3,824
Chancroid	110
Total	12,413
Cases discharged as arrested or cured	7,289
Treatments given	335,947
Doses of the arsphenamines administered	57,422
Serologic tests made	57,934
Microscopic examinations for gonococcus	14,764

[1] Includes 49 prison camps.

TABLE 3.—*Report of 616 clinics, furnished through State health departments, July 1, 1933, to June 30, 1934* [1]

State	Total monthly reports received	New cases admitted				Cases discharged as arrested or cured	Treatments given	Doses of arsphenamines administered	Wassermann tests made	Microscopic examinations for gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
Total	6,309	128,762	76,089	51,254	1,419	55,710	3,068,685	824,626	551,147	210,750
Alabama	73	4,885	3,571	1,247	67	1,254	60,683	20,807	3,870	731
Arkansas	21	4,941	3,148	1,793		1,376	[2] 264,065	30,013	32,720	11,125
California	421	11,275	6,274	4,991	10	4,895	304,672	74,726	48,258	23,787
Connecticut	156	1,476	731	745		1,247	50,106	11,599	5,944	1,775
District of Columbia	12	3,146	1,770	1,366	10	156	46,062	11,439	6,111	5,782
Georgia	84	3,475	1,765	1,705	5	1,188	49,856	23,029	28,284	1,077
Illinois	233	12,709	6,680	5,940	89	9,309	328,724	87,156	83,191	42,646
Indiana	165	2,568	1,372	1,153	43	2,053	119,726	40,643	12,938	3,047
Iowa [3]	57	629	308	320	1	345	26,391	5,677	1,482	1,954
Kansas	26	718	413	305		224	15,448	5,259	2,417	1,469
Kentucky	247	6,974	2,754	4,167	53	1,992	89,144	21,035	8,915	5,568
Louisiana	12	401	245	156		28	6,601	2,076	4,294	1,425
Maine	107	786	396	389	1	224	15,408	4,196	1,463	450
Maryland	417	6,002	3,385	2,292	325	2,326	138,559	47,267	12,524	5,352
Massachusetts	294	5,895	2,939	2,956		1,503				
Michigan	147	5,011	2,336	2,615	60	2,436	203,812	44,071	34,647	30,343
Minnesota	36	820	367	452	1	182	21,279	4,295	2,299	1,183
Nebraska	46	879	473	405	1	289	23,107	5,664	4,983	2,686
New Hampshire	60	253	100	152	1	155	11,638	2,302	657	507
New Jersey	343	7,120	4,539	2,541	40	2,529	239,483	39,672	29,173	7,886
New York	923	8,901	6,529	2,355	17	6,869	252,357	74,906	31,847	8,910
North Carolina [4]	348	6,011	4,537	1,402	72	1,686	60,642	36,167	22,256	1,036
Ohio	439	8,174	5,118	2,662	394	2,528	206,804	52,506	32,292	9,181
Oregon	12	402	297	105		146	14,718	5,052	1,382	837
Pennsylvania	620	5,799	3,224	2,541	34	4,207	76,275	38,707	17,575	
Rhode Island	72	675	451	222	2	557	25,673	7,649	14,103	3,438
Tennessee	535	10,127	6,969	3,024	134	3,281	230,866	64,179	54,249	6,450
Virginia	53	3,066	2,071	960	35	332	34,934	17,097	13,320	3,499
Washington	36	1,630	734	893	3	1,121	36,729	9,748	21,856	17,418
West Virginia	182	2,714	1,906	788	20	745	60,969	28,492	8,705	3,258
Wisconsin	132	1,300	687	612	1	527	53,954	9,197	9,392	7,930

[1] States which did not report and those which had no clinics have been omitted from the above table: They are Arizona, Colorado, Delaware, Florida, Idaho, Mississippi, Missouri, Montana, Nevada, New Mexico, North Dakota, Oklahoma, South Carolina, South Dakota, Texas, Utah, Vermont, and Wyoming.
[2] Includes 135,498 baths given at the U. S. Public Health Service Clinic, Hot Springs National Park, Ark.
[3] For 8 months.
[4] For 10 months.

TABLE 4.—*Report of cooperative clinic activities furnished through State health departments from 1919 to 1934*

Year	Number of clinics reporting	New cases admitted	Total treatments given	Cases discharged as arrested or cured	Treatments per new case admitted
1919	167	59,092	527,392	14,278	8.92
1920	383	126,131	1,576,542	34,215	12.50
1921	442	140,748	2,108,003	55,467	14.98
1922	541	141,279	2,045,232	60,169	14.48
1923	513	119,217	1,992,631	55,503	16.71
1924	504	118,023	2,147,087	51,658	18.19
1925	495	110,372	2,088,494	47,828	18.92
1926	416	100,776	1,881,380	44,329	18.67
1927	425	107,688	1,964,233	44,701	18.24
1928	451	110,756	2,174,832	49,487	19.64
1929	445	120,315	2,128,417	52,136	17.69
1930	477	127,978	2,547,162	55,592	19.90
1931	512	142,915	2,833,790	57,414	19.83
1932	533	148,933	2,954,130	63,906	19.84
1933	572	149,943	3,209,073	64,697	21.40
1934	616	128,762	3,068,685	55,710	23.83

TABLE 5.—*Annual report of the United States Public Health Service clinic at Hot Springs National Park, Ark., from July 1, 1933, to June 30, 1934* [1]

Total applicants	6,682
Venereal	[2] 4,692
Nonvenereal	1,990
Syphilis	3,330
New cases	2,407
Readmitted cases	923
Gonorrhea	2,277
New cases	1,664
Readmitted cases	613
Syphilis (new cases)	2,407
Primary	220
Secondary	317
Tertiary	1,722
Neuro	114
Congenital	34
Gonorrhea (new cases)	1,664
Acute	362
Chronic	1,302
Total treatments given	259,502
Arsphenamine	25,072
Mercury and bismuth	46,724
Other intravenous	2,985
Gonorrhea	49,223
Baths	135,498
Laboratory examinations	70,311
Complement fixation tests	15,144
Precipitation tests	15,144
Icterus indices	15,144
Darkfields	244
Gonococcus smears	10,812
Urine analyses	13,823

[1] From the annual report of the clinic.
[2] The 4,692 patients represent 5,607 cases; 915 patients had both syphilis and gonorrhea.

TABLE 6.—*Report of the United States Public Health Service clinic at Hot Springs National Park, Ark., from July 1, 1922, to June 30, 1934*

Year	Number of applicants	Number of cases			Treatments given [1]
		Total venereal diseases	Syphilis	Gonorrhea	
Total	58,664	49,268	30,706	18,562	884,347
1922	2,720	1,775	1,182	593	43,830
1923	3,389	1,854	1,326	528	41,559
1924	3,676	2,186	1,447	739	50,683
1925	3,411	2,782	2,011	771	50,608
1926	3,570	3,064	2,211	853	54,590
1927	4,757	3,682	2,504	1,178	58,489
1928	5,467	4,134	2,626	1,508	72,466
1929	5,265	3,986	2,512	1,474	75,519
1930	5,704	4,441	2,743	1,698	79,180
1931	4,881	5,088	2,776	2,312	66,246
1932	5,106	6,184	3,188	2,996	93,707
1933	4,036	4,485	2,850	1,635	73,466
1934	6,682	5,607	3,330	2,277	124,004

[1] Baths not included.

TABLE 7.—*Statistical summary of activities in the control of venereal diseases for the fiscal years 1933 and 1934*

	1934	1933 [1]
MEDICAL ACTIVITIES		
A. Cases of venereal disease reported to State health departments:		
I. Syphilis	230,890	238,656
II. Gonorrhea	153,255	149,823
III. Chancroid	1,808	2,453
Total	385,953	390,932
B. Doses of arsphenamines distributed by State health departments	1,279,690	1,306,150
C. Clinics:		
I. Clinics established during the year	97	58
II. Clinics reporting to State health departments	616	572
III. Report from clinics:		
a. New cases admitted	128,762	154,302
b. Cases discharged as arrested or cured	55,710	65,116
c. Treatments given	3,068,685	3,263,927
d. Doses of arsphenamines administered	824,626	888,985
e. Serologic tests made	551,147	556,060
f. Microscopic examinations for gonococcus	210,750	224,506
EDUCATIONAL ACTIVITIES		
A. Pamphlets:		
I. Requests for pamphlets received by the Public Health Service	12,227	9,323
II. Pamphlets distributed:		
a. By the Public Health Service to State health departments and others	106,536	117,637
b. By State health departments	385,743	463,085
Total	492,279	580,722
III. Venereal disease pamphlets issued by the Public Health Service	9	2
B. Lectures, exhibits and film showings reported by State health departments:		
I. Number	[2] 1,530	2,838
II. Average attendance	91	81
C. Motion-picture films lent by the Public Health Service	208	176

[1] Data for 1933 were changed from previously published figures because of the receipt of additional reports.
[2] Exclusive of an unknown number of film showings with a total attendance of 30,000, reported by the Rhode Island State Health Department.

DIVISION OF MENTAL HYGIENE

Asst. Surg. Gen. WALTER L. TREADWAY in charge

The year ending June 30, 1934, marks the fourth full 12 months' activities of the Division of Mental Hygiene. The administrative and investigative functions of the Division continued unchanged during the year. In general, the work embraced studies of the nature and treatment of drug addiction and the dissemination of information upon the subject; studies of the abusive uses of narcotic drugs; administrative functions incident to the establishment of narcotic farms; the supervising and furnishing of medical and psychiatric services for the Federal penal and correctional system; and cooperation with other agencies interested in the various phases of work with which the Division is concerned.

STUDIES OF THE NATURE AND TREATMENT OF DRUG ADDICTION

Studies of the nature of drug addiction, with special reference to the mental and psychiatric status of addicts, have been continued at the United States Penitentiary Annex, Fort Leavenworth, Kans. Some progress has been made in those studies dealing with the fundamental nature and therapy of addiction. Investigations pertaining to changes in carbohydrate metabolism and the value of intravenous administration of glucose were instituted during the year.

Special studies regarding the habit-forming properties of possible substitutes for morphine were continued during the year. One of these investigations has demonstrated that codeine possesses addiction liability. Similar studies were made of other substances, including dihydrodesoxymorphine-D, made from opium by a process discovered by Dr. Lyndon F. Small, consultant in alkaloid chemistry, of the Public Health Service, at the University of Virginia. Application for patenting this process was made by Dr. Small, the patent to become the property of the United States and to be lodged with the Secretary of the Treasury as ex-officio custodian thereof.

In addition to the special studies of the nature of drug addiction conducted at the United States Penitentiary Annex, Fort Leavenworth, Kans., the personnel of the Public Health Service detailed there supervises and furnishes the routine medical and psychiatric services for that prison population.

Individual reports of persons apprehended for violation of the narcotic laws were continued during the year. Their analysis has provided important data concerning the incidence and distribution of drug addiction in the United States and information of value for determining the potential needs respecting the treatment of this situation.

DISSEMINATION OF INFORMATION

Further data concerning the incidence and other factors in drug addiction were assembled for publication, and several articles relating to the work of the Division were published, including, "A Method for Testing Addiction, Tolerance, and Abstinence in the Rat", "The Addiction Liability of Codeine", "Drug Addiction in Its Relation

to Extraversion, Ambiversion, and Introversion", "Annual Physical Examination Study at the Atlanta Federal Penitentiary", and "Individual Study and Treatment at the United States Industrial Reformatory."

STUDIES OF ABUSIVE USES AND THE MEDICINAL AND SCIENTIFIC NEEDS

Studies to determine the annual medicinal and scientific needs of the country concerning narcotic drugs were continued during the year.

NARCOTIC FARMS

Progress was made in the construction of the first United States Narcotic Farm at Lexington, Ky., and it will probably be completed and ready to receive admissions by April 1, 1935. Funds were made available through the Public Works program for beginning construction of the second institution at Fort Worth, Tex.

MEDICAL AND PSYCHIATRIC SERVICES IN FEDERAL PENAL AND CORRECTIONAL INSTITUTIONS

The Service continued, for the fourth year, the work of supervising and furnishing the medical and psychiatric services for the Federal penal and correctional systems under policies originally adopted. At the close of the fiscal year, the Service was operating 17 medical units in connection with the various institutions under the control of the Department of Justice. The Hospital for Defective Delinquents was formally opened on September 22, 1933; a medical unit was established on October 1, 1933, in connection with the Federal Prison Camp at Tucson, Ariz.; and on April 17, 1934, the Service assumed responsibility for the medical services at the United States Penitentiary, Alcatraz Island, Calif. A chief medical officer was assigned to duty at that institution, and subsequently additional personnel were provided.

During the course of the year the medical service of the Federal Correctional Camp, Fort Eustis, Va., was materially curtailed, due to the policy adopted by the Department of Justice of no longer using that unit for the chronic infirm. The large hospital formerly operated in connection with that camp was closed in April 1934, and a barracks building was equipped as a sick bay or infirmary for the temporary care of medical cases. The medical service at Fort Eustis is practically reduced to the handling of out-patient work.

The routine physical examination of prisoners admitted to the United States Penitentiary Annex, Fort Leavenworth, Kans., was extended to include an X-ray examination. Paper X-ray films were used for this purpose and the pictures were found to be of very great aid in detecting chest pathology and in the assignment and disposition of prisoners. The medical service at that institution continued to render advisory assistance to the classification committee organized and developed during the year.

The out-patient clinic in connection with the hospital at the United States Penitentiary, Lewisburg, Pa., undertook a special study with reference to painful conditions of feet among prisoners, a pressing administrative and medical problem in all such institutions. Data are being collected upon the subject for further study and the development of a more scientific approach for the relief of

this problem. The psychiatric and psychological departments of that institution commenced a statistical study of the material collected thus far in an effort to evaluate the various mental factors involved in antisocial behavior.

The psychiatric service at the United States Reformatory at Chillicothe, Ohio, has been broadened appreciably through cooperative efforts with the administration of the institution, the psychiatrist sitting as a member of the Classification and Assignment Board and on the Disciplinary Board also.

During the year experimental studies were undertaken with reference to the treatment of common colds among prisoners at the Atlanta Penitentiary. Approximately 2,000 cases of common colds were treated in the eye, ear, nose, and throat clinic, resulting in the recovery of approximately 83 percent within 1 day of the onset of symptoms. No cases of lobar or lobular pneumonia developed from the cases of colds treated.

Three sets of medical officers' quarters were constructed at the above-mentioned institution during the year and occupied by the chief medical officer, the assistant chief medical officer, and the psychiatrist. The building of these quarters has not only resulted in a financial saving to the Government, but has more closely knitted the interests and activities of the medical service to that of the administration of the institution.

The policy adopted by the Department of Justice with reference to the admission of female prisoners to the United States Detention Farm at Milan, Mich., resulted in the installation of additional medical facilities for this class of prisoners. A gynecologist was added to the staff and a consultant psychiatrist was appointed.

During the course of the year a new policy was adopted whereby the medical services in the Federal penal and correctional system was extended to periodical surveys of the sanitary condition of prisons. The chief medical officer of each institution, upon request of the Bureau of Prisons, was assigned as the sanitary officer of his respective institution. This policy has resulted in greatly improving the sanitary condition of the various institutions involved.

Some idea of the magnitude of the scope of activities of the Service may be gathered from the statement that during the year there were furnished 194,848 hospital relief days and 385,636 out-patient relief days.

OTHER INVESTIGATIONS

A request was received from the Governor of one State to conduct a survey of mental health administration of that jurisdiction with the object of bringing about improvements in the public care of the mentally ill. Plans are being perfected to undertake such studies in the early part of the next fiscal year.

COOPERATIVE ACTIVITIES

Effective and mutually advantageous cooperation was continued during the year with other national official and unofficial agencies and international committees and organizations interested in various phases of the work of the Division, especially those relating to narcotics and psychiatry.

DIVISION OF PERSONNEL AND ACCOUNTS

Asst. Surg. Gen. C. C. PIERCE, in charge

As heretofore, the Division of Personnel and Accounts has supervised all operations of the service relating to personnel, finances, and the maintenance of property records. The organization of the Division remained unchanged during the year, Asst. Surg. Gen. C. C. Pierce, in charge of the Division, was relieved on July 9, 1934, and was succeeded by Asst. Surg. Gen. W. F. Draper. Through a personnel section, a finance section, and a property-record section, all matters relating to appointments, separations, and other changes in status of personnel, estimates of appropriations, allotments, and encumbrances, records of expenditures, including administrative audit, and all records of nonexpendable property are administered under the supervision of the Assistant Surgeon General in charge of the Division.

The public health district directors continued to function during the year as heretofore, but no report of their activities is being included herein by reason of the necessity for conserving space.

PERSONNEL

COMMISSIONED OFFICERS

On July 1, 1933, the regular corps consisted of the Surgeon General; 8 Assistant Surgeons General; 43 medical directors, 1 pharmacologist director in the grade of medical director; 32 senior surgeons, 1 senior dental surgeon, 1 senior sanitary engineer in the grade of senior surgeon, 92 surgeons, 13 dental surgeons, and 15 sanitary engineers in the grade of surgeon; 73 passed assistant surgeons, 8 passed assistant dental surgeons, and 1 passed assistant sanitary engineer in the grade of passed assistant surgeon; 47 assistant surgeons, 20 assistant dental surgeons, 5 assistant sanitary engineers, and 10 assistant pharmacists, all in the grade of assistant surgeon—a total of 371 officers. Of this number, 6 medical directors, 12 senior surgeons, 9 surgeons, 2 passed assistant surgeons, and 1 assistant surgeon were on waiting orders. During the fiscal year the following changes occurred in the several grades: 1 of the pharmacists in the service was commissioned a passed assistant pharmacist in the regular corps and the assistant surgeon on waiting orders returned to active duty, but 2 assistant pharmacists, 1 passed assistant surgeon, 6 surgeons, 1 senior surgeon, 9 medical directors, and 1 Assistant Surgeon General with the grade of medical director were placed on waiting orders; 1 senior surgeon and 1 surgeon on waiting orders died during the year, and 1 assistant dental surgeon was separated from the corps; 26 assistant surgeons were promoted to passed assistant surgeons, 8 assistant dental surgeons were promoted to passed assistant dental surgeons, 4 assistant sanitary engineers were promoted to passed

assistant sanitary engineers, 2 passed assistant surgeons were promoted to surgeons, 11 surgeons were promoted to senior surgeons, and 5 senior surgeons were promoted to medical directors. Because of several changes made in the assignment of Assistant Surgeons General in charge of divisions of the Bureau, 1 Assistant Surgeon General reverted to a medical director and 1 medical director and 1 surgeon were detailed as Assistant Surgeons General.

On July 1, 1934, after these changes had occurred, the regular corps consisted of the Surgeon General, 8 Assistant Surgeons General, 49 medical directors, 1 pharmacologist director in the grade of medical director, 37 senior surgeons, 1 senior dental surgeon, 1 senior sanitary engineer in the grade of senior surgeon, 81 surgeons, 13 dental surgeons, and 15 sanitary engineers in the grade of surgeon; 97 passed assistant surgeons, 16 passed assistant dental surgeons, 5 passed assistant sanitary engineers in the grade of passed assistant surgeon, and 1 passed assistant pharmacist in the grade of passed assistant surgeon; 21 assistant surgeons, 12 assistant dental surgeons, 1 assistant sanitary engineer in the grade of assistant surgeon, and 10 assistant pharmacists in the grade of assistant surgeon—a total of 370 officers. Of this number, 16 medical directors, 12 senior surgeons, 14 surgeons, 3 passed assistant surgeons, and 3 assistant pharmacists in the grade of assistant surgeon were on waiting orders.

At the close of the fiscal year 1934, 2 medical directors, 4 senior surgeons, and 2 surgeons were serving by detail as Assistant Surgeons General in charge of divisions of the Bureau in accordance with acts approved July 1, 1902, July 9, 1918, and April 9, 1930; 4 medical directors were on duty as directors of the public health districts; 3 surgeons, 2 passed assistant surgeons, and 1 assistant surgeon were serving on detail to the United States Employees' Compensation Commission; 2 medical directors were assigned as assistants to the Director, Pan American Sanitary Bureau, Washington, D. C.; 1 senior surgeon, 5 surgeons, 1 dental surgeon, 3 passed assistant surgeons, and 1 assistant pharmacist were serving on detail to the Bureau of Indian Affairs, Department of the Interior, in connection with the control of communicable diseases among the Indians; 1 senior surgeon was serving (as alienist and medical officer) on detail to the Morningside Hospital, near Portland, Oreg., which cares for the Alaska insane, under contract with the Department of the Interior; 1 medical director, 2 surgeons, 1 dental surgeon, 1 passed assistant surgeon, 2 assistant surgeons, and 2 assistant dental surgeons, were serving on detail with the United States Coast Guard; 2 senior surgeons 3 surgeons, 8 passed assistant surgeons, 2 passed assistant dental surgeons, and 1 assistant surgeon were assigned for duty at various penal and correctional institutions.

RESERVE OFFICERS

On July 1, 1933, the reserve commissioned officers on active duty numbered 30, consisting of 5 surgeons, 1 dental surgeon, 10 passed assistant surgeons, 5 assistant surgeons, and 9 assistant dental surgeons.

On July 1, 1934, the number of reserve officers on active duty was 37, consisting of 4 surgeons, 1 dental surgeon, 10 passed assistant surgeons, 11 assistant surgeons, and 11 assistant dental surgeons.

ACTING ASSISTANT SURGEONS

On July 1, 1933, there were 672 acting assistant surgeons in the Public Health Service, and by July 1, 1934, this number had increased to 695.

Of the 695 acting assistant surgeons, 101 were on duty at marine hospitals; 418 were engaged in immigration, relief, and maritime, border, insular, and foreign quarantine work; 5 were engaged in the prevention of trachoma; 5 were on duty in connection with field investigations of public health and rural sanitation; 105 were on detail with the United States Coast Guard; 2 were serving with the Bureau of Mines by detail; 23 were serving at various penal and correctional institutions; 36 were engaged in antivenereal disease activities as part-time employees at nominal compensation. Fourteen of the 36 acting assistant surgeons engaged in antivenereal disease activities held appointments as collaborating epidemiologists.

ATTENDING SPECIALISTS

On July 1, 1933, there were 454 attending specialists in the service, and during the year this number increased to 481, of which number 252 were consultants to marine hospitals, while 41 were available for call at second- and third-class relief stations; 12 were engaged in antivenereal disease activities; 61 were serving at various penal and correctional institutions; and 115 were consultants in connection with quarantine, immigration, and scientific research activities.

INTERNES

On July 1, 1933, there were 93 internes in the service; on July 1, 1934, there were 118, of which number 31 were dental and 7 students. Internes are appointed for temporary periods of 1 year for duty at marine hospitals.

PHARMACISTS AND ADMINISTRATIVE ASSISTANTS

On July 1, 1933, there were 16 pharmacists and 36 administrative assistants in the Public Health Service. During the year 1 pharmacist was commissioned in the regular corps and 1 died; an addition of 2 was made in the administrative corps and during the year 2 died, 1 resigned, and 1 retired. The total corps at the end of the fiscal year was 14 pharmacists (10 chief and 4 junior) and 34 administrative assistants (9 first class, 5 second class, 13 third class, and 7 fourth class).

NURSES, DIETITIANS, AND RECONSTRUCTION AIDES

On July 1, 1933, there were on duty with the Public Health Service 449 nurses, 27 dietitians, 35 reconstruction aides, 2 social workers, and 15 guard-attendants. On July 1, 1934, there were on duty 498 nurses and 37 guard-attendants. In the Hospital Division there were 27 dietitians and 31 aides. The increase in personnel was due partly to the opening of the Hospital for Defective Delinquents at Springfield, Mo.; the United States Southwestern Reformatory at El Reno, Okla.; the United States Detention Farm at Milan, Mich.;

and the United States Penitentiary at Alcatraz Island, San Francisco Harbor, Calif. Forty-one junior nurses were placed on duty during the year. One nurse completed a course in the use of the heat boxes in pyretotherapy at the factory in Dayton, Ohio. One hundred and eleven nurses were assigned to the Public Health Service under the Civil Works Administration with salaries ranging from $12 to $30 a week for a 30-hour week. These nurses performed valuable service. They have been discontinued.

CONTRACT DENTAL SURGEONS

On July 1, 1933, there were 47 contract dental surgeons employed at the marine hospitals, second-, third-, and fourth-class relief stations, and the various penal and correctional institutions. These part-time employees are appointed for local duty and receive fixed and uniform fees for dental work performed for service beneficiaries.

At the close of the fiscal year 1934, this number had increased to 52; 8 were at marine hospitals, 32 were at second-, third-, and fourth-class relief stations, 6 were serving at various penal and correctional institutions, and 6 were detailed to the United States Coast Guard for duty.

EPIDEMIOLOGISTS

During the year the number of assistant collaborating epidemiologists was increased from 4,640 to 4,674. These employees are health officers or employees of State or local boards of health, who receive only nominal compensation from the Federal Government and who furnish the service with reports of communicable diseases received by State or local health organizations. The number of collaborating epidemiologists increased from 32 to 33. These appointees are on duty in the different States.

NATIONAL INSTITUTE OF HEALTH

The National Institute of Health continued under the administration of Director George W. McCoy and Assistant Director R. E. Dyer. The scientific staff comprised 62 members, of whom 18 were commissioned medical officers, 29 other research workers, and 15 consulting experts. The staff was assisted by 19 technicians and 68 other subordinates, making a total of 149. Of this total, 134 were on full-time schedule.

Property Records

The property return section has accounted for all property of the Service and 336 property returns have been audited during the year. Sales of unserviceable property including boats, hides, cattle, etc., aggregated $5,193.54. Surplus property not desired by any Government Department was sold for $246.25. Property surplus to the Public Health Service valued at $29,625.94 was transferred to other Government Departments. Surplus property of other Government Departments valued at $45,660.57 was received by the Public Health Service. Property valued at $41,393.01 was transferred from service stations where it was surplus to other service stations where it could be used. By the exchange value on old typewriters and adding ma-

chines turned in on the purchase price of new machines, $585.25 was saved. By the same method, $347 was saved on old automobiles.

Accounts Section

The account section of the Division of Personnel and Accounts conducts all bookkeeping and accounting in connection with the expenditure of Public Health Service appropriations. This includes also accounts of miscellaneous collections, allotments, records of encumbrances, cost accounting, and the administrative audit. A statement of appropriations, expenditures, and balances, with miscellaneous receipts, is published as an appendix to this report.

Personnel Statement

The accompanying tabular statement shows the personnel of the Service as of July 1, 1934. Of the 10,727 employees shown in the table, 4,674, listed as collaborating epidemiologists and assistant collaborating epidemiologists, receive only nominal compensation. They are mainly officers or employees of State and local health organizations who collaborate in the collection of morbidity statistics by furnishing the figures collected by those organizations relating to cases of communicable diseases. The personnel statement also includes all part-time employees, those employed on a per diem basis, and those whose compensation is on a fee basis. The increase of 775 employees is caused mainly by the temporary personnel placed on duty in connection with Civil Works' Administration projects undertaken by this Service.

Consolidated quarterly personnel report for the quarter ended July 1, 1934

	Medical and scientific																			
	Regular corps							Reserve corps												
	Surgeon general	Medical director	Assistant surgeon general	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Medical director	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Acting assistant surgeon	Attending specialist and consultant	Contract dental surgeon	Interne	Temporary C. W. A. workers	Pharmacist		
Bureau	1		8														[1] 18			
FIELD																				
Hospital division:																				
Marine hospitals:																				
Baltimore, Md		1			3	1	2						4	24		4				
Boston, Mass		1			1	2							4	11		6				
Buffalo, N. Y					1	1							3	9	1	3		1		
Carville, La					1								4	4				1		
Chicago, Ill		1			2	1						1	5	11		6				
Cleveland, Ohio		1			1	2	1						8	8		3				
Detroit, Mich				1	1	1						1	5	14		1				
Ellis Island, N. Y		1			3	1	2				1		11	6		5				
Evansville, Ind					1								4	8	1			1		
Fort Stanton, N. Mex					1	1	1					1	2	2		3		1		
Galveston, Tex				1		1	1					1	2	13	1	5				
Hudson Street, N. Y					2	2	3			1		2	9	17		3		2		
Key West, Fla					1		1						2	1		1		1		
Louisville, Ky		1					1						1	9	2	2		1		
Memphis, Tenn					1	1							2	10	1	2				
Mobile, Ala					1	2	1				1		3	6		2				
New Orleans, La					5	4	4				1		3	11		10		1		
Norfolk, Va		1				4	3				1	1	4	8		7				
Pittsburgh, Pa					1	1						1	3	6		3				
Portland, Maine				1			1				1	1		12		1				
Port Townsend, Wash																				
St. Louis, Mo					1	1							3	16	1					
San Francisco, Calif		1			3	6	2			1	1		7	19		12		1		
Savannah, Ga				1		1				2			7	8		1				
Seattle, Wash				1	2	6	3				1		2	13		7				

Stapleton, Staten Island, N. Y.		1			3	7							2	5		10		1
Vineyard Haven, Mass.						1							1	1	1			
Total hospitals																		
Relief stations:																		
Second class		1		2	2	4	2					1	18	32	9	1		
Third class													145	9	23			
Total relief stations																		
Foreign quarantine division:																		
Quarantine stations:																		
Baltimore, Md.				1									1					1
Boston, Mass.				1		1							3					
Ellis Island (also immigration)		3											13					
El Paso, Tex.													3					
Fort Monroe, Va.		1																
Galveston, Tex.				1									1					
Honolulu, Hawaii					1	2							9					
Laredo, Tex.													4					
Marcus Hook, Pa.		1				1							1					
New Orleans, La.				1		1	1						3					
Rosebank, N. Y.		1				3							6	1				
San Francisco, Calif. (also immigration)					1	1							3					
San Juan, P. R.					1								2					
Foreign ports		2		1	2	9							33	2				
All other stations		3		3	4	8							172					2
Total quarantine and immigration																		
Domestic quarantine division:																		
Interstate					5	2												
Trachoma					1								5	5				
Rural sanitation (regular)				1	2								2	1				
Civil Works Administration projects																	350	
All other stations				1	3													
Total all activities																		
Scientific research division:																		
National Institute of Health		4			7	7	1						1	6				
Leprosy investigations				1		2												
Malaria investigations				1	3	1												
Nutrition studies														1				
Stream pollution					2	1								4				
Industrial hygiene and sanitation					1	2	2							34				
Child hygiene					1									7				
Statistical Office														9				
All other stations		1		1	5	3							2	38				
Total all activities																		

[1] Clerical.

Consolidated quarterly personnel report for the quarter ended July 1, 1934—Continued

	Medical and scientific																		
	Regular corps							Reserve corps											
	Surgeon general	Medical director	Assistant surgeon general	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Medical director	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Acting assistant surgeon	Attending specialist and consultant	Contract dental surgeon	Interne	Temporary C. W. A. workers	Pharmacist
FIELD—continued																		
Sanitary Reports and Statistics																		
Division of Venereal Diseases					1	1	1						36	12				
Division of Mental Hygiene:																		
Alderson, W. Va.													5	2				
Atlanta, Ga.						2						1	1	5		4		
Chillicothe, Ohio											1	1	1	4		3		
Fort Leavenworth, Kans.					1	2	1						1			3		
Leavenworth, Kans.						2						1	2	3		3		
Petersburg, Va.													2	2	1			
McNeil Island, Wash.					1					1		1		4		1		
All other stations				2	1	4						3	11	41	5	6		
Total all activities																		
Miscellaneous:																		
Detailed to other offices		2		2	9	5	1						2					
Coast Guard		1			3	1	4				2	5	105	4	6			
Perry Point, Md. (supply station)							1											
Public health districts		4					1											
Waiting orders		16		12	14	3	3											
All others		1		3	3	4							1	3				
Total miscellaneous																		
Grand total	1	50	8	39	109	119	44			5	10	22	695	481	52	118	368	14

Consolidated quarterly personnel report for the quarter ended July 1, 1934—Continued

	General and technical														Totals			
	Assistant collaborating epidemiologist and collaborating epidemiologist	Scientific—National Institute	Administrative assistant	Druggist	Nurse	Aide (P. T. and O. T.)	Dietitian	Laboratorian in roentgenology	Laboratorian in bacteriology	Pilot	Marine engineer	Clerk	All other field employees	Departmental personnel	Medical and scientific	General and technical	Sub	Grand
Bureau														179	27	179		206
FIELD																		
Hospital division:																		
Marine hospitals:																		
Baltimore, Md			1	1	25	4	2		1			6	81		39	121	160	
Boston, Mass			1	1	18	1	1		1			9	60		25	92	117	
Buffalo, N. Y					8	1			1			4	16		19	30	49	
Carville, La			1	1	1							6	255		10	264	274	
Chicago, Ill			1		18	1	2					8	64		27	94	121	
Cleveland, Ohio				1	16							4	56		24	77	101	
Detroit, Mich			1		18		1					4	49		24	73	97	
Ellis Island, N. Y			2	1	54	2	4		1			6	186		30	256	286	
Evansville, Ind					6							3	26		15	35	50	
Fort Stanton, N. Mex					11	2	2					8	113		12	136	148	
Galveston, Tex			1	1	15		1					4	49		25	71	96	
Hudson Street, N. Y				1	6	6		1	1			9	40		41	64	105	
Key West, Fla					6							3	17		7	26	33	
Louisville, Ky					6							2	27		17	35	52	
Memphis, Tenn				1	7							4	23		17	35	52	
Mobile, Ala			1	1	15							4	43		16	64	80	
New Orleans, La			1	1	47	3	3		1			19	142		39	217	256	
Norfolk, Va				1	29	1	2	1	1			8	101		29	144	173	
Pittsburgh, Pa				1	7							3	16		15	27	42	
Portland, Maine			1		8							2	21		17	32	49	
Port Townsend, Wash																		
St. Louis, Mo					10			1				4	28		22	43	65	
San Francisco, Calif			1		46	3	2	1				12	150		53	215	268	
Savannah, Ga			1	1	14		1					4	38		20	59	79	
Seattle, Wash			2	1	33	1	2					7	93		35	139	174	

Consolidated quarterly personnel report for the qaarter ended July 1, 1934—Continued

	General and technical														Totals			
	Assistant collaborating epidemiologist and collaborating epidemiologist	Scientific—National Institute	Administrative assistant	Druggist	Nurse	Aide (P. T. and O. T.)	Dietitian	Laboratorian in roentgenology	Laboratorian in bacteriology	Pilot	Marine engineer	Clerk	All other field employees	Departmental personnel	Medical and scientific	General and technical	Sub	Grand
FIELD—continued																		
Hospital division—Continued.																		
Marine hospitals—Continued.																		
Stapleton, Staten Island, N. Y.			2	1	36	3	3					8	112		29	165	194	
Vineyard Haven, Mass.					2							1	7		4	10	14	
Total hospitals															611	2,524		3,135
Relief stations:																		
Second class			1		6	1			1			16	16		72	41	113	
Third class												7			177	7	184	
Total relief stations															249	48		297
Foreign quarantine division:																		
Quarantine stations:																		
Baltimore, Md.										1	1		17		3	19	22	
Boston, Mass.			1							2	2	1	18		5	24	29	
Ellis Island (also immigration)												2	9		16	11	27	
El Paso, Tex.												1	11		3	12	15	
Fort Monroe, Va.										2	2	1	15		1	20	21	
Galveston, Tex.			1							1	3		9		2	14	16	
Honolulu, Hawaii										2		1	23		12	26	38	
Laredo, Tex.													12		4	12	16	
Marcus Hook, Pa.			1		2					2	2	1	20		3	28	31	
New Orleans, La.										4	3	2	16		6	25	31	
Rosebank, N. Y.			2							6	6	7	82		11	103	114	
San Francisco, Calif. (also immigration)					1					4	2	2	39		5	48	53	
San Juan, P. R.										1		2	21		3	24	27	
Foreign ports												2	23		49	25	74	
All other stations			1	1	2					16	13	14	202		192	249	441	
Total quarantine and immigration															315	640		955

Domestic quarantine division:																		
Interstate												6	59		7	65	72	
Trachoma					5							1			11	6	17	
Rural sanitation (regular)					5							10	11		6	26	32	
Civil Works Administration projects															350		350	
All other stations												1	22		4	23	27	
Total all activities															378	120		498
Scientific research division:																		
National Institution of Health		35										11	72		26	118	144	
Leprosy investigations												1	4		3	5	8	
Malaria investigations												4	8		5	12	17	
Nutrition studies															1		1	
Stream pollution												2	14		7	16	23	
Industrial hygiene and sanitation												2	11		39	13	52	
Child hygiene						1						6			8	7	15	
Statistical Office												6	4		9	10	19	
All other stations			1						2			13	57		50	73	123	
Total all activities															148	254		402
Sanitary Reports and Statistics	4,674												1			4,675		4,675
Division of Venereal Diseases												4	13		51	17		68
Division of Mental Hygiene:																		
Alderson, W. Va					6							1			7	7	14	
Atlanta, Ga			1		3								1		13	5	18	
Chillicothe, Ohio			1		3								3		10	7	17	
Fort Leavenworth, Kans			1		2								5		8	8	16	
Leavenworth, Kans			1	1	3								2		11	7	18	
Petersburg, Va					1								1		5	2	7	
McNeil Island, Wash					2										8	2	10	
All other stations			3	1	11								64		73	79	152	
Total all activities															135	117		252
Miscellaneous:																		
Detailed to other offices															21		21	
Coast Guard					1										131	1	132	
Perry Point, Md. (supply station)												4	5		1	9	10	
Public health districts			2										6		5	8	13	
Waiting orders															48		48	
All others															15		15	
Total miscellaneous															221	18		239
Grand total	4,674	35	34	18	515	30	26	4	10	41	34	283	2,709	179	2,135	8,592		10,727

CHIEF CLERK'S OFFICE

DANIEL MASTERSON, Chief Clerk

DEPARTMENTAL PERSONNEL

On account of the reduction in the available funds for salaries in the Bureau, a decrease in force became unavoidable. Accordingly, in July 1933, 12 employees were separated from the service under the provisions of section 213 of the act of June 30, 1932, known as the Economy Act. In addition, 4 clerical vacancies existing at the beginning of the year, and 1 occurring during the year, were not filled, making a total reduction of 17 positions. This decreased the total civil-service force on duty in the Bureau to 182 employees, of whom 163 were paid from the appropriation "Salaries, Office of the Surgeon General", 10 from the appropriation for the Division of Venereal Diseases, and 9 from the appropriation for the Division of Mental Hygiene.

During the fiscal year two positions were reallocated by the Civil Service Commission to higher grades, but under existing law the incumbents could not receive increased compensation. No administrative promotions were made during the year.

Sick leave averaged 8.4 days per employee as compared with 7.8 days for the preceding year. Leave of absence without pay averaged 4.2 days per employee, due partly to the recent reduction in the amount of annual leave allowed by law. The record for punctuality on the part of employees was substantially perfect, the actual computed promptness in reporting for duty being 99.8 percent.

PRINTING AND BINDING

The sum of $50,000 was made available for printing and binding by allotment from the Treasury Department appropriation, as compared with an allotment of $93,000 for 1932 and prior years. In spite of the utmost efforts for economy, this fund proved sufficient only for the most urgent printing needs, much material of value in health work remaining unpublished or being issued in greatly reduced form. If additional funds were available, they could be used to great advantage.

PUBLIC HEALTH SERVICE LIBRARY

The librarian reports the addition of 526 volumes and the discarding of 125 obsolete works, so that the collection now numbers 13,593 volumes. A large portion of the additional books was obtained without cost. Several hundred pamphlets were also added, this collection now numbering approximately 7,250. Two hundred and twenty-eight periodicals relating to medical and public-health work were received and circulated, only 34 of which represented paid subscriptions.

The capacity of the small library staff was taxed throughout the year, but their work was considerably facilitated by the improved library quarters and facilities in the new building.

NEW ADMINISTRATION BUILDING

The new administration building in Washington, which was occupied in May 1933, has proved to be of great advantage in the administration of the service. During the year the rear courts and driveway were paved with reinforced concrete, providing a much-needed improvement. The construction of terraces and approaches and the grading of the grounds are now under way from funds provided by the Public Works Administration, as the original appropriation proved insufficient for this purpose.

APPENDIX

FINANCIAL STATEMENT

The following is a statement of expenditures from appropriations of the Public Health Service for the fiscal year 1934:

Appropriation	Appropriated	Obligations			Unobligated balance
		Incurred	Liquidated	Outstanding	
Salaries, Office of Surgeon General	$307,890.00	$266,314.09	$266,314.09		$41,575.91
Pay, etc., commissioned officers	1,528,393.00	1,372,666.42	1,371,348.21	$1,318.21	155,726.58
Pay of acting assistant surgeons	325,400.00	253,227.61	253,227.61		72,172.39
Pay of other employees	1,017,750.00	801,194.25	801,194.25		216,555.75
Freight, transportation, etc	36,175.00	25,161.00	22,551.63	2,609.37	11,014.00
Maintenance, National Institute of Health	54,775.00	40,982.32	40,982.32		13,792.68
Books	500.00	406.90	398.78	8.12	93.10
Pay of personnel and maintenance of hospitals	[1] 5,844,259.00	5,048,340.85	5,009,749.56	38,591.29	795,918.15
Quarantine Service	475,000.00	308,621.46	295,838.08	12,783.38	166,378.54
Preventing the spread of epidemic diseases	333,650.00	206,893.60	201,972.11	4,921.49	126,756.40
Field investigations of public health	353,564.00	210,020.00	210,020.00		143,544.00
Interstate Quarantine Service	38,454.00	33,255.21	32,905.54	349.67	5,198.79
Studies of rural sanitation	150,000.00	24,544.94	24,454.93	90.01	125,455.06
Control of biologic products	43,900.00	39,657.50	39,657.50		4,242.50
Expenses, Division of Venereal Diseases	75,000.00	58,268.71	58,083.51	185.20	16,731.29
Expenses, Division of Mental Hygiene	44,377.00	30,938.50	30,756.31	182.19	13,438.50
Educational exhibits	1,500.00	957.64	792.14	165.50	542.36
Total	[2] 10,630,587.00	8,721,451.00	8,660,246.57	61,204.43	1,909,136.00

[1] Includes $244,259 reimbursement for care and treatment of beneficiaries of the Veterans' Administration and Civilian Conservation Corps.

[2] Statement does not include expenditure of $4,177.01 from trust fund "National Institute of Health, Conditional Gift Fund."

Quarantine Service—Expenditures by stations

Name of station	Pay of officers and employees	Maintenance	Total
CONTINENTAL QUARANTINE STATIONS			
Aransas Pass, Tex	$89.25		$89.25
Baltimore, Md	27,423.03	$23,549.09	50,972.12
Beaufort, S. C	458.30		458.30
Biscayne Bay (Miami), Fla	17,912.84	8,804.77	26,717.61
Boca Grande, Fla	1,137.07	83.66	1,220.73
Boston, Mass	34,701.97	17,144.14	51,846.11
Brownsville, Tex	14,805.80	3,630.13	18,435.93
Brunswick, Ga	1,840.63	472.32	2,312.95
Calexico, Calif		99.00	99.00
Cape Fear (Southport), N. C	5,286.68	2,360.65	7,647.33
Charleston, S. C	16,869.65	7,905.64	24,775.29
Columbia River (Astoria), Oreg	4,954.15	1,104.82	6,058.97
Columbus, N. Mex	1,327.42		1,327.42
Corpus Christi, Tex	1,972.66	51.84	2,024.50
Del Rio, Tex	4,913.87	1,087.52	6,001.39
Eagle Pass, Tex	11,306.91	1,164.15	12,471.06
El Paso, Tex	25,844.68	5,643.65	31,488.33
Fernandina (Cumberland Sound), Fla	565.00	15.54	580.54
Fall River, Mass	1,306.16		1,306.16
Freeport, Tex	348.71		348.71
Galveston, Tex	22,922.62	6,993.77	29,916.39
Gulfport, Miss	4,083.05	418.72	4,501.77
Hidalgo, Tex	5,847.64	809.98	6,657.62
Key West, Fla	2,264.10	13.66	2,277.76

Quarantine Service—Expenditures by stations—Continued

Name of station	Pay of officers and employees	Maintenance	Total
CONTINENTAL QUARANTINE STATIONS—continued			
Laredo, Tex	$21,874.64	$3,114.17	$24,988.81
Marcus Hook, Pa	37,747.00	17,165.55	54,912.55
Mobile, Ala	21,883.90	6,445.14	28,329.04
New Bedford, Mass	522.51	20.00	542.51
New Orleans, La	41,614.60	20,579.14	62,193.74
Newport, R. I		40.00	40.00
New York (Rosebank), N. Y	159,301.62	73,862.34	233,163.96
Nogales, Ariz	8,398.49	1,642.10	10,040.59
Norfolk (Fortress Monroe), Va	29,384.08	8,194.50	37,578.58
Pascagoula, Miss	1,045.00		1,045.00
Pensacola, Fla	14,425.78	1,191.72	15,617.50
Perth Amboy, N. J	1,388.49	1,200.00	2,588.49
Port Arthur, Tex	1,845.30	64.85	1,910.15
Portland, Maine	11,914.32	1,860.61	13,774.93
Portland, Oreg	1,881.78	1,638.70	3.520.48
Port Townsend, Wash	12,089.95	1,455.33	13,545.28
Presidio, Tex	3,974.69	289.97	4,264.66
Providence, R. I		407.04	407.04
Rio Grande, Tex	3,206.10	276.13	3,482.23
Roma, Tex	4,076.84	743.08	4,819.92
Sabine, Tex	11,986.80	678.45	12,665.25
St. Andrews (Panama City), Fla	1,045.00	93.66	1,138.66
St. Georges Sound (Carrabelle), Fla	261.16		261.16
St. Johns River (Jacksonville), Fla	6,349.55	1,609.80	7,959.35
San Diego, Calif	15,307.97	5,319.56	20,627.53
San Francisco, Calif	57,635.61	17,705.20	75,340.81
San Pedro, Calif	23,868.05	8,661.95	32,530.00
Savannah, Ga	14,590.03	5,623.38	20,213.41
Seattle, Wash	11,663.36	2,173.70	13,837.06
Tampa, Fla	11,330.67	7,721.50	19,052.17
Thayer (Mercedes), Tex	1,522.70	697.93	2,220.63
West Palm Beach, Fla	1,567.50		1,567.50
Ysleta, Tex		24.25	24.25
Zapata, Tex	2,013.48	360.00	2,373.48
Freight and miscellaneous		345.67	345.67
Travel of medical directors within districts		16,231.19	16,231.19
Total, continental quarantine stations	743,899.16	288,789.66	1,032,688.82
INSULAR QUARANTINE STATIONS			
Hawaii	37,762.05	8,062.07	45,824.12
Philippine Islands	13,364.50		13,364.50
Puerto Rico	28,577.52	9,094.49	37,672.01
Virgin Islands	12,122.05	2,675.24	14,797.29
Total, insular quarantine stations	91,826.12	19,831.80	111,657.92
Grand total, all stations	835,725.28	308,621.46	1,144,347.04

Savings—Funds impounded under the economy acts

Appropriation	Furlough and compensation deductions	Vacancy savings
Salaries, Office of Surgeon General	$14,075.35	$22,369.03
Pay, etc., commissioned officers	57,245.74	
Pay of acting assistant surgeons	15,735.23	19,058.62
Pay of other employees	47,301.99	55,859.28
Freight, transportation, etc	302.91	
Maintenance, National Institute of Health		
Books		
Pay of personnel and maintenance of hospitals	222,899.59	110,078.49
Quarantine service		
Preventing the spread of epidemic diseases	6,737.34	6,294.90
Field investigations of public health	8,811.93	23,680.76
Interstate quarantine service	845.92	260.00
Studies of rural sanitation	417.97	2,934.50
Control of biologic products	1,288.60	
Expenses, Division of Venereal Diseases	2,701.22	3,514.50
Expenses, Division of Mental Hygiene	1,548.30	4,005.67
Educational exhibits	7.91	
Total, all appropriations	379,920.00	248,055.75

FUNDS TRANSFERRED FROM OTHER DEPARTMENTS

Expenditures from allotments of funds from other bureaus and offices for direct expenditure during the fiscal year 1934 were as follows:

Appropriation title	Allotted	Expended
Veterans' Administration: Working fund	$72,550.00	$72,550.00
Department of Justice: Medical and hospital service, penal institutions	393,278.00	393,278.00
Public Works Administration: National Industrial Recovery	1,726,863.00	1,726,863.00
Civil Works Administration: Working fund	131,124.88	131,124.88
Agriculture Department: Working fund	1,800.00	1,800.00
Total	2,325,615.88	2,325,615.88

MISCELLANEOUS RECEIPTS—COVERED INTO THE TREASURY

The revenues derived from operations of the Public Health Service during the fiscal year 1934 are as follows:

Source	Amount
GENERAL FUND RECEIPTS	
Quarantine charges	$220,809.33
Hospitalization charges and expenses	22,639.07
Sale of subsistence	10,334.31
Sale of occupational therapy products	431.02
Sale of obsolete, condemned, and unserviceable equipment	5,112.21
Rents	2,582.25
Reimbursement for Government property lost or damaged	62.57
Commissions on telephone pay stations installed in service buildings	1,070.14
Sale of refuse, garbage, and other byproducts	712.72
Sale of livestock and livestock products	352.16
Other revenues	125.78
Total, general fund receipts	264,231.56
TRUST FUND RECEIPTS	
Effects of deceased patients	1,418.09
Grand total	265,649.65

INDEX

D

E

F

G

H

I

O

P

Q

R

S

W

Y

Z

○